





## ENGLISH FRIENDLY COURSES (EFC) 2022-2023 – CAMPUS OF BIZKAIA

<https://www.ehu.es/es/web/medikuntza-erizaintza-fakultatea>

**Coordinator:** [medicina.internacional@ehu.es](mailto:medicina.internacional@ehu.es)

In addition to the general offer of courses taught in English, some Centers offer for incoming students English Friendly Courses (EFC): subjects taught in Spanish or Basque, in which the syllabus summary; lecturer tutoring, examinations and/or papers are available in English.

### English Friendly Courses taught in SPANISH:

FACULTY OF MEDICINE AND NURSING (327)				
COURSE	SEMESTER	CREDITS	SCHEDULE <sup>1</sup>	LINK TO SYLLABUS
<b>Bachelor's degree in Dentistry</b>				
27219 Microbiología e Inmunología	Sep. 2022 - Jan. 2023	8	M	
27222 Farmacología General y Clínica	Sep. 2022 - Jan. 2023	6	M	
27246 Implantología	Jan. 2023- May 2023	6	A	
<b>Bachelor's degree in Medicine</b>				
27276 Microbiología clínica e infección	Sep. 2022 - Jan. 2023	9	M	
27277 Fundamentos de Farmacología Médica	Sep. 2022 - Jan. 2023	6	M	
27263 Farmacología Médica Aplicada	Jan. 2023- May 2023	6	M	
<b>Bachelor's degree in Physiotherapy</b>				
27894 Farmacología en Fisioterapia	Jan. 2023- May 2023	6	A	

<sup>1</sup> SCHEDULE: Morning (M)/ Afternoon (A): begins at 13.30.

## COURSE GUIDE

2022/23

**Faculty** 327 - Faculty of Medicine and Nursing

**Cycle** Not Applicable

**Degree** GODONT30 - Bachelor`s Degree in Dentistry

**Year** Not Applicable

## COURSE

27246 - Implantology

**Credits, ECTS:** 6

## COURSE DESCRIPTION

Implantology (UNESCO code 329900) is a subject belonging to the m06 optional module taught during the second quarter of year 5 in the Dentistry Master Degree.

This subject is worth 6 ECTS and is divided into: teaching, in and outside class modalities as summarised in the table. This subject aims for the student to become competent in: establishing a diagnosis, prognosis and execution of a correct therapeutic plan in cases of partially or totally edentulous via dental implants. To establish diagnosis and treatment plan, a student must be capable of taking and interpreting X-rays and other imaging procedures relevant to dentistry. The student must also be skilled in determining and identifying the patient's aesthetic requirements likewise the possibilities of satisfying his/her curiosity.

The specific subject skills are detailed in the 'contents description' section of M06 optional module.

## COMPETENCIES/LEARNING RESULTS FOR THE SUBJECT

Specific Implantology skills

### Skills

IP1 Acquire and develop basic implantology and osseointegration knowledge for their application in the diagnosis and treatment of edentulous cases where these techniques can be applied.

IP2 Use said knowledge to coherently resolve clinical cases.

IP3

Draft the clinical history and examine tissues.

IP4

Perform or request complementary tests (X-ray, Scan, and Laboratory.)

IP5 Issue a case diagnosis.

IP6 Establish a treatment plan.

IP7 Analyse, discuss, summarise and express scientific information corresponding to implantology.

IP8 Team work in co-operative implantology tasks, i.e. Help with assistance tasks, discuss diagnoses and co-operate with treatments.

IP9 Show a favourable attitude towards self-learning in implantology, being active and participative in resolving problems and continuous updating.

## CONTENIDOS TEÓRICO-PRÁCTICOS

Subject syllabus

The syllabus is divided into 6 blocks:

1. Osseointegration, implant design and its implications.
2. Diagnosis and therapeutic planning.
3. Totally edentulous.
4. Partially edentulous.
5. Increased bone availability.
6. Implant complications, results and maintenance.

Each block is subdivided into the following topics:

- a) Osseointegration, implant design and its implications.
  - Topic 1: Bone healing and osseointegration.
  - Topic 2: Implant designs and surfaces.
- b) Diagnosis and therapeutic planning.
  - Topic 3: Clinical history, examination and diagnosis via imaging.
  - Topic 4: Treatment plan.
- c) Totally edentulous.
  - Topic 5: Surgical aspects.
  - Topic 6: Restorative aspects and options.
- d) Partially edentulous.
  - Topic 7: Surgical aspects.
  - Topic 8: Prosthetic aspects.
- e) Increased bone availability.
  - Topic 9: Guided bone regeneration.

- Topic 10: Monocortical bone grafts.
- Topic 11: Elevation of maxillary sinus floor and alveolar distraction.
- f) Implant complications, results and maintenance.
- Topic 12: Failures and complications.
- Topic 13: Peri-implant infections.
- Topic 14: Implant survival and success rate.
- Topic 15: Maintenance in implant therapy.

## TEACHING METHODS

### TOPIC AREA CHOSEN FOR: MASTERCLASSES, SEMINARS & CLINICAL PRACTICE

The IMPLANTOLOGY syllabus can be subdivided into 2 large blocks:

I/ Partially edentulous refers to treatment via prosthetic implant in patients lacking only one or a few teeth.

II/ Totally edentulous refers to treatment via prosthetic implant in edentulous patients.

Teaching will be different in each case.

I/ Partially edentulous. In the second quarter of year 5 in the Dentistry Degree, when the optional subject Implantology is first taught, there are only 4 months left to complete degree studies; and students have already acquired vast theoretical knowledge on surgery and prostheses, so they will be skilled in performing rehabilitations via removable partial/complete and permanent prostheses. They know the basic principles of occlusion and have studied the associated pathology. Furthermore, they have developed clinical and surgical skills during the last 3 years performing multidiscipline treatments at the University of the Basque Country UPV/EHU Dental Clinic. All the foregoing, enables students under strict supervision and after training through the implantology subject to rehabilitate straightforward cases of patients missing single teeth or partially edentulous via implants at the Dental Clinical. 84 out of the 150 hours of the subject would be used for this, i.e. 56% of the entire subject and 40% of the topics tackled. The topics tackled are:

### TOPIC AREA CHOSEN FOR PBL APPLICATION.

#### JUSTIFICATION

II/ Totally edentulous. There are situations where rehabilitation with prosthetic implant is highly complex requiring specific training in advanced diagnostic, surgical and prosthodontic techniques. For this reason the study of these complex scenarios is best via an active methodology like PBL.

To correctly tackle these complex situations, students must: <sup>1</sup> have exhaustive critical knowledge of different implant surfaces and designs; <sup>2</sup> understand the importance of planning; <sup>3</sup> be able to handle new imaging analysis and prosthetic design technologies; and <sup>4</sup> know bone availability increase techniques. Therefore, they will attend 7 hours of masterclasses, 3 hours of seminars and 18 hours of class practice. Thus 44% of the total hours for the subject will be imparted via PBL methodology, tackling 60% of the syllabus:

a) Osseointegration, implant design and its implications.

Topic 1: Bone healing and osseointegration.

Topic 2: Implant designs and surfaces.

b) Diagnosis and therapeutic planning (for totally edentulous).

Topic 3: Clinical history, imaging diagnosis and examination.

Topic 4: Treatment plan.

c) Totally edentulous.

Topic 5: Surgical aspects.

Topic 6: Restorative aspects and options.

e) Bone availability increase (for totally edentulous).

Topic 9: Guided bone regeneration.

Topic 10: Monocortical bone grafts.

Topic 11: Elevation of maxillary sinus floor and alveolar distraction.

f) Implant complications, results and maintenance (for totally edentulous).

Topic 12: Failures and complications.

Topic 13: Peri-implant infections.

Topic 14: Implant survival and success rate.

Topic 15: Implant therapy maintenance.

## TYPES OF TEACHING

Types of teaching	M	S	GA	GL	GO	GCL	TA	TI	GCA
Hours of face-to-face teaching	17	6	18			30			
Horas de Actividad No Presencial del Alumno/a	35	17	12			15			

**Legend:** M: Lecture-based S: Seminar GA: Applied classroom-based groups  
GL: Applied laboratory-based groups GO: Applied computer-based groups GCL: Applied clinical-based groups  
TA: Workshop TI: Industrial workshop GCA: Applied fieldwork groups

## Evaluation methods

- End-of-course evaluation

## Evaluation tools and percentages of final mark

- Written test, open questions 50%
- Exercises, cases or problem sets 50%

## ORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

"Siguiendo la normativa de la UPV/EHU, ya que la prueba final de esta asignatura es superior al 50% de la calificación total de la asignatura Cirugía Bucal I, no presentarse a dicha prueba supondrá la renuncia a la convocatoria de evaluación".

Se concederá una matrícula de honor por cada 20 alumnos o fracción según normativa de la UPV/EHU, pudiéndose en su caso convocar un examen a tal fin.

EVALUACIÓN DEL TEMARIO IMPARTIDO CON aprendizaje basado en problemas (APB). (50%)

- Pruebas individuales (10%): 5 preguntas individuales (preguntas cortas y una resolución de problema o escenario) que serán autocorregidas y evaluadas entre compañeros.
- Prueba final Individual de conocimientos mínimos (15%): cuestionario de preguntas cortas, preguntas de relación, en un dibujo, una definición o una única palabra, según el caso.
- Presentaciones orales (10%). Evaluación de presentaciones individuales o en grupo.
- Portafolio (15%). Evaluación de los resultados de trabajo en grupo.

EVALUACIÓN DEL RESTO DEL RESTO DEL TEMARIO (50%)

- Prueba final Individual de conocimientos mínimos (20%).
- Presentaciones orales (10%).
- Actitud y participación en la práctica clínica (10%).
- Cuaderno de prácticas clínicas (10%).

- En situaciones excepcionales, como la pandemia por Covid-19, en que no pueda haber una prueba escrita conjunta, o algún alumno no asista a la misma, se realizará un examen oral junto con la evaluación continua que haya podido realizarse.

## EXTRAORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

Mismos criterios que en la convocatoria ordinaria.

## MANDATORY MATERIALS

## BIBLIOGRAFÍA

### Basic bibliography

- Lindhe J. Clinical Periodontology and Implant Dentistry. 5th edition, ed. Blackwell Munksgaard, 2008
- Norton M.: Implantes Dentales: Sistema Astra Tech. Ed Marban Madrid 1998.
- Sociedad Española de Periodoncia y Osteointegración. Manual SEPA de Periodoncia y Terapéutica de implantes: Fundamentos y guía práctica. Ed Médica Panamericana, Madrid, 2005.
- Bert L. Complicaciones y fracasos en implantes osteointegrados. Editorial Salvat. Barcelona. 1994.
- Internacional Team of Implantology. The SAC clasification in implant dentistry. Ed ITI. Basilea. 2009
- Sociedad Española de Periodoncia. Manual SEPA de Terapéutica de Implantes en Manual SEPA de Periodoncia y Terapéutica de Implantes. TOMO II. Ed Interamericana. Barcelona. 2005
- Lindhe J. Implantología Aplicada en Periodoncia Clínica e Implantología Aplicada. Ed Panamericana 2009
- Santamaría J , Barbier L. Cirugía Bucal. Guía Práctica. Servicio de Publicaciones de la Universidad del País Vasco/Euskal Herriko Unibertsitatea. Leioa. 2003.
- Peñarrocha M. Implantología Oral. Ed Ars Medica. 2005

**Detailed bibliography**

**Journals**

**Web sites of interest**

**OBSERVATIONS**

## APPLIED MEDICAL PHARMACOLOGY 2022-23

### 1. Details

---

<b>Subject</b>	Applied Medical Pharmacology				
<b>Department</b>	Pharmacology				
<b>Grade</b>	Grade in Medicine				
<b>Faculty</b>	Faculty of Medicine and Nursing				
<b>Teaching Unit</b>	Alava University Hospital -Txagorritxu				
<b>Course</b>	5 <sup>th</sup> course, 2 <sup>nd</sup> quadrimester				
<b>Module</b>	4. Diagnostic and Therapeutical procedures				
<b>ECTS credits</b>	6				
<b>Teaching type</b>		<b>Classes</b>	<b>Seminar</b>	<b>Class Practice</b>	<b>Computer practice</b>
	<b>Face-to-face (h)</b>	27	13	8	4
	<b>Non face-to face (h)</b>	50	43	4	2
<b>Type</b>	Compulsory				
<b>Language</b>	Spanish				
<b>Teacher</b>	<b>Name</b>	Cristina Miguélez			
	<b>e-mail</b>	cristina.miguel@ehu.eus			
	<b>Telephone</b>	946015637			
	<b>Office</b>	OP12. Faculty of Medicine and Nursing or Teaching unit			
	<b>Tutorial</b>	Thursdays form 13,00 to 14,00			

### 2. Description

---

The main objective of the subject is that the students should acquire the scientific basis to promote individual and collective health through the treatment of the most common illness in our setting. It is necessary to have passed "Basis of Medical Pharmacology" to take the subject.

### 3. Learning outcomes

---

The specific learning outcomes of the subject are:

- RA1. Evaluate when the patient needs drug treatment and select the most suitable from those available, weighing up the therapeutic value against the toxicity risk.
- RA2. Be able to find the right information to solve a drug therapy problem, as well as critically analyze the bibliography of the sector and apply bioethical principles to drug research.
- RA3. Use and prescribe drugs correctly in the most common illnesses.
- RA4. Learn about Pharmacovigilance and how to fill in a notification of adverse reaction and collaborate

with or receive information from the National Pharmacovigilance System.

RA5. Teamwork

## 4. Content

---

### Theoretical Content: Lectures

#### General Applied Pharmacology

*T0. Introduction*

*T1. Principles of Clinical Pharmacology.*

*T2. Reasoned pharmacotherapy, prescription and regulation.*

*T3. Applied pharmacokinetics and pharmacodynamics.*

*T4-5. Studies on the use of medication*

*T6. Safety of medication.*

#### Special groups

*T7. Principles of the use of drugs during pregnancy and the pediatric age.*

*T8. Principles of the use of drugs in older people.*

*T9. Principles of the use of drugs in liver and kidney failure.*

#### Reasoned prescription in illnesses

*T10. Basic principles for the prescription of antibiotics.*

*T11. Selection and use of antibiotics in highly prevalent infections.*

*T12. Selection and use of drugs in respiratory illnesses.*

*T13. Selection and use of drugs in digestive illnesses.*

*T14. Selection and use of hormonal contraceptive therapy.*

*T15. Selection and use of drugs in the treatment of pain.*

*T16. Selection and use of drugs in inflammatory illnesses and headaches.*

*T17-18. Selection and use of drugs in metabolic illnesses and cardiovascular risk: Osteoporosis, Diabetes, Dyslipidemias*

*T19-21. Selection and use of drugs in cardiovascular illnesses. High blood pressure, ischemic cardiopathy and thromboembolism, heart failure.*

*T22-23. Selection and use of drugs in psychiatric illnesses I: Anxiety, Insomnia, Depression and Psychosis.*

T24-25. *Selection and use of drugs in neurological illnesses I: Parkinson's, Alzheimer's, Epilepsy and Headaches.*

**Practical content:**

Practical work in the classroom

- PA1. The prescription and reasoned prescription
- PA2. Medication reconciliation
- PA3. Research ethics
- PA4. Critical reading

Practical computer work

- PO1. Sources of drug information
- PO2. Sources of drug information: Exercises

Seminars

- S1. Adverse reactions and Pharmacovigilance.
- S2. Pharmacoepidemiology and Pharmacoeconomics
- S3. Criticism of drug advertising
- S4-6. Clinical Case Resolution
- S7. Biological Drugs

## Assessment

---

The assessment of the subject will be continuous, as described below:

1. Final exam (60% of the final grade). It will consist of 25-30 multiple-choice questions and 3-4 questions to be answered in writing. To pass this part, the student must score at least 4 (out of 10) in each part.
2. Attendance (4% of the final grade).
3. Individual and group practical activities (36% of the final grade). To pass the subject, this part must be passed too.

If a student wishes, he/she may be assessed through the final assessment system (final exam). This must be requested within 9 weeks of starting the term. The theoretical content will be assessed (60% of the grade, written exam) and practical content (40% of the grade, oral exam). Both parts must be passed separately.

Non-attendance at the final exam will mean automatic withdrawal from the call.

The extraordinary call will consist of a single final exam similar to that of the ordinary call.



## COURSE GUIDE

2022/23

**Faculty** 327 - Faculty of Medicine and Nursing

**Cycle** Not Applicable

**Degree** GMEDIC30 - Bachelor's Degree in Medicine

**Year** Third year

## COURSE

27276 - Clinical Microbiology & Infection

**Credits, ECTS:** 6

## COURSE DESCRIPTION

The subject "Clinical Microbiology and Infection" sets out to give an overall vision of infectious diseases from the etiological point of view. The etiology and the pathogenicity mechanisms of the main infectious processes, the correct steps and clinical samples to make a laboratory diagnosis, and an analysis of the microbiological factors that determine antibacterial treatments. The main aim is to acquire the necessary knowledge to establish a strategy and a diagnostic opinion on microbial diseases, indicate a safe and efficient course of treatment and propose the most suitable preventive measures.

## COMPETENCIES/LEARNING RESULTS FOR THE SUBJECT

Infección y respuesta inmune. Etiopatogenia, diagnóstico y tratamiento antimicrobiano de las infecciones. Nuevos retos infecciosos. Diagnóstico de las infecciones y enfermedades infecciosas.

COMPETENCIAS DE ESTE MÓDULO QUE SE DESARROLLAN EN ESTA ASIGNATURA (Copia exacta de las competencias de la Orden ECI/332/2008)

Conocer los principales agentes infecciosos y sus mecanismos de acción.

Reconocer, diagnosticar y orientar el manejo de las principales patologías infecciosas en los distintos órganos y aparatos. Enfermedades de transmisión sexual.

Reconocer, diagnosticar y orientar el manejo de las principales patologías del sistema inmune.

Las competencias específicas y concretas de esta asignatura están detalladas en el apartado de DESCRIPCIÓN DEL CONTENIDO del módulo 3 (véase en este apartado los RESULTADOS DE APRENDIZAJE de esta materia en el módulo 3).

COORDINACIÓN HORIZONTAL Y VERTICAL Los mecanismos de coordinación entre asignaturas del mismo o distinto módulo/curso se detallan en los apartados de <<descripción del contenido>> del módulo 3 y en el epígrafe <<Explicación general>> de <<Planificación de la enseñanza>>

## CONTENIDOS TEÓRICO-PRÁCTICOS

Master classes

### I. INFECTION AND IMMUNE RESPONSE

Infection and infectious disease

Immune response to an infection

Vaccination and anti-infectious immunotherapy

### II. DIAGNOSIS AND TREATMENT OF INFECTIONS

Microbiological basis for a diagnosis of infections

Criteria for the rational use of antibiotics

### III. ETIOPATHOGENICS, DIAGNOSIS AND ANTIMICROBIAL TREATMENT OF INFECTIONS

Respiratory infections

Urinary tract infections

Cutaneous, subcutaneous, osteoarticular and muscular infections

Central nervous system infections

Sexually transmitted infections

Obstetric, congenital and perinatal infections

Bacteremia

Infections in an immunocompromised patient. Infections related to healthcare

Digestive tract infections

Zoonosis

### IV. NEW INFECTIOUS CHALLENGES

The major infectious threats. Emerging infections

Infections in a globalized world. HIV, Plasmodium and Mycobacterium

Travelers' infections

Old and new challenges of resistance to antibiotics

### •Seminars

Emerging/re-emerging pathogens (1) Dengue virus • dengue, (2) Leptospira spp • leptospirosis, (3) Crimean Congo virus• Crimean - Congo hemorrhagic fever, (4) Yellow fever, (5) Ebola virus infection and (6) Hantavirus

### •Classroom practices

Clinical cases: Vaccine. Respiratory infections. Urinary tract infections. Sexually transmitted infections. Cutaneous, subcutaneous and osteoarticular infections. Digestive tract infections. Central nervous system infections

### •Laboratory practical work

Indication and interpretation of complementary diagnosis studies on infections. Taking and processing of clinical samples for microbiological study. Evaluation, monitoring and follow-up of antibiotic therapy. Immunodiagnostics

### \*Clinical Laboratory work

Clinical Microbiology Laboratory simulation

## TEACHING METHODS

The methodology will include Master Classes (28 classroom hours) in the form of an exhibition class, Seminars (3 classroom hours) with completion and presentation of work on a selection of several emerging and reemerging pathogens and the diseases they cause, 12 hours of Classroom Practices where learning based on the resolution of problems and clinical cases, 20 hours of Laboratory Practices and 3 hours of Practical Class in simulated Clinical Laboratory where the student will come into contact with both the bases of the laboratory microbiological diagnosis and the reality of a clinical microbiology service.

## TYPES OF TEACHING

Types of teaching	M	S	GA	GL	GO	GCL	TA	TI	GCA
Hours of face-to-face teaching	28	3	12	20		3			
Horas de Actividad No Presencial del Alumno/a	50	12	6	10		6			

**Legend:** M: Lecture-based S: Seminar GA: Applied classroom-based groups  
GL: Applied laboratory-based groups GO: Applied computer-based groups GCL: Applied clinical-based groups  
TA: Workshop TI: Industrial workshop GCA: Applied fieldwork groups

## Evaluation methods

- End-of-course evaluation

## Evaluation tools and percentages of final mark

- Multiple choice test 75%
- Exercises, cases or problem sets 15%
- Teamwork assignments (problem solving, Project design) 10%

## ORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

1. Theoretical assessment: exam of 60 multiple-choice with one correct answer. Each correct answer = 1 point, and each wrong answer means that 0.3 points will be subtracted. Unanswered questions will not be penalized. Of the 60 questions, 48 are related to the subject taught in lectures, and they may include notions worked on in practical laboratory sessions. Twelve questions will be about clinical problems worked on and solved in the practical classroom sessions. This exam must be passed to pass the subject as a whole. The marks of the other assessments will not be added if this part of the assessment is not passed.

2. Practical assessment: questions based on images or tests with an overall weight of 15 points. For each incorrect answer one point is subtracted. This mark will be added to the total grade (only if the test is passed). Attendance is compulsory, and this percentage will not be added to the final mark if the student's absence is not sufficiently justified.

3. Furthermore, attendance, active participation, and the presentation and level of correctness of projects all contribute to the final mark. Practical classroom work accounts for 40% of this section, clinical laboratory practical work 20% and seminars 40%. Presentations (posters or oral) of both kinds of activity will be graded with a maximum 10 points to calculate the overall grade.

Attendance at all programmed activities is compulsory. A lack of active participation or non-compliance of rules will be penalized by subtracting 0.5 points per day of practical work.

If the student does not show up for assessments this will be considered as a withdrawal from the call and will appear as "Not presented".

Students may be assessed under the final assessment (exam) system, regardless of whether they have participated in the

continuous assessment system or not. To do this, they should apply in writing to withdraw from continuous assessment within 9 weeks of the start of the term. In this case, they must sit a multiple-choice exam (only one answer correct) and a practical exam.

### EXTRAORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

The extraordinary call is governed by the same criteria as the ordinary call. Students can request that they keep the grade obtained in the practical assessment or take a new exam, while maintaining the score obtained in the rest of the activities with continuous assessment.

If the student does not show up for the evaluations, it will be considered that he renounces the call and will appear as "Not submitted"

### MANDATORY MATERIALS

Lab coat for laboratory practices and clinical practices. Sheets with practical procedures.

### BIBLIOGRAFÍA

#### Basic bibliography

1. Murray PR, Rosenthal KS, Pfaller MA (Eds.). Microbiología médica. 8ª Ed. Madrid, Elsevier Mosby, 2021.
2. Prats G. Microbiología y Parasitología médicas. Madrid, Editorial Médica Panamericana, 2019.
3. Basaras Ibarzabal M, Umaran Sánchez A. Mikrobiologia medikoa. Bilbao, UPV/EHU, 2004.
4. Picazo JJ, Prieto J. Compendio de Microbiología médica. 2ª Edición. Barcelona, Elsevier, 2016.
5. Mensa J, Gatell JM, García-Sánchez JE, Letang E, López-Suñé E, Marco F. 2020 Guía de terapéutica antimicrobiana. Barcelona, Ed. Antares, 2020.

#### Detailed bibliography

1. Jorgensen JH, Pfaller MA, Carroll KC, Funke G, Landry ML, Richter SS, Warnock DW (Eds.). Manual of Clinical Microbiology, 11st Ed. Washington D.C., American Society for Microbiology, 2015.
2. Bennett JE, Dolin R, Blaser MJ (Eds.). Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases, 8th Edition. London, Churchill Livingstone-Elsevier, 2014.
3. Ausina V (Ed.). Tratado SEIMC de enfermedades infecciosas y Microbiología clínica. Madrid, Editorial Panamericana, 2006.
4. Quindós G. Micología clínica. Elsevier, Barcelona, 2015.

#### Journals

1. Enfermedades Infecciosas y Microbiología Clínica
2. Revista Española de Quimioterapia
3. Revista Iberoamericana de Micología
4. Medicina Clínica

#### Web sites of interest

1. Enfermedades Infecciosas y Microbiología Clínica <http://www.elsevier.es/es/revistas/enfermedades-infecciosas-microbiologia-clinica-28>
2. Protocolos de la Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica, <http://www.seimc.org/protocolos/microbiologia>
3. Plan Nacional Resistencia Antibióticos (PRAN): <http://resistenciaantibioticos.es/es>
4. ProAntibióticos: <https://proantibioticos.com/about/>
5. Osakidetza / Osanet. <http://www.osakidetza.euskadi.eus/r85-pkfarm02/es/conte>
6. Organización Mundial de la Salud <http://www.who.int/es/>
7. European Centre for Disease Prevention and Control (ECDC) <http://ecdc.europa.eu/en/Pages/home.aspx>
8. Centers for Disease Control and Prevention (CDC) <https://www.cdc.gov/>

### OBSERVATIONS

Due to pandemia, the Master Classes sessions will be on line through BlackBoard Collaborate. The rest of the activities will be presential.

# Student's guide

## Basis of Medical Pharmacology

Basis of Medical Pharmacology is a core subject in the 3<sup>rd</sup> year of the Degree in Medicine. This subject belongs to Unit 04 “Diagnostic and Therapeutic Procedures”. The main objective of this subject is that the students learn the following aspects:

- a) Concepts and general mechanisms underlying drug action as well as its absorption, distribution, metabolism and excretion.
- b) Pharmacological effects of main drugs and their therapeutic use in pathological processes, based on their mechanism of action and their pharmacokinetics. The contents are divided in the following blocks:
  - a. Autonomic nervous system pharmacology
  - b. Central nervous system pharmacology and pharmacological basis of anesthesia
  - c. Pharmacology of analgesic, anti-inflammatory e immunomodulatory drugs
  - d. Pharmacology of digestive, respiratory and cardiovascular systems
  - e. Hormone pharmacology
  - f. Antimicrobial, antiprotozoal, anthelmintic and anti-cancer pharmacology

### 1. Content of the subject

#### 4.1. Theoretical content

Block I. General concepts and mechanisms involved in drug action and absorption, distribution, metabolism and excretion processes.

- Topic 1. Introduction to Pharmacology
- Topic 2. Absorption of drugs. Distribution of drugs in the body
- Topic 3. Metabolism and drug excretion
- Topic 4. Pharmacokinetic parameters
- Topic 5. Pharmacodynamics I
- Topic 6. Pharmacodynamics II
- Topic 7. General mechanisms of adverse reactions to drugs

Block II. Pharmacology of the autonomic and peripheral nervous system

- Topic 8. Autonomic nervous system. Adrenergic neurotransmission. Cholinergic neurotransmission
- Topic 9. Adrenergic drugs. Centrally acting antiadrenergics
- Topic 10. Antiadrenergic drugs

Topic 11. Cholinergic drugs. Muscarinic antagonists. Neuromuscular blockers

Block III. Pharmacology of the central nervous system and pharmacological bases of anesthesia

Topic 12. Opiate analgesics

Topic 13. Benzodiazepines. Other anxiolytics. Other sedative and hypnotics

Topic 14. Antidepressant drugs. Antimanic drugs

Topic 15. Antipsychotic drugs. Psychostimulants. Psychotomimetics

Topic 16. Drugs used at neurodegenerative disorders. Antiepileptic drugs. Antispastic drugs

Topic 17. General anesthetic drugs: inhalational and intravenous. Local anesthetics

Block IV. Analgesic, anti-inflammatory and immunomodulatory drugs.

Topic 18. Histamine and antihistamine drugs. Serotonin. Eicosanoids

Topic 19-20. Nonsteroidal anti-inflammatory drugs (NSAIDs). Other antirheumatics. Antigout agents

Topic 21. Steroidal anti-inflammatory drugs.

Topic 22. Immunosuppressive and immunostimulant drugs

Block V. Pharmacology of the digestive, respiratory and cardiovascular systems.

Topic 23-24. Pharmacology of the respiratory and digestive tract

Topic 25. Diuretics

Topic 26. Digitalics. Other inotropic drugs. Calcium antagonists

Topic 27. Pharmacology of the renin-angiotensin system

Topic 28. Nitrates and other vasodilator drugs. Antiarrhythmic drugs

Topic 29. Anticoagulants. Platelet antiaggregants. Pharmacology of fibrinolysis

Topic 30. Hypolipidemic drugs. Hematopoietic agents

Block VI. Pharmacology of antimicrobials, antiprotozoals, anthelmintics and anticancer drugs

Topic 31. Antiseptic and disinfectants. Sulfamides and cotrimoxazol. Quinolones. Other urinary antiseptics

Topic 32. Beta-lactam antibiotics

Topic 33. Aminoglycoside antibiotics. Polypeptide antibiotics. Tetracyclines

Topic 34. Macrolides. Other antibiotics. Antimycobacterial drugs

Topic 35. Antifungal drugs. Antiviral drugs

Topic 36. Antiprotozoal, antihelminthic and ectoparasiticide drugs

Topic 37. Antineoplastic drugs

#### Block VII. Pharmacology of hormones and metabolism

Topic 38. Hormones of the pituitary gland. Thyroxine and antithyroid drugs

Topic 39. Pharmacology of the adrenal cortex. Insulin and oral hypoglycemic drugs.  
Glucagon

Topic 40. Female and male sex hormones

Topic 41. Ossification pharmacology

#### 4.2. Practical content

The practical content in the subject is spread over 10 practical sessions in the classroom, 2 computer practical session and 2 laboratory practical sessions and 1 seminar.

## **2. Assessment**

### Ordinary call

The assessment system is mixed:

#### **Written theoretical assessment**

Instrument: final written exam is divided in 2 parts. Each one consists of: 5 questions with short answers and 30 multiple choice questions. Each of the 4 parts must be passed.

Assessment criteria: information provided, reasoning, ability to summarize and precision in the use of language.

Percentage of the final grade: **75%**

#### **Practical assessment**

Instrument: final practical work report (classroom and computer) and active participation in classroom practical work sessions. Students must attend and participate in a minimum of 80% of the practical sessions.

Assessment criteria: identification of the objectives proposed, information contained, ability to analyze and solve the issues presented correctly.

Percentage of the final grade: **25%**

### Extraordinary call

The extraordinary call is governed by course regulation.

OBSERVATIONS

During the development of the exam, the use of books, notes, telephone, electronic devices or computers will not be allowed. If calculator is needed, students will be notified in advance.

### **3. Bibliography**

#### **Books**

Rang HP, Dale MM, Ritter JM, Flower RJ, Henderson G. "Rang and Dale's Pharmacology" 9th ed. Elsevier.

Brunton L, Chabner B, Knollman B (Eds). Goodman & Gilman's "The Pharmacological Basis of Therapeutics", 13th ed. McGraw-Hill.

#### **Periodical publications**

Drugs

Clinical Pharmacology and Therapeutics

Clinical Pharmacokinetic

British Journal Clinical Pharmacology

#### **Webpages**

[http://www.osakidetza.euskadi.eus/r85-ckpubl02/es/contenidos/informacion/publicaciones\\_informes\\_estudio/es\\_pub/publicaciones.html#farmacia](http://www.osakidetza.euskadi.eus/r85-ckpubl02/es/contenidos/informacion/publicaciones_informes_estudio/es_pub/publicaciones.html#farmacia)

<https://www.aemps.gob.es>

<http://www.ema.europa.eu/ema/>