"Carol Davila" University of Medicine and Pharmacy Bucharest
Quality Assurance Committee

# DISCIPLINE SHEET

## 1. Study program

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| 1.1. | **THE "CAROL DAVILA" UNIVERSITY OF MEDICINE AND PHARMACY** |
| 1.2. | **FACULTY OF MEDICINE** |
| 1.3. | **DEPARTMENT I FUNCTIONAL SCIENCES** |
| 1.4. | **DISCIPLINE – Pharmacology, Clinical Pharmacology and Pharmacotherapy** |
| 1.5. | **STUDY DOMAIN: Health, sectoral regulated within the European Union** |
| 1.6. | **STUDY LEVEL: I License and II Bachelor's degree** |
| 1.7. | **STUDY PROGRAMME: DENTAL MEDICINE IN ENGLISH** |

## 2. Discipline

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| **2.1.** | **Discipline name according to the study curriculum: PHARMACOLOGY** | | | | |
| **2.2** | **Location of the discipline: Carol Davila University of Medicine and Pharmacy, 8 Eroii Sanitari Street** | | | | |
| **2.3.** | **Discipline code: MD03F06EN** | | | | |
| **2.4.** | **Discipline type (FD/SD/CD) : FD** | | | | |
| **2.5.** | **Discipline optionality (COD/ED/FAD): COD** | | | | |
| **2.6.** | **Lectures tenure: Prof. Univ. Dr. Oana Andreia Coman** | | | | |
| **2.7. Year of study** | **III** | **2.8. Semester** | **I** | **2.9. Evaluation (E/C/V)** | **E** |

## 3. Estimated total time (hours/ semester of teaching and training activity /individual study)

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| **I. University training** | | | | | | |
| **3.1. Number of hours per week** | **4** | **from which:** | **3.2. lecture** | **2** | **3.3. practical class/ seminar** | **2** |
| **3.4. Total hours in the study curriculum** | **56** | **from which:** | **3.5. lecture** | **28** | **3.6. practical class/ seminar** | **28** |
| **II. Preparation/ individual study** | | | | | | |
| **Time distribution** | | | | | | **94 hours** |
| **Study of lecture materials, textbooks, books, study of the minimum recommended bibliography** | | | | | | **40** |
| **Additional documentation activity in the library, on online platforms** | | | | | | **10** |
| **Specific preparation activities for projects, practical classes, preparation of assignments, reports** | | | | | | **10** |
| **Preparation for presentations or evaluations, preparation for the final examination** | | | | | | **28** |
| **Tutoring activity** | | | | | | **4** |
| **Other activities** | | | | | | **2** |
| **3.7. Total hours of individual study** | | | | | | **94** |
| **3.8. Total hours per semester (3.4.+3.7.)** | | | | | | **150** |

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| **3.9. Number of credits** | **5** |

## 4. Prerequisites (where appropriate)

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| **4.1. curriculum** | Knowledge of physiology, physiopathology and medical semiology. |
| **4.2. proficiencies** | Prior training in labor protection |

## 5. Conditions (where appropriate)

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| **5.1. for lecture activity** | Amphitheatre of minimum 90 places, Computer, Projector |
| **5.2. for practical class/ seminar activity** | Practical works rooms, Computer, Projector |

## 6. Learning outcomes

| Knowledge | Skills | Responsibility and autonomy |
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| - Knowing the action of drugs on the body as a whole and applying this knowledge in medical practice.<br>- Knowledge of the mechanisms of action at the molecular and cellular level of the main drug groups.<br>- Knowledge of the fundamental notions regarding pharmacokinetic parameters and the possibility of using them to establish the dosage and administration intervals.<br>- Knowing the basic notions of drug addiction.<br>- Knowing the impact of different classes of medicinal substances on the dental act.<br>- Knowledge of the main types of adverse reactions in the oral cavity.<br>- Knowing the necessary bases for the most appropriate use of drugs in the treatment and prevention of diseases in the oro-dental sphere.<br>- Knowledge of the medicines needed in the treatment of emergencies that may occur to the dental patient, as well as the ability to administer them when needed. | - Identification of the objectives to be achieved, the available resources, the conditions for their completion, work stages, working times, related completion deadlines and related risks<br>- Identification of roles and responsibilities in a multidisciplinary team and the application of communication techniques and effective work within the team and in relation to the patient<br>- Effective use of information sources and communication resources and assisted professional training (Internet portals, specialized software applications, databases, online courses, etc.). | - Evaluation of the benefits and risks of using drugs, alone or in different therapeutic regimens.<br>- The ability to individualize treatment according to the particularities of the patient.<br>- The ability to individualize treatment according to the possible interactions between medication frequently used in dentistry and a possible chronic medication of the patient.<br>- The student integrates pharmacological and pharmacotherapeutic knowledge, formulates and assumes evidence-based therapeutic decisions, applies rational prescribing principles in dentistry, and takes responsibility for safe, effective, and individualized patient care. |

**7. Discipline objectives (correlated with learning outcomes)**

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| **7.1. General objective** | The development, in the context of the discipline of pharmacology, of the knowledge, skills and behaviors necessary to develop a medical career in optimal conditions. |
| **7.2. Specific objectives** | **Course objectives:**<br>• Understanding and acquiring knowledge about the action of drugs on the whole body and applying this knowledge in medical practice.<br>• Acquiring the necessary information for the appropriate use of drugs in the treatment and prevention of oro-dental diseases.<br>• Evaluating the benefits and risks of drug use, either as monotherapy or in different therapeutic regimens.<br>• Gaining the knowledge required for individualizing treatment according to the patient's particularities.<br>• Understanding the molecular and cellular mechanisms of action of the main groups of drugs.<br>• Acquiring fundamental knowledge regarding pharmacokinetic parameters and their application in determining dosage, administration intervals, and treatment individualization for different categories of patients.<br>• Acquiring basic knowledge regarding drug abuse and dependence.<br>• Understanding the impact of different drug classes on dental practice.<br>• Recognizing possible interactions between drugs frequently used in dentistry and the patient's chronic medication.<br>• Identifying the main types of adverse drug reactions that may occur in the oral cavity.<br>• Knowing the essential drugs for managing medical emergencies that may arise in dental patients, as well as their appropriate routes of administration.<br><br>**The objectives of the practical sessions are:**<br>• Acquiring knowledge of pharmaceutical forms, drug administration routes, and the principles of medical prescription.<br>• Developing the ability to correctly prescribe a series of drugs used in general pathology or in conditions related specifically to dental practice.<br>• Discussing particular aspects regarding drug use in patients with various dental conditions.<br>• Rational use of electronic scientific databases in the field of pharmacology and therapeutics.<br>• Rational prescribing of drugs acting on different organ systems of the human body, with particular emphasis on clinical situations relevant to dentistry.<br>• Applying pharmacokinetic and pharmacodynamic principles |

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| | to real and simulated clinical cases to ensure individualized and safe therapy.<br>• Identifying, analyzing, and preventing adverse reactions and drug–drug interactions in practical prescribing exercises. |

**8. Contents**

| 8.1. Lecture | Teaching methods | Observations |
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| **Chapter 1** – The object and goals of pharmacology. The position of pharmacology in dental training. Introductory course: The object and goals of pharmacology | The courses are taught in amphitheaters: rooms technically equipped for this purpose - screen, writing boards, laptop, video projector and discussions.<br>All courses are video projected and have written support. They are brought up to date in terms of information, according to treaties, scientific papers, as well as new data appearing online in the field of pharmacology and pharmacotherapy. | 1 hour |
| **Chapter 2** – General pharmacology.<br>*General pharmacokinetics:* absorption, distribution and elimination of drugs; pharmacokinetic drug interactions. (1 hour)<br>*General pharmacodynamics:* the action of drugs at the molecular level and on different effector systems; types of pharmacological receptors; pharmacodynamic drug interactions. (1 hour)<br>*Pharmacotoxicology:* types of adverse reactions, adverse drug reactions in the oral cavity. (1 hour) | | 3 hours |
| **Chapter 3** – Medication of the nervous system<br>*Medication of the autonomic nervous system*: general notions about neurotransmitters and synaptic transmission; substances with action in the cholinergic and adrenergic field; particularities of their use in dentistry. (4 hours)<br>*Central nervous system medication*: general and local anesthetics, hypnotics, sedatives, tranquilizers, antiseizure drugs, antiparkinsonian drugs, skeletal muscle relaxants, antipsychotics. (4 hours) | | 8 hours |
| **Chapter 4** – Analgesics | | 2 hours |

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| *Analgesics:* opioids, nonsteroidal anti-inflammatory drugs | | |
| **Chapter 5** – Hormonal and metabolic drugs<br>*Glucocorticoid medication.* Regulators of bone mineral homeostasis (1,5 hours)<br>*Active tissue substances and antagonists*: histamine and antihistamine antagonists (0,5 hours) | | 2 hours |
| **Chapter 6** – Medication of different effector systems<br>*Circulatory system medication*: drugs used in heart failure, antiarrhythmic, antianginal, antihypertensive, antihypotensive drugs. Diuretics. (4 hours)<br>Drugs acting on the respiratory system: antitussives, expectorants, drugs used in asthma. (1 hour)<br>Drugs acting on the gastrointestinal tract: drugs used to treat peptic ulcer disease, antiemetics, laxatives, antidiarrheal agents, drugs for irritable bowel syndrome. (1 hour)<br>Blood medication: antianemic, procoagulant, antithrombotic drugs (anticoagulants, antiplatelet agents, thrombolytics). (2 hours) | | 8 hours |
| **Chapter 7** – Chemotherapeutic drugs<br>*Principles of antibiotic therapy* (one hour)<br>*Chemotherapeutic antibacterial drugs:* beta-lactams, macrolides, lincosamides, aminoglycosides, tetracycline and chloramphenicol, antibacterial sulfamides and trimethoprim, quinolones, metronidazole.<br>*Antiviral and antifungal chemotherapeutic drugs. Antiseptics and disinfectants* | | 4 hours |
| **TOTAL** | | **28 hours** |

**Recent bibliography:**

1. Dowd Frank J., Mariotti Angelo – Essentials of Pharmacology and Therapeutics for Dentistry, 1st edition, Elsevier, 2023.
2. Handbook for Dental Pharmacology- Lectures and Practical Works, Oana Andreia Coman and Ruxandra-Cristina Marin, ALL Publishing House, 2025

| **8.2. Practical classes/ seminar** | **Teaching methods** | **Observations** |
|---|---|---|
| **PC.1** - Pharmacology – general aspects. Drug nomenclature. Romanian Pharmacopoeia. Solid and semi-solid pharmaceutical forms | Practical works take place in work rooms technically equipped for this purpose - screen, blackboard, laptop, video projector. The practical works have written support and are brought up to date from the point of view of information, according to the treaties, scientific papers, as well as new data appearing online in the field of pharmacology and pharmacotherapy. They are interactive. Students are trained in self-documentation of drug use issues in current dental practice. | 2 hours |
| **PC.2 –** Liquid and gaseous pharmaceutical forms. Pharmacography – general prescription rules; prescription components | | 2 hours |
| **PC.3** - Prescription of solid and semi-solid pharmaceutical forms | | 2 hours |
| **PC.4 –** Prescription of liquid and gaseous pharmaceutical forms | | 2 hours |
| **PC.5 –** Prescription - central nervous system medication (sedative-hypnotic drugs, tranquilizers, antiseizure drugs, antipsychotic drugs) | | 3 hours |
| **PC.6 –** Prescriptions – local anesthetics, opioids, NSAIDs | | 3 hours |
| **PC.7-** Prescription - glucocorticoids, H1-antagonists. | | 2 hours |
| **PC.8 –** Prescription – Cardiovascular system medication – drugs used in heart failure, antiarrhythmic and antianginal drugs. | | 2 hours |
| **PC.9 –** Prescription Cardiovascular system medication - antihypertensive. Diuretics | | 2 hours |
| **PC.10 –** Prescription – Blood medication | | 2 hours |
| **PC.11 –** Prescription – Drugs acting on the respiratory system. | | 1 hours |
| **PC.12** – Prescription – Drugs acting on the gastrointestinal tract. | | 1 hours |
| **PC.13-** Prescription – | | 2 hours |

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| Chemotherapeutic antibacterial drugs | | |
| **PC.14 –** Prescription – Antiviral and antifungal chemotherapeutic drugs. Antiseptics and disinfectants | | 2 hours |
| **TOTAL** | | 28 hours |

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1. Handbook for Dental Pharmacology- Lectures and Practical Works, Oana Andreia Coman and Ruxandra-Cristina Marin, ALL Publishing House, 2025.
2. Dowd Frank J., Mariotti Angelo – Essentials of Pharmacology and Therapeutics for Dentistry, 1st edition, Elsevier, 2023.


**9. Assessment**

| Activity type | 9.1. Evaluation criteria | 9.2. Evaluation methods | 9.3. Percentage of final grade |
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| **9.4. Lecture** | Detailed knowledge of the theoretical and practical information taught during the semester, the ability to make connections regarding different drug information, recognizing and treating adverse drug reactions and medical emergencies appearing into dental medical practice. | Written exam - grid test | 70% |
| **9.5. Practical classes/ seminar** | Practical skills in prescribing medicines, treating adverse drug reactions and managing drug interactions and emergencies appearing into dental medical practice. | Practical exam | 30% |

**Minimum performance standard**

- The use of medicines in medical practice in non-dangerous conditions.
- The passing grade is Grade 5.
- The final grade is established based on the evaluation criteria taking into account the relationship: 70% for the written test and 30% for the oral test.
- The practical exam is an eliminatory test.