



# UNIVERSITÀ DEGLI STUDI DI PALERMO

**Department: Biological, Chemical and Pharmaceutical Sciences and Technologies**

**A.Y. 2016/2017**

## **DEGREE COURSE IN PHARMACY**

### **Characteristics**



Class of Master's Degree (MSc) on Pharmacy and industrial pharmacy (LM-13)



5 YEARS



PALERMO



PLANNED ACCESS



2018

### **Educational objectives**

In accordance with the EEC Directive 85/432, the 2nd cycle degree course in Pharmacy provides the theoretical and practical training needed to carry out the profession of Pharmacist, after the relevant professional qualification. The pharmacist should be prepared to perform the duties of a health professional with multi-disciplinary scientific competences (chemical, biological, pharmaceutical, pharmacological, toxicological and technological) within the framework of the national health service.

Graduates in Pharmacy are authorized to carry out the following professional activities: professional expert of drugs and health products (including medical devices, diagnostic products and health products, dietary products, herbal products and cosmetics); expert in quality control, storage, preservation and distribution of drugs in the wholesale and pharmacies open to the public and hospital pharmacies, information and advice in the field of drug and over-the-counter products, in direct relationship with the public.

Mandatory professional training, in a public pharmacy or in a hospital under the supervision of pharmaceutical services for not less than six months is awarded with 30 credits (equivalent to 750 hours).

Course outline.

The first four course years of the course provide core, class specific and integrative educational activities, as well as "other educational activities" among the activities suggested by the Degree Course and the ones offered by the University. The fifth course year is mostly devoted to practical professional training and to the preparation of the final dissertation. The structure of the course provides students with a gradual and constant progression of their competence level.

The specific learning outcomes of the degree course will be achieved through:

- Core activities (mathematics, physics, chemistry, biology and medicine) useful for a sound scientific background introductory to the understanding and advancement in class specific subjects;
  - Class specific activities (chemical, biological, pharmaceutical, pharmacological and technological competences), needed to acquire command of the chemical and structural features of active ingredients, pharmaceutical forms and raw materials used for the formulation of therapeutical preparations, as well as of the pharmacological bases of their action, including pharmacotherapeutic, toxicological aspects, etc.;
  - Educational activities aiming at the knowledge of laws and deontological norms useful for the various aspects of professional activity;
  - Class related and integrative activities with respect to biology and food chemistry, completing their professional education.
- Elective activities for 12 credits in total will be also provided, integrating the above mentioned activities.

The degree course aims at providing graduates with a good knowledge of English language.

All scientific sectors are covered by an adequate number of credits, both at theoretical and experimental level, divided in more course years, thus providing graduates with advanced knowledge and competences in the pharmaceutical sector.

### **Professional opportunities**

Pharmacist

Director of Pharmacy

Pharmacist assistant

Hospital pharmacist (after obtaining the specific title)

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Sales representative of the drug

Researcher and technician in the field of design, synthesis and manufacture of drugs, in industry or at the university.

Responsible for quality control in the Pharmaceutical Industry

Operator in the laboratories of chemical and biological analysis

Teaching in secondary schools

### Final examination features

The final test consists of the preparation of a written dissertation concerning the gathering and critical processing of bibliographic materials or other data related to the course cultural and professional content (compilatory dissertation), or an experimental activity about an original (mono- or multidisciplinary) topic, carried out in a research laboratory in which a member of the Faculty works, or in other public or private facilities, with which specific agreements have been established (experimental dissertation). The original dissertation, prepared by the student under the guidance of a supervising professor is publicly discussed in front of a Board of Professors, and final mark will be awarded out of 110.

Subjects 1 ° year	CFU	Sem.	Val.	SSD	TAF
07802 - ANIMAL AND PLANT BIOLOGY	12	1	V		
- ANIMAL BIOLOGY <i>Gentile(PA)</i>	6	1		BIO/13	C
- PLANT BIOLOGY <i>Rosselli(PA)</i>	6	1		BIO/15	B
15173 - GENERAL AND INORGANIC CHEMISTRY AND LABORATORY OF CHEMISTRY <i>Rubino(RU)</i>	12	1	V	CHIM/03	A
13167 - MATHEMATICS AND PHYSICS - INTEGRATED COURSE	16	1	V		
- MATHEMATICS <i>D'Oca(PA)</i>	8	1		FIS/07	A
- PHYSICS <i>D'Oca(PA)</i>	8	2		FIS/07	A
04677 - ENGLISH LANGUAGE	4	1	G		E
01799 - ANALYTICAL CHEMISTRY <i>Piazzese(PA)</i>	6	2	V	CHIM/01	A
01286 - HUMAN ANATOMY <i>Cappello(PO)</i>	6	2	V	BIO/16	A
01115 - COMPUTING SKILLS	3	2	G		F

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Subjects 2 ° year	CFU	Sem.	Val.	SSD	TAF
01542 - BIOCHEMISTRY <i>Tesoriere(PO)</i>	10	1	V	BIO/10	B
01933 - ORGANIC CHEMISTRY <i>Buscemi(PO)</i>	10	1	V	CHIM/06	A
09065 - PHARMACEUTICAL ANALYSIS OF DRUGS I <i>Montalbano(PA) [A-L], Montalbano(PA) [M-Z]</i>	10	1	V	CHIM/08	B
01549 - APPLIED (MEDICAL) BIOCHEMISTRY <i>Pintaudi(RU)</i>	10	2	V	BIO/10	B
16134 - GENERAL MICROBIOLOGY <i>Schillaci(PO)</i>	6	2	V	BIO/19	A
03795 - HYGIENE <i>Costantino(PA)</i>	6	2	V	MED/42	A
01703 - PHARMACEUTICAL BOTANY AND PHARMACOGNOSIS - INTEGRATED COURSE	16	2	V		
- PHARMACEUTICAL BOTANY <i>Spadaro(PA)</i>	8	2		BIO/15	B

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Subjects 2 ° year	CFU	Sem.	Val.	SSD	TAF
- PHARMACOGNOSIS Venturella(RU)	8	2		BIO/14	B

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Subjects 3 ° year	CFU	Sem.	Val.	SSD	TAF
01215 - PHARMACEUTICAL ANALYSIS OF DRUGS 2 Raffa(PA) [A-L], Raimondi(PA) [M-Z]	10	1	V	CHIM/08	B
01873 - PHARMACEUTICAL AND TOXICOLOGICAL CHEMISTRY 1 Daidone(PQ)	8	1	V	CHIM/08	B
13288 - PHARMACEUTICAL TECHNOLOGY, SOCIOECONOMICS AND REGULATIONS I Giammona(PO) [A-L], Palumbo(PO) [M-Z]	10	1	V	CHIM/09	B
15171 - GENERAL PHYSIOLOGY AND PATHOLOGY - INTEGRATED COURSE	14	2	V		
- GENERAL PHYSIOLOGY La Guardia(PQ)	8	2		BIO/09	A
- PATHOLOGY Vasto(PA)	6	2		MED/04	A
01216 - PHARMACEUTICAL ANALYSIS OF DRUGS 3 Martorana(PA) [A-L], Maggio(RU) [M-Z]	10	2	V	CHIM/08	B

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Subjects 4 ° year	CFU	Sem.	Val.	SSD	TAF
13289 - FOOD SCIENCE AND FOOD CHEMISTRY - INTEGRATED COURSE	14	1	V		
- FOOD CHEMISTRY Di Stefano(PA)	6	1		CHIM/10	C
- FOOD SCIENCE La Guardia(PQ)	8	1		BIO/09	A
01870 - MEDICINAL AND TOXICOLOGICAL CHEMISTRY 2 Diana(PO)	8	1	V	CHIM/08	B
03153 - PHARMACOLOGY AND PHARMACOTHERAPY Poma(PA)	10	1	V	BIO/14	B
01871 - PHARMACEUTICAL AND TOXICOLOGICAL CHEMISTRY 3 Parrino(PA)	6	2	V	CHIM/08	B
07333 - PHARMACEUTICAL TECHNOLOGY, SOCIOECONOMICS AND REGULATIONS 2/ CHEMISTRY OF COSMETIC PRODUCTS - INTEGRATED COURSE	18	2	V		
- CHEMISTRY OF COSMETIC PRODUCTS De Caro(PA)	8	2		CHIM/09	B
- PHARMACEUTICAL TECHNOLOGY, SOCIOECONOMICS AND REGULATIONS II Pitarresi(PO)	10	2		CHIM/09	B
07645 - TOXICOLOGY Venturella(RU)	8	2	V	BIO/14	B

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Subjects 5 ° year	CFU	Sem.	Val.	SSD	TAF
07553 - PROFESSIONAL PRACTICE	30	1	G		S
05917 - FINAL EXAMINATION	15	2	G		E
Free subjects (suggested)	12				D

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## OPTIONAL SUBJECTS

Free subjects (suggested)	CFU	Sem.	Val.	SSD	TAF
05174 - ADVANCED METHODOLOGIES IN PHARMACEUTICAL CHEMISTRY <i>Almerico(PO)</i>	6	2	V	CHIM/08	D
13266 - ADVANCED ORGANIC CHEMISTRY	6	1	V	CHIM/06	D
16467 - BIOCHEMISTRY OF ORGANS AND SPECIALISED TISSUES <i>Attanzio(PA)</i>	6	2	V	BIO/10	D
13350 - DRUG SURVEILLANCE AND PHARMACOECONOMICS <i>Craparo(PA)</i>	6	2	V	CHIM/09	D
07711 - DRUG VEHICULATION AND TARGETING <i>Palumbo(PO)</i>	6	2	V	CHIM/09	D

## PROPAEDEUTICAL TEACHINGS

- 01215 - PHARMACEUTICAL ANALYSIS OF DRUGS 2
  - 09065 - PHARMACEUTICAL ANALYSIS OF DRUGS I
  - 01799 - ANALYTICAL CHEMISTRY
- 01216 - PHARMACEUTICAL ANALYSIS OF DRUGS 3
  - 01215 - PHARMACEUTICAL ANALYSIS OF DRUGS 2
- 01542 - BIOCHEMISTRY
  - 15173 - GENERAL AND INORGANIC CHEMISTRY AND LABORATORY OF CHEMISTRY
  - 07802 - ANIMAL AND PLANT BIOLOGY
- 01549 - APPLIED (MEDICAL) BIOCHEMISTRY
  - 01542 - BIOCHEMISTRY
- 01703 - PHARMACEUTICAL BOTANY AND PHARMACOGNOSIS - INTEGRATED COURSE
  - 07802 - ANIMAL AND PLANT BIOLOGY
- 01799 - ANALYTICAL CHEMISTRY
  - 15173 - GENERAL AND INORGANIC CHEMISTRY AND LABORATORY OF CHEMISTRY
- 01870 - MEDICINAL AND TOXICOLOGICAL CHEMISTRY 2
  - 01873 - PHARMACEUTICAL AND TOXICOLOGICAL CHEMISTRY 1
- 01871 - PHARMACEUTICAL AND TOXICOLOGICAL CHEMISTRY 3
  - 01870 - MEDICINAL AND TOXICOLOGICAL CHEMISTRY 2
- 01873 - PHARMACEUTICAL AND TOXICOLOGICAL CHEMISTRY 1
  - 01933 - ORGANIC CHEMISTRY
- 01933 - ORGANIC CHEMISTRY
  - 15173 - GENERAL AND INORGANIC CHEMISTRY AND LABORATORY OF CHEMISTRY
- 03153 - PHARMACOLOGY AND PHARMACOTHERAPY
  - 15171 - GENERAL PHYSIOLOGY AND PATHOLOGY - INTEGRATED COURSE
- 03795 - HYGIENE
  - 07802 - ANIMAL AND PLANT BIOLOGY
- 07333 - PHARMACEUTICAL TECHNOLOGY, SOCIOECONOMICS AND REGULATIONS 2/CHEMISTRY OF COSMETIC PRODUCTS - INTEGRATED COURSE
  - 13288 - PHARMACEUTICAL TECHNOLOGY, SOCIOECONOMICS AND REGULATIONS I
- 07645 - TOXICOLOGY
  - 03153 - PHARMACOLOGY AND PHARMACOTHERAPY

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09065 - PHARMACEUTICAL ANALYSIS OF DRUGS I

15173 - GENERAL AND INORGANIC CHEMISTRY AND LABORATORY OF CHEMISTRY

13288 - PHARMACEUTICAL TECHNOLOGY, SOCIOECONOMICS AND REGULATIONS I

01933 - ORGANIC CHEMISTRY

13289 - FOOD SCIENCE AND FOOD CHEMISTRY - INTEGRATED COURSE

01933 - ORGANIC CHEMISTRY

16134 - GENERAL MICROBIOLOGY

07802 - ANIMAL AND PLANT BIOLOGY