**T.C. MALTEPE UNIVERSITY FACULTY OF MEDICINE**

**UNDERGRADUATE PROGRAM
2023-2024 ACADEMIC YEAR**

**EDUCATIONAL INFORMATION PACKAGE**

| **COURSE INFORMATION** |
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| **Course Name** | **Clinical Pharmacology Clerkship** | **Course Code** | **MED 518** |
| **Phase**  | 5 | **Level of the Course** | Undergraduate | **Language of the Course** | English |
| **Mode of Delivery** | Face to face | **Lesson Type** | Compulsory |
| **Practice/Laboratuary Site** | Maltepe University Medical Faculty Hospital,  | **Suggested Courses** | None |
| **Prerequisite** | 1. MED 100 2. MED 2003. MED 3004. All courses in Phase 4 | Concurrent Requirements:None |

| **ECTS**  |
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| **ECTS Credits** | **Theoretical Lecture Hours** | **Practical Hours** | **Course Duration** |
| 4 | 7 | 53 | 2 weeks |

| **COURSE COORDINATORS AND INSTRUCTORS** |
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| **Course Coordinator, Correspondence Information and Office Hours:**Esra SAĞLAM, MD., Professor, Maltepe University, Faculty of Medicine, Department of Pharmacologyesraksaglam@gmail.com **Office Hours:**Monday:10.00-12.00

| Esra SAĞLAM, MD., Professor, Maltepe University, Faculty of Medicine, Department of Pharmacologyesraksaglam@gmail.com **Office Hours:**Monday:10.00-12.00Tuğba GÜMÜŞTAŞ, Assist. Prof. Maltepe University, Faculty of Medicine, Department of Pharmacologytugba.gumustas@maltepe.edu.tr**Office Hours:****Tuesday:** 10.00-12.00 |
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| **GENERAL OBJECTIVE AND CATEGORY OF THE COURSE** |
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| The general objective of this internship program is to provide the students with knowledge and experience in the following subjects: In order to decide for a rational pharmacotherapy, to develop a method for defining the best therapeutic approach by comparing available therapeutic alternatives in terms of “efficacy”, “safety”, “suitability” and “cost”. “Good and correct” prescribing,To inform the patients about their diseases and treatments / drugs,To establish a good patient-physician relationship and thus improve patients’ adaptation to treatment To expertise in dosage forms and drug application methods

| **COURSE CATEGORY** |
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| 1. Basic vocational course
 | **x** |
| 1. Specialization / Field Course
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| 1. Support lectures
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| 1. Transferable skill courses
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| 1. Humanities, Communication and Management skill courses
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| **COURSE LEARNING OUTCOMES, SUB-SKILLS and COMPETENCIES** |
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| **Students completing this course;**

| **Sıra No.** | **Öğrenme Çıktısı / Alt Beceri / Yeterlilikler** | **Eğitim Yöntemi** | **ÖD Yöntemi** |
| --- | --- | --- | --- |
| **1** | Can write accurate, legible prescriptions and e-prescriptions | EY2, EY4, EY8 | ÖD5, ÖD7 |
| **2** | Can accurately dissolve and mix drugs to be applied | EY4, EY6 | ÖD7 |
| **3** | Can accurately calculate the drug doses to be administered | EY4,EY6 | ÖD5, ÖD1 |
| **4** | Diagnosis can be defined in detail | EY2, EY6 | ÖD5, ÖD7 |
| **5** | Can identify treatment goals | EY2,EY6 | ÖD5, ÖD7 |
| **6** | Can make a list of active drug groups | EY2,EY6, EY10 | ÖD5, ÖD7, ÖD1 |
| **7** | Can select an effective drug group (P-group) according to established criteria | EY2,EY6 | ÖD5, ÖD7 |
| **8** | Can choose P-drug from P-group | EY2,EY6,EY9 | ÖD5, ÖD7 |
| **9** | Can define the concept of P-drug and recognize its advantages and disadvantages | EY2,EY6,EY9 | ÖD5, ÖD7 |
| **10** | Actively participate in the step-by-step experience of choosing P-drugs for a given indication, comparing them in terms of “efficacy, safety, suitability, and cost” | EY2,EY6,EY9 | ÖD5, ÖD7 |
| **11** | Able to correlate diagnosis with therapeutic goals; may link P-drugs to therapeutic goals | EY2,EY6,EY9 | ÖD5, ÖD7 |
| **12** | Can plan drug therapy, provide good communication with the patient and make the treatment understandable. | EY2,EY5,EY6, EY8 | ÖD5, ÖD7 |
| **13** | Can make a drug decision in a special population such as pregnancy and breastfeeding | EY2,EY6, EY10 | ÖD5, ÖD7,ÖD1 |
| **14** | Evaluate drug-drug interactions | EY2,EY5,EY6, EY10 | ÖD5, ÖD1 |

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| **GENERAL COMPETENCIES:** |
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| 1. Productive
2. Rational
3. Creative
4. Ethical
5. Respectful to differences
6. Sensitive to social issues
7. able to use own language effectively
8. Sensitive to environment
9. Able to use a foreign language effectively
10. Able to adapt to different social roles in various situations
11. Able to work as a team member
12. Able to use time effectively
13. Having a critical mind
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| **COURSE CONTENTS** |
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| 1. Clinical pharmacokinetics2. Therapeutic drug monitoring 3. Adverse drug reactions 4. Treatment principles in drug intoxications 5. Drug interaction mechanisms and clinical importance 6. Drug treatment in the elderly 7. Drug treatment in pediatric patients 8. Drug treatment in pregnancy and lactation periods 9. Drug treatment in renal disorders10. Drug treatment in hepatic disorders11. Principles of Rational Pharmacotherapy 12. Pharmaceutical forms and administration routes 13. Principles of Good Prescribing 14. P (personal)- drugs and introduction of MAUA forms15. Selection of P-drugs 16. Diagnosis of essential hypertension, therapeutic goals and non-pharmacological treatments 17. P-drug selection in essential hypertension18. Case studies in essential hypertension19. Diagnosis of acute infection, therapeutic goals and non-pharmacological treatments 20. P-drug selection in infections. 21. Case studies in acute infection  |

| **COURSE TEXTBOOKS AND SUPPLEMENTARY READINGS** |
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| **Reference Books:** 1. Goodman& Gilman’sThePharmacological Basis of Therapeutics 11th edition, McGraw-Hill, Yazarlar: LaurenceBrunton, John Lazo2. Basic andClinicalPharmacology (Lange Basic Science) 11th edition, McGraw-Hill, Yazarlar: BertramKatzung, AnthonyTrevor, Susan Masters3. Textbook of Psychopharmacology 5th edition, TheAmericanPsychiatric Publishing, Ed: Alan F. Schatzberg, Charles B. Nemeroff, 4. Rasyonel Tedavi yönünden Tıbbi Farmakoloji 2009, Pelikan yayıncılık, Ed: S. Oğuz Kayaalp**Supplemantary Readings**  |

| **COURSE ASSESSMENT AND EVALUATION SYSTEM** |
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| **Studies during the year** | **Percent grade** |
| --- | --- |
| **Clerkship Examination**  | **%20** |
| **Structured Oral Examination**  | **%0** |
| **ICE (Ideas, concerns and expectations)** | %20 |
| **OSCE (Structured Subjective Clinical Examination)** | %60 |
| **Attendance**  | %0 |
| **Laboratory** | %0 |
| **Clinical Practice** | %0 |
| **Field study** | %0 |
| **Lesson Specific Internship** (if there is)  | %0 |
| **Homework** | %0 |
| **Presentation** | %0 |
| **Project** | %0 |
| **Seminar** | %0 |
| **Problem Based Learning** | %0 |
| **Others** | %0 |
| **TOTAL** | **100** |

**NOTES:**1. Students whose attendance rate is below 80% cannot take the exam.2. Students who get less than 60% in total are considered unsuccessful.Assessment and Evaluation System is organized according to T.C. Maltepe University Faculty of Medicine Education and Training Regulations. |

| **ECTS STUDENT WORKLOAD TABLE** |
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| **Activities** | **Number** | **Duration****(hours)** | **Total work load** |
| --- | --- | --- | --- |
| **Lectures** | **7** | **1** | **7** |
| **Laboratory** | **1** | **4** | **4** |
| **Practice** | **3** | **4** | **12** |
| **Lesson specific internship** (if there is)  | **-** | **-** | **-** |
| **Field study** | **8** | **3,5** | **28** |
| **Lesson study time out of class** (pre work, strengthen, etc) | **5** | **3** | **15** |
| **Presentation / Preparing seminar** | **2** | **10** | **20** |
| **Project** | **-** | **-** | **-** |
| **Homework** | **1** | **4** | **4** |
| **Interval examinations** | **1** | **1** | **1** |
| **Clerkship Examination**  | **1** | **4** | **4** |
| **Total work load**  | **95** |

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| **RELATIONSHIP BETWEEN CLINICAL PHARMACOLOGY CLERKSHIP LEARNING OUTCOMES AND MEDICAL EDUCATION PROGRAMME KEY LEARNING OUTCOMES** |
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| **No** | **Program Competencies/ Outcomes** | **Level of Contribution[[1]](#footnote-0)\*** |
| --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** |
| **1** | Able to explain the normal structure and functions of the organism. |  |  |  |  | **X** |
| **2** | Able to explain the pathogenesis, clinical and diagnostic features of diseases |  |  |  |  | **X** |
| **3** | Able to take patient’s medical history and perform perform general and system-based physical examinations |  |  |  | **X** |  |
| **4** | Able to perform first step interventions and refer and transfer cases in life threatening emergency situations. |  |  |  |  | **X** |
| **5** | Able to apply basic medical interventions necessary for the diagnosis and treatment of diseases. |  |  |  | **X** |  |
| **6** | Able to perform preventive measures and forensic practices. |  |  |  |  | **X** |
| **7** | Having sufficient knowledge about the structure and process of the National Health System. |  |  | **X** |  |  |
| **8** | Able to define legal responsibilities and ethical principles.  |  |  |  | **X** |  |
| **9** | Able to perform first step care of most prevalent disorders in the community with effective evidence based medical methods. |  |  |  |  | **X** |
| **10** | Able to organize and conduct scientific meetings and projects  |  |  |  | **X** |  |
| **11** | Able to use a major foreign language sufficient enough for follow up of literature and update of medical knowledge; able to use computer and statistical skills for the evaluation of scientific studies.  |  |  |  |  | **X** |

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| **PHASE 5 MED 518 CLINICAL PHARMACOLOGY CLERKSHIP COURSE LIST AND RANKING** |
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| Introduction to the Clerkship: Getting acquainted, learning principles and the functioning of the internship | *Prof. Dr. Esra Sağlam* | *Prof. Dr. Esra Sağlam* |
| --- | --- | --- |
| Rational pharmacotherapy principles | *Prof. Dr. Esra Sağlam* | *Prof. Dr. Esra Sağlam* |
| P(personal)-drugs / Introduction of “MAUA” forms | *Prof. Dr. Esra Sağlam* | *Prof. Dr. Esra Sağlam* |
| Prescribing rules, E-prescribing | *Prof. Dr. Esra Sağlam* | *Doç. Dr. Zeynep Güneş Özünal* |
| Distribution of the topics that will be prepared for the treatment of essential hypertension | *Dr. Öğr. Üyesi Tuğba Gümüştaş* |  |
| Group studies and student presentations for essential hypertension | *Prof. Dr. Esra Sağlam**Dr. Öğr. Üyesi Tuğba Gümüştaş* |  |
| Treatment principles and nonpharmacological therapy group studies and student presentations for essential hypertension | *Prof. Dr. Esra Sağlam**Dr. Öğr. Üyesi Tuğba Gümüştaş* |  |
| Essential hypertension treatment group studies and student presentations for special groups | *Prof. Dr. Esra Sağlam**Dr. Öğr. Üyesi Tuğba Gümüştaş* |  |
| P-drug selection for essential hypertension | *Dr. Öğr. Üyesi Tuğba Gümüştaş* |  |
| Preparation of drug formulary for essential hypertension | *Dr. Öğr. Üyesi Tuğba Gümüştaş* |  |
| Essential hypertension case study analysis | *Prof. Dr. Esra Sağlam**Dr. Öğr. Üyesi Tuğba Gümüştaş* |  |
| Drug administration routes | *Dr. Öğr. Üyesi Tuğba Gümüştaş* |  |
| Rational drug use during pregnancy and lactation | *Dr. Öğr. Üyesi Tuğba Gümüştaş* |  |
| Drug safety, pharmacovigilance system and adverse effect reporting | *Dr. Öğr. Üyesi Tuğba Gümüştaş* |  |
| Drug-drug interactions and their clinical significance | *Prof. Dr. Esra Sağlam* |  |

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| **PHASE 5 MED 518 CLINICAL PHARMACOLOGY CLERKSHIP SCHEDULE** |
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| 1. Week |
| Days | Monday  | Tuesday | Wednesday | Thursday | Friday |
| 9:00-9:50 | Introduction of the clerkship: Getting acquainted, learning principles and the functioning of the internship | Group studies and student presentations for essential hypertension | Treatment principles and nonpharmacological therapy group studies and student presentations for essential hypertension | P-drug selection for essential hypertension | P-drug selection for essential hypertension |
| 10:00-10:50 | Rational pharmacotherapy principles | Group studies and student presentations for essential hypertension | Treatment principles and nonpharmacological therapy group studies and student presentations for essential hypertension | P-drug selection for essential hypertension | P-drug selection for essential hypertension |
| 11:00-11:50 | P(personal)-drugs / Introduction of “MAUA” forms | Group studies and student presentations for essential hypertension | Treatment principles and nonpharmacological therapy group studies and student presentations for essential hypertension | P-drug selection for essential hypertension | P-drug selection for essential hypertension |
| 12:00-12:50 | Prescribing rules, E-prescribing | Group studies and student presentations for essential hypertension | Treatment principles and nonpharmacological therapy group studies and student presentations for essential hypertension | P-drug selection for essential hypertension |  |
| 14:00-14:50 | Assignments and evidence-based resources | Group studies and student presentations for essential hypertension | Essential hypertension treatment group studies and student presentations for special groups | P-drug selection for essential hypertension |  |
| 15:00-15:50 | Study hours | Group studies and student presentations for essential hypertension | P-drug selection for essential hypertension | P-drug selection for essential hypertension |  |
| 2.Week |
| 9:00-9:50 | Feedbacks for previous weekEssential hypertension case study analysis | Essential hypertension case studies | Essential hypertension case studies | Study hours | OSCE |
| 10:00-10:50 | Essential hypertension case studies | Essential hypertension case studies | Essential hypertension case studies | Study hours | OSCE |
| 11:00-11:50 | Essential hypertension case studies | Essential hypertension case studies | Essential hypertension case studies | Theoretical exam  | OSCE |
| 12:00-12:50 | Essential hypertension case studies  | Essential hypertension case study analysis | Essential hypertension case study analysis | Study hours |  |
| 14:00-14:50 | Drug administration routes – group A | Drug administration routes – group B | Rational drug use during pregnancy and lactation | Study hours |  |
| 15:00-15:50 | Drug administration routes | Drug administration routes | Drug safety, pharmacovigilance system and adverse effect reporting | Study hours |  |
| 16:00-16:50 | Drug administration routes | Drug administration routes | Drug-drug interactions and their clinical significance | Study hours |  |

NOTE: Prepare this table for each week of your course.

| **EDUCATIONAL METHODS GUIDE** |
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| **CODE** | **METHOD NAME** | **EXPLANATION** |
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| **EM1** | Amphitheatre lesson | These are the courses applied in preclinical education where the whole class is together. |
| **EM2** | Class lesson | These are courses applied in small groups during the clinical period. |
| **EM3** | Lab application | These are laboratory courses applied in the preclinical period. |
| **EM4** | Skill Training App | It is the work that the student does on a model or mannequin before meeting with the real patient, which will be done in the Virtual Clinic or other environment. |
| **EM5** | Clinic Education | These are activities that provide clinical competence by applying bedside training with real patients or models under the supervision of trainers. |
| **EM6** | Independent Study Hours | These are the periods in the curriculum for the student to repeat what they have learned and to prepare for new lesson sessions. |
| **EM7** | Community Based Education Application | Field practices, non-unit professional practices, etc. includes. |
| **EM8** | Problem Based Learning | Problem based learning. |
| **EM9** | Private Study module | These are applications that will enable the student to gain in-depth knowledge about a subject individually or as a group. |
| **EM10** | Scientific Research study | These are applications aimed at improving the scientific research competence of the student. |
| **EM11** | Other | If this code is used, the training method should be written in detail. |

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| **MEASUREMENT EVALUATION METHODS GUIDE** |
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| **CODE** | **METHOD NAME** | **EXPLANATION** |
| --- | --- | --- |
|  **ME1** | Theoretical Exam ( Multiple Elective , Multiple Optional etc Questions containing ) | The committee is the exam used in the final exams. |
|  **ME2** | Practical exam | It should be used for laboratory applications. |
| **ME3** | Classical Verbal |  |
| **ME4** | Structured Oral | It is an oral exam in which questions and answers are prepared on a form beforehand. |
| **ME5** | OSCE | Objective Structured Clinical Examination |
| **ME6** | CORE | Clinical Act Execution Exam |
| **ME7** | ICE ( Business head Evaluation ) | It is the evaluation made by the trainer on the student at the bedside or during the practice. |
| **ME8** | Other | A statement must be made. |

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1. \*1 lowest, 2 low, 3 fair, 4 high, 5 highest. [↑](#footnote-ref-0)