

UNIVERSITÀ DEGLI STUDI DI PALERMO

Department: Biological, Chemical and Pharmaceutical Sciences and Technologies A.Y. 2016/2017 DEGREE COURSE IN PHARMACY

Class of Master's Degree 5 YEARS PALERMO PLANNED ACCESS 2018 (MSc) on Pharmacy (LM-13)

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

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:

a) Core activities (mathematics, physics, chemistry, biology and medicine) useful for a sound scientific background introductory to the understanding and advancement in class specific subjects;

b) 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.;

c) Educational activities aiming at the knowledge of laws and deontological norms useful for the various aspects of professional activity;

d) 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 and 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)

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 Gentile(PA) | 6 | 1 | | BIO/13 | С |
| - PLANT BIOLOGY Rosselli(PA) | 6 | 1 | | BIO/15 | В |
| 15173 - GENERAL AND INORGANIC CHEMISTRY AND LABORATORY OF CHEMISTRY <i>Rubino(RU)</i> | 12 | 1 | V | CHIM/03 | А |
| 13167 - MATHEMATICS AND PHYSICS - INTEGRATED COURSE | 16 | 1 | V | | |
| - MATHEMATICS D'Oca(PA) | 8 | 1 | | FIS/07 | Α |
| - PHYSICS D'Oca(PA) | 8 | 2 | | FIS/07 | Α |
| 04677 - ENGLISH LANGUAGE | 4 | 1 | G | | Е |
| 01799 - ANALYTICAL CHEMISTRY Piazzese(PA) | 6 | 2 | V | CHIM/01 | А |
| 01286 - HUMAN ANATOMY Cappello(PO) | 6 | 2 | V | BIO/16 | А |
| 01115 - COMPUTING SKILLS | 3 | 2 | G | | F |
| | 59 | | | | |
| Subjects 2 ° year | CFU | Sem. | Val. | SSD | TAF |
| 01542 - BIOCHEMISTRY Tesoriere(PO) | 10 | 1 | V | BIO/10 | В |
| 01933 - ORGANIC CHEMISTRY Buscemi(PO) | 10 | 1 | V | CHIM/06 | А |
| 09065 - PHARMACEUTICAL ANALYSIS OF DRUGS I Montalbano(PA) [A-L], Montalbano(PA) [M-Z] | 10 | 1 | V | CHIM/08 | В |
| 01549 - APPLIED (MEDICAL) BIOCHEMISTRY Pintaudi(RU) | 10 | 2 | V | BIO/10 | В |

6

2

V

BIO/19

Legenda: Per. = periodo o semestre, Val. = Valutazione (V=voto, G=giudizio), TAF= Tipologia Attività Formativa (A=base, B=caratterizzante, C=Affine, S=stages, D=a scelta, F=altre)

16134 - GENERAL MICROBIOLOGY

Schillaci(PO)

Α

| Subjects 2 ° year | CFU | Sem. | Val. | SSD | TAF |
|--|-----|------|------|---------------|-----|
| - PHARMACOGNOSIS | 8 | 2 | | BIO/14 | В |
| venureua(KU) | 68 | | | | |
| Subjects 3 ° vear | CFU | Sem. | Val. | SSD | TAF |
| 01215 - PHARMACEUTICAL ANALYSIS OF DRUGS 2 Raffa(PA) [A-L], Raimondi(PA) [M-Z] | 10 | 1 | V | CHIM/08 | В |
| 01873 - PHARMACEUTICAL AND TOXICOLOGICAL CHEMISTRY 1 Daidone(PQ) | 8 | 1 | V | CHIM/08 | В |
| 13288 - PHARMACEUTICAL TECHNOLOGY, SOCIOECONOMICS AND REGULATIONS I Giammona(PO) [A-L], Palumbo(PO) [M-Z] | 10 | 1 | V | CHIM/09 | В |
| 15171 - GENERAL PHYSIOLOGY AND PATHOLOGY - INTEGRATED COURSE | 14 | 2 | V | | |
| - GENERAL PHYSIOLOGY La Guardia(PQ) | 8 | 2 | | <i>BIO/09</i> | Α |
| - PATHOLOGY Vasto(PA) | 6 | 2 | | <i>MED/04</i> | Α |
| 01216 - PHARMACEUTICAL ANALYSIS OF DRUGS 3 Martorana(PA) [A-L], Maggio(RU) [M-Z] | 10 | 2 | V | CHIM/08 | В |
| | 52 | | | | |
| 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 | С |
| - FOOD SCIENCE La Guardia(PQ) | 8 | 1 | | <i>BIO/09</i> | Α |
| 01870 - MEDICINAL AND TOXICOLOGICAL CHEMISTRY 2 Diana(PO) | 8 | 1 | V | CHIM/08 | В |
| 03153 - PHARMACOLOGY AND PHARMACOTHERAPY Poma(PA) | 10 | 1 | V | BIO/14 | В |
| 01871 - PHARMACEUTICAL AND TOXICOLOGICAL CHEMISTRY 3 Parrino(PA) | 6 | 2 | V | CHIM/08 | В |
| 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 | В |
| - PHARMACEUTICAL TECHNOLOGY, SOCIOECONOMICS AND REGULATIONS II Pitarresi(PO) | 10 | 2 | | CHIM/09 | В |
| 07645 - TOXICOLOGY Venturella(RU) | 8 | 2 | V | BIO/14 | В |
| | 64 | | | | |
| Subjects 5 ° year | CFU | Sem. | Val. | SSD | TAF |
| 07553 - PROFESSIONAL PRACTICE | 30 | 1 | G | | S |
| 05917 - FINAL EXAMINATION | 15 | 2 | G | | Е |
| Free subjects (suggested) | 12 | | | | D |
| | 57 | | | | |

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 Attanzio(PA) | 6 | 2 | V | BIO/10 | D |
| 13350 - DRUG SURVEILLANCE AND PHARMACOECONOMICS Craparo(PA) | 6 | 2 | V | CHIM/09 | D |
| 07711 - DRUG VEHICULATION AND TARGETING Palumbo(PO) | 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

- 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