School of Agriculture
Course Unit Syllabus

Level of qualification:
First cycle (EQF level 6) - Bachelor
Study cycle:
Bioanalytical Tecnhologies

Course Unit:
15730 - Immunology

Year 3 **Semester 5** **ISCED Code: 512** **ECTS: 4,0**

Tipe of Course Unit: Compulsory **Delivery Mode:** Face-to-face **Language of Instruction:** Portuguese

COURSE COORDINATOR: Patrícia Alexandra Dias Brito Palma

HOURS OF WORK

TOTAL HOURS	Contact Hours								Hours in autonomous work
	Theory	Theory and practice	Practical and laboratory work	Field work	Seminar	Internship	Tutorial guidance	Other	
100	**15**		**30**						**55**

Prerequisites (if applicable):

LEARNING OUTCOMES (knowledge, skills and competence)

To know the bases of the constitution and functioning of the immune system, in order to understand the possibility of using immunology as a laboratory tool in the identification of microorganisms and in the diagnosis of diseases. To know the fundamentals of the main immunological techniques. Apply immunological techniques for identification and diagnosis.

CONTENTS

Theoretical component:

Basic concepts on immunology: Innate and adaptive immunity; humoral and cellular immunity. Vaccination. Immune response to infectious agents. Organs, tissues and cells involved in the immune response. Nature of antigens and antibodies. Fundamentals of immunological methods: precipitation, immunodiffusion, agglutination, immunofluorescence and immunoenzyme. Monoclonal antibodies. Complement fixation reaction. Application of immunological methods in the identification of microorganisms and immunological diagnosis.

Practical component:

Test of natural immunity; Observation of blood cells; Purification of immunoglobulins; Immunoprecipitation; Immunoelectrophoresis and ELISA.

DEMONSTRATION OF THE CONTENTS COHERENCE WITH THE COURSE UNIT'S LEARNING OUTCOMES

It is intended that students acquire knowledge about: (i) dynamics and importance of the immune system; (ii) the difference between innate and adaptive immune response; (iii) organs and components of the immune system, (iv) the various types of immune response; (v) passive and active immunity, (vii) the different types of vaccines. The practical component aims to develop practical and interpretive skills in the field of biological functioning through acquired laboratory experience.

TEACHING METHODOLOGIES

The teaching methodology integrates theoretical lectures with the aim of transmitting the general concepts of Immunology, accompanied with examples of application to the Bioanalytical Sciences. Practices in the laboratory where it is proposed to carry out a set of practical work in the scope of immunological identification tests, practices of research of online literature inherent to the subjects addressed in the practical classes with the purpose of the accomplishment of the reports of the works developed in the laboratory practice.

DEMONSTRATION OF THE COHERENCE BETWEEN THE TEACHING METHODOLOGIES AND THE LEARNING OUTCOMES

Teaching methodologies that include theoretical classes (T) with an interactive and interpretive exposition strategy in which students are involved, using case-study analysis and laboratory practical classes (PL) for the development of immunological

analysis processes, are in Coherence with the objectives of the curricular unit that aim to enable the student to understand, describe and relate knowledge about structure and function immune system and its regulation.

EVALUATION METHODS

The Theoretical Assessment is obtained by performing a written test (60%); Practical Evaluation is obtained through the elaboration of reports integrating the results obtained in the practical classes (40%). The student must be admitted to practice to go to the theoretical examination. The minimum admissible mark for each evaluation element is 10 values.

MAIN BIBLIOGRAPHY

Abbas, A., Lichtman, A., Pillai, S. (2014). Imunologia básica. 4º Edição. Elsevier (Brasil)

Arosa, F.A., Pacheco, F. C., Cardoso, E.M. (2012). Fundamentos de Imunologia. 2ª Edição. Lidel (Portugal)

Male, D., Roitt, E. M. (2002). Imunologia. 6ª Edição. (Manole).

Year of implementation: 2017/2018 | Date of approval by the Technical-Scientific Board: 2016-07-27