



# UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche
ACADEMIC YEAR	2023/2024
MASTER'S DEGREE (MSC)	PHARMACY
SUBJECT	PHARMACEUTICAL FORMS
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	74746-Discipline tecnologiche normative e economico-aziendali
CODE	19171
SCIENTIFIC SECTOR(S)	CHIM/09
HEAD PROFESSOR(S)	PITARRESI GIOVANNA    Professore Ordinario    Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	8
INDIVIDUAL STUDY (Hrs)	136
COURSE ACTIVITY (Hrs)	64
PROPAEDEUTICAL SUBJECTS	19179 - PHARMACEUTICAL TECHNOLOGY
MUTUALIZATION	
YEAR	4
TERM (SEMESTER)	1° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	<b>PITARRESI GIOVANNA</b> Thursday   11:00   13:00   Via Archirafi 32, Stanza 30, II Piano Scala B

**DOCENTE:** Prof.ssa GIOVANNA PITARRESI

<b>PREREQUISITES</b>	Basic knowledge concerning the anatomy and physiology of principal human systems. Basic knowledge on pharmacokinetics. Basic knowledge on pharmaceutical technology
<b>LEARNING OUTCOMES</b>	<p>Knowledge and ability to understand: Acquisition of advanced tools for the development of dosage forms both classic and advanced. Ability to use the specific language of this specialist discipline.</p> <p>Ability to apply knowledge and understanding: Ability to recognize and apply yourself, the methodologies needed for developing a dosage form.</p> <p>Autonomy of judgement: Ability to evaluate the implications and results of studies to clarify the influence of the type and composition of the dosage form on the activity of an active substance. Acquisition of autonomous judgment with reference to the technological properties of the constituents the dosage forms.</p> <p>Communicative skills: Ability to expose the results of studies to a non-expert audience. Ability to support the importance and highlight the fallout in pharmaceutical field of studies on the development of dosage forms. To be able to expose with clarity and directness the studied topics. Knowing how to present to a non-expert audience the peculiarities of a pharmaceutical dosage form.</p> <p>Learning skills: Ability to follow, using the knowledge acquired during the course, both masters and deepening courses as well as specialized seminars in the field of study and development of dosage forms. Capacity for synthesis and linking the different topics with basic and related disciplines. Ability to upgrade with the consultation of scientific publications in pharmaceutical technology</p>
<b>ASSESSMENT METHODS</b>	<p>Oral examination, aimed to assess the skills and disciplinary knowledge possessed by student; the evaluation is expressed in thirtieths. The questions will be specifically designed to test the learning outcomes and to verify: a) the knowledge of topics; b) the ability to process the knowledge, c) the mastery of scientific language and presentation skills.</p> <p>The assessment has a final grade included in the following range: 30-30 with honours (excellent), corresponding to "excellent knowledge of topics, excellent use of language, good analytical skills, the student can implement his/her knowledge to solve the posed problems"; 26-29 (very good), corresponding to "good mastery of topics, very good use of language, the student can implement his/her knowledge in order to solve the posed problems"; 24-25 (good), corresponding to "basic knowledge of the main topics, fair use of language, with moderate capability to independently implement knowledge to solve the posed problems"; 21-23 (satisfactory), corresponding to "the student doesn't possess full mastery of the main teaching topics but s/he possesses knowledge of them, satisfactory use of language, poor ability to independently implement the acquired knowledge"; 18-20 (passing grade), corresponding to "very poor basic knowledge of main teaching topics and scarce technical language, no or very poor ability to independently implement the acquired knowledge"; unsatisfactory when "the student doesn't possess an acceptable knowledge of the contents of the topics dealt during the course".</p>
<b>EDUCATIONAL OBJECTIVES</b>	To give information concerning composition and technological properties of principal pharmaceutical dosage forms.
<b>TEACHING METHODS</b>	Lectures
<b>SUGGESTED BIBLIOGRAPHY</b>	<p>P. Colombo et al. "Principi di Tecnologie Farmaceutiche" Ambrosiana - Bologna</p> <p>M. Amorosa, Principi di Tecnica Farmaceutica, Libreria Universitaria Tinarelli, Bologna.</p> <p>Michael E. Aulton, Kevin M.G. Taylor, Tecnologie Farmaceutiche- Progettazione ed allestimento dei medicinali, EDRA LSWR S.p.A</p> <p>A. T. Florence, D. Attwood, Physicochemical Principles of Pharmacy, Chapman and Hall, New York.</p> <p>A. Martin, Physical Pharmacy, Lea &amp; Febiger, Philadelphia.</p> <p>Farmacopea Ufficiale della Repubblica Italiana Edizione vigente.</p>

## SYLLABUS

Hrs	Frontal teaching
5	Granulation and granulates. Kind of granulates reported in Official Pharmacopea. Technological controls.
10	Tablets. Kind of tablets reported in Official Pharmacopea. Excipients for tablets. Methods of preparation. Coated tablets. Technological controls
5	Capsules. Kind of capsules reported in Official Pharmacopea. Hard and soft gelatin capsules. Characteristics of gelatin for the production of capsules. Gastroresistant capsules. Technological controls

## SYLLABUS

Hrs	Frontal teaching
6	Parenteral routes. Parenteral dosage forms. Properties. Injectable preparations, Infusions, Concentrated solutions for injectable preparations and infusions, Powders for injectable preparations and infusions. Parenteral implants. Pyrogen assay
5	Ophthalmic dosage forms. Physiology of eye (a brief outline). Properties and characteristics of eye drops, ocular washes, powders for eye drops and ocular washes, ophthalmic semisolid preparations, ocular inserts
5	Skin (a brief outline). Dermatological dosage forms. Transdermal therapeutic systems. Percutaneous absorption. Factors that influence percutaneous absorption. Absorption enhancers. Transdermal medicated plasters
3	Preparations for inhalation. Deposit mechanisms of inhaled particles. Aerodynamic diameter. Inhalers. Nebulizers. Insufflator for inhaled powders
3	Pressurized dosage forms. Propellants. Liquefied gases and compressed gases. Formulation of pressurized dosage forms. Containers and their filling.
5	Rectal dosage forms. Excipients. Methods to prepare suppositories. Vaginal dosage forms. Excipients. Technological controls.
12	Principal dosage forms for modified drug delivery
5	Glasses for pharmaceutical containers. Principal plastic and elastomer materials for pharmaceutical containers.