Testi del Syllabus

### Resp. Did.
**LUCAFÒ MARIANNA**  
Matricola: 015417

### Docente
**LUCAFÒ MARIANNA, 6 CFU**

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<thead>
<tr>
<th>Anno offerta:</th>
<th>2024/2025</th>
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<tbody>
<tr>
<td>Insegnamento:</td>
<td><strong>908SV - NEUROPHARMACOLOGY</strong></td>
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<td>Corso di studio:</td>
<td><strong>SM75 - NEUROSCIENCE</strong></td>
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### Testi in italiano

#### Lingua insegnamento
**INGLESE**

#### Contenuti (Dipl.Sup.)
- Introduction to pharmacology
- Drug development
- Pharmacokinetics
- Pharmacodynamics
- Pharmacogenomics and personalized medicine
- Autonomic pharmacology
- Opioid agonist & antagonist
- Anti-Epileptic Drugs
- Sedative-hypnotic drugs
- Drugs of neurodegenerative diseases
- Antipsychotic agents
- Antidepressant agents
- Psychoactive drugs
- Drugs of abuse
- Pharmacogenomics and drugs of the central nervous system

#### Testi di riferimento
- Rang, Ritter, Flower, Henderson "Rang & Dale's Pharmacology" Tenth edition

#### Obiettivi formativi
To provide robust basis of Neuropharmacology, discussing the principles at the basis of the pharmacokinetic, pharmacodynamics and pharmacogenomics properties of drugs, particularly of those acting at the peripheral and central nervous system.

1) Knowledge and understanding: at the end of the course, the students should have acquired the basic notions for the comprehension of the pharmacokinetic and pharmacodynamics properties of drugs and of their mechanism of action, with particular reference to drugs acting at the central nervous system.

2) Applying knowledge and understanding: at the end of the course, the students should be able to use the knowledges acquired (see point 1) for a proper use of drugs in experimental set-ups (in vivo as well as in vitro) as tools to validate hypothesis regarding the involvement of endogenous...
neurotransmitters in controlling physio-pathological conditions.

3) Making judgements: at the end of the course, the students should be able to apply their pharmacokinetic and pharmacodynamics knowledges for a critical consideration of experimental results aimed at investigating the involvement of signaling molecules in physiological and pathological processes.

4) Communication skills: at the end of the course, the students should be able to discuss clearly and with appropriate scientific terms pharmacological concepts.

5) Learning skills: at the end of the course, the students should have a well-build background that should enable them to continue to enlarge autonomously and critically their knowledges about the pharmacokinetic and pharmacodynamics properties of drugs.

**Prerequisiti**

No prerequisites

**Metodi didattici**

Computer-aided frontal lectures (slides with images and short texts reassuming the essential aspects of the lessons); moreover one or more seminar activities will be planned to explore specific topics in depth. Students participation will be stimulated by means group exercise.

Any changes to the indications described here, which may become necessary to ensure the application of safety protocols related to the COVID-19 emergency, will be communicated on the Department's and Degree Course websites and Lecture course Moodle page.

**Altre informazioni**

Students are provided by the slides used during the frontal lessons thought Moodle and MS-Teams. For further information, students are invited to contact Dr Marianna Lucafò by mail (mlucafo@units.it) using their institutional E-mail address.

Any necessary change in the course modalities due to COVID19 emergency will be published at the Department, Master Programme and Course websites.

**Modalità di verifica dell'apprendimento**

The learning assessment includes an oral exam designed to assess the level of knowledge of the topics covered in the program, the level of mastery and precision of the specialized language, and the ability to develop an argument by applying the knowledge acquired in teaching course and integrating it with the other disciplines already covered in the study course. The exam lasts between 20 and 40 minutes and covers all topics in the program. The result of the exam will be evaluated with a score of thirty points based on the following criteria:

- Excellent (30 - 30 cum laude): excellent knowledge of the topics, excellent language skills, excellent analytical skills; the student is able to brilliantly apply theoretical knowledge to concrete cases.
- Very good (27 -29): good knowledge of the topics, remarkable language skills, good analytical skills; the student is able to correctly apply theoretical knowledge to concrete cases.
- Good (24-26): good knowledge of the main topics, good language skills; the student shows adequate ability to apply theoretical knowledge to concrete cases.
- Satisfactory (21-23): The student does not fully master the main topics of teaching, but has the basic knowledge; however, he/she demonstrates satisfactory language skills and an adequate ability to apply theoretical knowledge to concrete cases.
- Sufficient (18-20): minimal knowledge of the main topics of teaching and technical language, limited ability to adequately apply theoretical knowledge to concrete cases.
- Insufficient (< 18): The student does not have acceptable knowledge of the content of the various topics of the teaching course.

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Programma esteso

General pharmacology: drug sources, chemical vs biological drug
Drug development: preclinical and clinical testing
PHARMACOGENOMICS: genetic variation in drug responsiveness and common laboratory methods in pharmacogenomics studies; non-genetic factors and inter-individual variation of drug response;
THE AUTONOMIC NERVOUS SYSTEM: anatomical and functional aspects.
- Cholinergic and Adrenergic transmission: receptor classification and pharmacological features.
THE ENDOGENOUS OPIOIDS' SYSTEM: endogenous opioids synthesis and degradation. Opioid receptors classification and pharmacological features.
ANALGESIC DRUGS: Opioid drugs and paracetamol
ANTI-EPILEPTIC DRUGS: etiopathogenesis of epilepsy. Antiepileptic drugs: classification and mechanisms of action
ANXIOLYTIC AND HYPNOTIC DRUGS: the nature of anxiety and its treatment. Anxiolytic drugs: classification and mechanisms of action; Drugs used to treat insomnia.
DRUG THERAPY OF NEURODEGENERATIVE DISEASES: pathogenesis of Alzheimer’s disease and therapeutic approaches, pathogenesis of Parkinson’s disease and drug treatment; therapeutic options for Huntington’s Disease, Amyotrophic Lateral Sclerosis, and Multiple Sclerosis.
ANTIDEPRESSANT DRUGS: etiopathogenesis of depression. The monoaminergic, neuroendocrine and neurotrophic theories. Antidepressant drugs classifications and mechanisms of action.
ANTIPSYCHOTIC DRUGS: etiopathogenesis of psychosis. The dopaminergic and neurodevelopmental theories. Typical and atypical antipsychotic drugs and mechanisms of action.
PSYCHOACTIVE DRUGS: psychomotor stimulants and cognition-enhancing drugs
DRUGS OF ABUSE
PHARMACOGENOMICS AND DRUGS OF THE CENTRAL NERVOUS SYSTEM: clinical pharmacogenetic implementation guidelines for drugs acting on the central nervous system.

Obiettivi Agenda 2030 per lo sviluppo sostenibile

This course addresses issues closely related to one or more of the United Nations 2030 Agenda for Sustainable Development goals.

Obiettivi per lo sviluppo sostenibile

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Testi in inglese

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