Information about the course

Degree: Bachelor of Science Degree in Medicine

Faculty: Faculty of Medicine and Health Sciences

Code: 342003 **Name:** Basic Immunology

Credits: 3,00 ECTS **Year:** 1 **Semester:** 2

Module: Diagnostic and therapeutical procedures.

Subject Matter: Procedimientos diagnósticos **Type:** Optativa

Branch of knowledge:

Department: Pathology

Type of learning: Classroom-based learning

Language/-s in which it is given: Spanish

Teachers:

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Module organization

Diagnostic and therapeutical procedures.

Subject Matter	ECTS	Subject	ECTS	Year/semester
Procedimientos diagnósticos	39	Basic Immunology	3	1/2
		Functional Assessment	6	1/2
		Genetics	3	1/1
		Introduction to Medicine	3	1/2
		Laboratory of Diagnostic Tests	3	5/1
		Medical Microbiology and Parasitology	6	3/1
		Pathological Anatomy	6	2/2
		Physiological Records and Functional Tests	3	2/2
		Radiodiagnostic and Imaging Techniques	6	3/1
Procedimientos terapéuticos	27	Anaesthesia and Resuscitation	3	5/1
		Biotechnology	6	1/2
		General and Special Pharmacology	9	3/2
		General Procedures of Intervention	6	1/2
		Rehabilitation and Physical Therapy	3	4/2

Learning outcomes

Al finalizar la asignatura, el estudiante deberá demostrar haber adquirido los siguientes resultados de aprendizaje:

R1 - Know the techniques used in Molecular Genetics.

Learning outcomes of the specified title

Type of AR: Description

- Assessing the risk-benefit ratio of diagnostic and therapeutic procedures

- Knowing how to interpret the results of the laboratory's diagnostic tests

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Type of AR: Description

- Knowing the characteristics of tissues in different situations of injury, adaptation and cell death. Inflammation. Cell growth disturbances. Pathological anatomy of the different devices and systems. Biochemical, cytogenetic and molecular biology markers applied to clinical diagnosis

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Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

- Students have demonstrated to possess and understand knowledge in a study area that starts from the base of the general secondary education, and is usually found at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study

- Students have developed the learning skills needed to undertake further studies with a high degree of autonomy

- Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical topics

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R10 - Be able to use clinical information to make reasoned differential diagnoses and diagnoses.

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

- Knowing the main techniques of microbiological and parasitological diagnosis and interpret the results

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

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R19 - Know the basic principles of immune system functioning

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

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R2 - Know the fundamental characteristics of the human genome and current genome sequencing methods.

Learning outcomes of the specified title

Type of AR: Description

- Assessing the risk-benefit ratio of diagnostic and therapeutic procedures

- Knowing how to interpret the results of the laboratory's diagnostic tests

Type of AR: Description

- Knowing the characteristics of tissues in different situations of injury, adaptation and cell death. Inflammation. Cell growth disturbances. Pathological anatomy of the different devices and systems. Biochemical, cytogenetic and molecular biology markers applied to clinical diagnosis

Type of AR: Description

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R20 - Know the biological and molecular bases of the immune system

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

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R21 - Being able to understand, evaluate and summarize scientific information on Immunology

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

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R22 - Know the basics of the different techniques and methods used in the immunology laboratory.

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

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R23 - Select the appropriate analytical technique to evaluate a specific problem in the immune diagnosis.

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

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R24 - Know the main pathological alterations related to the immune system: immunodeficiencies, autoimmune pathologies, hypersensitivity reactions, rejection in organ and cell transplants, and tumor processes.

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

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R25 - Know the basic practical operation of some of the main techniques of the clinical diagnostic laboratory in immunology (ELISA, immunoblotting, flow cytometry, immunohistochemistry)

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

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R26 - Being able to interpret the results of some basic diagnostic techniques from the clinical immunology lab

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

- Students have demonstrated to possess and understand knowledge in a study area that starts from the base of the general secondary education, and is usually found at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study

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R27 - Being able to use the concepts learned in the subject to understand the medical-scientific literature in immunology

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

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R28 - Apply the concepts learned in the subject to the resolution of simple clinical cases

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

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R3 - Know the concepts around genetic variation.

Learning outcomes of the specified title

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

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R30 - Recognize with the different imaging techniques the morphology and structure of tissues, organs and systems.

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

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R4 - Distinguish the different chromosomal abnormalities that may occur in humans.

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

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R5 - Differentiate the different types of genetic alterations that cause disease.

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

- Knowing the main techniques of microbiological and parasitological diagnosis and interpret the results

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

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R6 - Know the basics for the diagnosis of genetic diseases and is able to discern the right one for each case.

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

- Knowing the indications of biochemical, haematological, immunological, microbiological, anatomopathological and imaging tests

- Knowing the main techniques of microbiological and parasitological diagnosis and interpret the results

Type of AR: Description

- Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience

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R9 - Identify general inflammatory and neoplastic lesions on injured tissues.

Learning outcomes of the specified title

Type of AR: Description

- Knowing how to interpret the results of the laboratory's diagnostic tests

- Knowing how to obtain and process a biological sample for study using the different diagnostic procedures

Type of AR: Description

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Assessment system

Modalidad presencial

Assessed learning outcomes	Granted percentage	Assessment tool
	70,00%	Tests
	10,00%	Practices
	5,00%	Participation in class
	15,00%	Practice exam

Observations

En esta asignatura no se contempla la posibilidad de evaluación única, al requerirse la realización obligatoria de actividades prácticas con participación activa del alumnado

MENTION OF DISTINCTION:
In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Actividades formativas

The methodologies to be used so that the students reach the expected learning outcomes will be the following:

M1	Masterclass
M2	Problems resolution and practical cases
M4	Content presentations by teacher
M6	Laboratory practices
M8	Group activities supervised by professor
M9	Knowledge acquirance through student interaction and activity
M11	Personalised attention by professor
M15	Personal study
M16	Information research

IN-CLASS TRAINING ACTIVITIES

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
Theory class	R1, R2, R3, R4, R5, R6, R9, R19, R20, R21, R22, R23, R24	Masterclass Content presentations by teacher	30,00	1,20
Seminar and group practices	R19, R20, R21, R22, R23, R26, R28	Problems resolution and practical cases Group activities supervised by professor	2,00	0,08
Practices in small groups	R19, R20, R25, R26, R27, R28	Laboratory practices Group activities supervised by professor Knowledge acquirance through student interaction and activity Personalised attention by professor	2,00	0,08
Tutoring	R21	Group activities supervised by professor Personalised attention by professor	1,50	0,06
Evaluation	R1, R2, R3, R4, R19, R20, R21, R22, R23, R24, R25, R26	Problems resolution and practical cases	2,00	0,08
TOTAL			**37,50**	**1,50**

TRAINING ACTIVITIES OF AUTONOMOUS WORK

ACTVITY	RELATIONSHIP WITH THE COURSE LEARNING OUTCOMES	METHODOLOGY	HOURS	ECTS
No attendance	R1, R2, R3, R4, R5, R6, R9, R19, R20, R21, R24, R27	Personal study Information research	37,50	1,50
TOTAL			**37,50**	**1,50**

Description of contents

Descripción de contenidos necesarios para la adquisición de los resultados de aprendizaje.

Theoretical content:

Block of content	Contents
Unit 1	Introduction to the Immune System
Unit 2	Innate Immunity
Unit 3	Antigen Capture and Presentation to Lymphocytes
Unit 4	Antigen Recognition in the Adaptive Immune System
Unit 5	T Cell-Mediated Immunity
Unit 6	Effector Mechanisms of T Cell-Mediated Immunity
Unit 7	Humoral Immune Responses
Unit 8	Effector Mechanisms of Humoral Immunity
Unit 9	Immune Tolerance and Autoimmunity
Unit 10	Immune Responses Against Tumors and Transplants
Unit 11	Hypersensitivity
Unit 12	Congenital and Acquired Immunodeficiencies

Temporary organization of learning:

Block of content	Sessions	Hours
Unit 1	1	2,00
Unit 2	2	4,00
Unit 3	2	4,00
Unit 4	2	4,00
Unit 5	2	4,00
Unit 6	1	2,00
Unit 7	2	4,00
Unit 8	2	3,50
Unit 9	2	4,00
Unit 10	1	2,00
Unit 11	1	2,00
Unit 12	1	2,00

References

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·Abbas, Abul K, Lichtman, Andrew H and Pillai Shiv. (2019) Inmunología Celular y Molecular. 9 edición. Ediciones Elsevier.
·Gorczynski, R., & Stanly, J. (2007). Inmunología basada en la resolución de problemas. Barcelona: Elsevier.
·Owen, J., Punt, J., & Jones, P. (2013). Kuby Inmunología (7 ed.). Mexico: Mc Graw Hill
·Rich, Fleisher, Shearer, Schroeder, Frew & Weyand (2019) Inmunología Clínica 5 Ed. Ediciones Elsevier.
·Vega, GB. (2011). Inmunología y su correlación clínica. México Panamericana.