UAB
Universitat Autònoma de Barcelona

Medical Immunology

2026/2027

Code: 102928
Credits: 4

Degree programme	Type	Course
Medicine	OB	3

Contact lecturer

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Teaching staff (external to UAB)

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Group languages

You can consult this information at the end of the document.

Prerequisites

Students must have acquired basic skills in:• Cell biology, biochemistry, genetics and molecular biology• General and specific anatomy of organs and systems• General and specific physiology of organs and systems.

Likewise, the student undertakes to preserve the confidentiality and professional secrecy of the students.accessible data in healthcare services, as well as to maintain an attitude of professional ethics in all their actions.

Artificial Intelligence: "For this subject, the use of Artificial Intelligence (AI) technologies is allowed exclusively in support tasks, such as bibliographic or information search, text correction or translations ... The student will have to clearly identify which parts have been generated with this technology, specify the tools used and include a critical reflection on how these have influenced the process and the final result of the activity. The non-transparency of the use of AI in this assessable activity will be considered academic dishonesty and may lead to a partial or total penalty in the grade of the activity, or greater sanctions in cases of severity."

Objectives

1) To know the essentials features of the molecular, cellular, anatomical elements of the immune system (SI) and their function in the healthy individual.

2) To understand the role of the immune system in the following pathological processes:

a. Common infections

b. Allergies and hypersensitivity in general

c. Immune-mediated diseases, autoimmune, autoinflammatoty and other

d. Immunodeficiencies

e. Cancer

F. Transplantation

3) To understand the basic action mechanisms of immune-based therapies:

a) Vaccines,

b) Immunosuppressants,

c) Immunemodulators

4) To learn and understand the basis of the laboratory and clinical tests that have diagnostic value for the immune mediated diseases

Learning outcomes

1. Describe the position and objectives of immunology among the basic health sciences.
2. Explain the biochemical and biological bases of the functioning of the immune system.
3. Describe the particular genetic mechanisms that generate unique genes in each lymphocyte during development.
4. Understand the role of genetic polymorphisms in the immune response.
5. Identify the role of should structures and system with organs and and system.
6. Differentiate the functions of the immune system and how it interacts with other organ systems and reacts to germs by developing immune defence responses.
7. Enumerate the main injuries and functional changes that the immune system can cause.

8. Identify the main mechanisms by which the immune system can cause or contribute to illness.
9. Identify the paradigmatic diseases of the different types of immunomediated diseases.
10. Interpret in the physiological and pathological context the main techniques for determining the state of the immune system and diagnosing immunomediated diseases.
11. Identify the indications of immunological tests.
12. Describe the therapy principles applicable to immunomediated diseases.
13. Describe the main forms of preventive immunotherapy, especially vaccines and the mechanism by which they provide protection.
14. Maintain and sharpen one's professional competence, in particular by independently learning new material and techniques and by focusing on quality.
15. Organise and plan time and workload in professional activity.
16. Formulate hypotheses and compile and critically assess information for problem-solving, using the scientific method.
17. Demonstrate basic research skills.

Contents

Contents of the subject by teaching units

Block 1 Basic Immunology

UD1 Introduction to immunology

UD2 Natural Immunity

UD3 Clonal receptors and their ligands

UD 4 Cells of the immune system

UD5 The immune response, regulation and effectors

Block 2 Immunopathology

UD6 The immune response in the whole organism and disease

UD7 immune responses in special clinical situations

UD8 Diagnostic tests in clinical immunology

UD9 immunology based therapies

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
LABORATORY PRACTICALS (PLAB)	3	0.12	2, 4, 6, 10, 13
CLINICAL CASE SEMINARS (SCC)	3	0.12	2, 4, 6, 10, 13
Specialized seminars (SEM)	2	0.08	2, 4, 6, 10, 13
CLASSROOM PRACTICES (PAUL)	2	0.08	2, 4, 6, 10, 13
SELF STUDY.READING ARTICLES/REPORTS OF INTEREST	49.5	1.98	
THEORY (TE)	35	1.4	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17

The subject is taught during a single course with a high conceptual load (according to the Teaching Unitit extends over a semester or throughout the academic year).

The methodologyIt integrates face-to-face and autonomous activities:Directed Activities• Theory (TE): 35 hours / 1.40 ECTS• Classroom Practice (PAUL): 2 hours / 0.08 ECTS• Laboratory Practice (PLAB): 3 hours / 0.12 ECTS• Clinical Case Seminars (SCC): 3 hours / 0.12 ECTS• Specialized Seminars (SEM): 2 hours / 0.08 ECTSAutonomous Activities• Personal study, reading articles and information of interest, preparation of papers: 49.5hours / 1.98 ECTS

Didactic Strategy: Attendance at theoretical classes and seminars is strongly recommended. During classes, fundamental concepts are exposed and discussed. Activities are proposed that reinforce thelearning: work deliverable through the Virtual Campus or in person, questionnaires online and comprehension assessments in key classes (compulsory attendance).In practice, knowledge is applied to paradigmatic clinical cases.

The daily work of theThe student must reinforce the concepts acquired in face-to-face activities. The experience shows that the constant monitoring of the proposed face-to-face and online activities isin high levels of achievement of teaching objectives.The final organization of the subject, with respect to the number and size of practice groups,distribution of the calendar and dates of exams, will be specified by each Teaching UnitHospitable on its websites and in the presentation of the subject on the first day of class.Exceptionally, according to the criteria of the responsible teaching staff and availability of resources, part ofThe contents of theoretical lessons, practical lessons and seminars may be taught in person orvirtual.The use of recommended textbooks is also recommended as an essential element oflearning and helps the global understanding of the subject.

CONTACT INFORMATION:

Head of Faculty: Eva María Martínez Cáceres

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Heads of the Hospital Teaching Units (UDH):

• UD Vall d' Hebron: Mónica Martínez Gallo

• UD Germans Trias i Pujol: Eva María Martínez Cáceres

• UD Sant Pau: Óscar de la Calle Martín

• UD Parc Taulí: Juan Francisco Delgado de la Poza

Responsible Department: Department of Cell Biology, Physiology and Immunology

Annotation: within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous assessment activities

Title	Weight	Hours	ECTS	Learning outcomes
Written evaluation objective tests	75%	2.5	0.1	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17
Evaluation through case studies, reports and problem solving seminars, evaluated with face-to-face and / or online questionnaires	15%	2.5	0.1	2, 4, 6, 10, 13
Attendance and active participation in classes and seminars evaluated with face-to-face and/or online questionnaires	10%	0.5	0.02	1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 16, 17

CONTINUOUS EVALUATION

Mandatory prerequisites:• Minimum attendance at internships and seminars: 80%• Active participation and improvement with a minimum grade of 5 in internships, seminars andAssociated Exercises

Evaluation structure (components of the final grade):

1. WRITTEN TESTS: 75% of the grade of the subject.

Midterm Exam (30% of the final grade)• Content: Basic didactic units (Blocks 1 and initial clinical part of Block 2)• Format: Multiple Choice Questionnaire (Test) + Short Questions• Relative weighting: Modulated by each Teaching Unit according to pedagogical criteria• Minimum requirements: Grade $\geq$4 in each component (tests and short questions)• Discharge condition: Grade $\geq$6 (exempts from this subject in the Final Exam)

Second Partial (45% of the final grade) or Final Exam (75%)• Second Partial Content (Mainly Immunopathology): Clinical Units, andDiagnosis and Therapy, including theoretical aspects of Practices

(PLAB, PAUL) and Seminars(SCC, SEM)• Final (The whole subject): Basic teaching units (Basic Immunology ≈ First Part)+ Clinical Units, and Diagnostic and Therapy, including theoretical aspects of Internships(PLAB, PAUL) and Seminars (SCC, SEM)Format: Multiple Choice Questionnaire (Test) +Short Questions• Relative weighting (Test/Written): Modulated by each Teaching Unit according to criteriapedagogical.• Minimum requirements: Grade ≥4 in each component of each thematic block(Test/Written).• Requirements to pass: Minimum grade of 5 in each block of content.Approval through continuous assessment: Minimum final grade in written tests of 5

2. OTHER CONTINUOUS ASSESSMENT ACTIVITIES: 25% of the grade of the subject• Attendance and active participation in theoretical classes, seminars and quizzes: 10%• Evaluation through Practical Cases, Works, Seminars, Reverse Teaching and Resolutionof problems: 15%Note: To be assessed, the student must pass these continuous assessment activities withAttendance and minimum rating of 5

REMEDIAL EXAM: Students who have not passed the subject through continuous evaluation of testsmay sit for a remedial exam, provided that they meet the requirements ofApproved assistance and evaluation in practices and seminars.Features of the retake exam:• Content: All Didactic Units, Seminars and Practices• Format: Questions to be developed in writing; short and/or long (100%)• Minimum Requirement: Passing grade of 5• Weight in the final grade: 75% of the gradeNote: The final grade review will be carried out individually through tutoring, in one dayestablished between students and teachers, and within a reasonable period of time after the exam has been taken.

SINGLE ASSESSMENT

For students who select this option, attendance at internships and seminars is highly recommended. Compulsory internship or seminar work must be submitted on the day of the examination.

Exam structure:A. With ≥80% attendance at internships and seminars• Multiple Choice Questionnaire (Test): 40%• Short questions: 60%• No additional road test required• Content: The entire syllabus, including theoretical aspects of practices, seminars andResolution of clinical casesB. With <80% attendance at internships and seminars• Multiple Choice Questionnaire (Test): 25%• Short questions: 60%• Practical exam: 15% (including Internship questions, Seminars and Case ResolutionClinical)• Total content: Same as described in option A

Pass: The exam represents 100% of the final grade. Minimum grade of 5 is required.

Retake Exam (Single Assessment)Students who do not pass the subject by single assessment may take an exam of recovery.Features of the retake exam:• Content: All teaching units, seminars and internships• Format: Questions to be developed in writing; short and/or long (100%)• Minimum Requirement: Passing grade of 5• Weight: Represents 100% of the final gradeNote: In the case of compulsory assignments, they must be submitted on the day of the exam. The review of Final grade follows the same procedure as in continuous assessment.

FINAL QUALIFICATION AND ADMINISTRATIVE CONSIDERATIONS

Non-Assessable Students: Students who do not take thetheoretical and practical evaluation tests, having exhausted their enrolment rights from thesubject.

The performance of any irregularity in an assessment act (academic fraud, plagiarism or improper use of AI, unless this use is expressly authorised by the teaching guide), which may lead to a significant variation in the

grade, means that this act will be graded with a 0. In the event that the teaching guide provides that in order to pass the subject it is an essential requirement to have obtained a minimum grade in this assessment act or that there are several irregularities in the assessment acts of the same subject, the final grade of this subject is 0. Apart from this, a disciplinary process may be instituted for the student who incurs in any of these irregularities.

Exceptionally, the possibility of taking an oral exam as an evaluation method is contemplated in those cases in which there is a mutual agreement between the student and the teacher, or in situations derived from disciplinary procedures or casesNote: 15 minutes will be reserved within the calendar established by the centre or degree so that Students complete the teacher and subject evaluation surveys.

Bibliography

Main Textbooks

Kuby - Immunology. 8a edició Ed. WH Freeman 2018

Abul K. Abbas, Andrew H. Lichtman, and Shiv Pillai. Cellular and Molecular Immunology: 9à edició. Elsevier Saunders, 2017. Amb access on line per estudiants; ISBN-13: 978-0323479783

Janeway's Immunobiology. 9th ed. Kenneth Murphy and Casey Weaver (Author)Garland Science, 2017, ISBN-13: 978-0815345053

Other recommended textbooks

Roitt's Essential Immunology, Peter J. Delves, Seamus J. Martin, Dennis R. Burton, Ivan M. Roitt Wiley-Bolcall, 2016. ISBN-13: 978-1118415771

Kuby - Immunology. 7a edició en espanyol.

Peter Parham; The Immune System, Garldand Science, 4rd edition, 2014.

Addtional reading

Clinical Immunology, Principles and Practice. Robert R Rich. 4ª edició Mosby, 2019. ISBN-13: 978-0723436911

Federation of Clinical Immunology Societies (FOCIS) (www.focisnet.org).

Internet resources

http://www.roitt.com, Figures, and questionnaires for self assessment

Videos on line

Els increibles videos de microscopia multifotónica de Ronal N Germain

https://www.niaid.nih.gov/research/ronald-n-germain-md-phd

Software

Software: PowerPoint (Office 365)

Course groups and languages

The information provided is provisional until November 30. After this

date, you will be able to consult the language of each group through this link. To access the information, you will need to enter the course CODE