



3.00 credits

25.0 h

Q1

Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	To follow this course, it is necessary to master the basic knowledge and skills in cellular and molecular biology (elements that determine the constitution and organisation of cells, the basics of energy metabolism, mechanisms of intercellular communication and cell division, and the basic molecular aspects that govern the transmission and expression of genetic material).
Main themes	<p>The objective of this module is to describe the basic notions of immunology: immune system organs, immunocompetent cells, immunoglobulins, major histocompatibility complex, T receptor, complement system and inflammation, tolerance, regulation of the immune response, immunity in the fetus and newborn, mucosal immunity. Resistance to viruses and bacteria, immunity to parasites as well as vaccines and vaccination, hypersensitivity (types I to IV) and their treatment, immunity to transplant and different diagnostic applications and immunological tests will be covered .</p> <p>Practical work : The practical work realizes the main tests in immunology : isolation of mononuclear blood cells, determination of different immuno-competent cells after coloration on blood smears, immunodetections by enzymatic technique (ELISA) and realization of numerous hemato-immunological tests (ABO group and rhesus).</p>
Learning outcomes	
Evaluation methods	Written examination (10 main questions with many sub-questions - 2 hours)
Teaching methods	Lectures
Content	<p>This course consists of lectures and practical works. Its first objective is to describe the basic notions of the immune system: the organs and cells of the immune system, immunoglobulins, molecules of major histocompatibility complex and T-receptor, complement, tolerance, regulation of the immune response. The immunity of the newborn, of the MALT, to the viruses, bacteria and parasites will be discussed to highlight the first achievements. Vaccination, Hypersensitivities and transplant immunity as well as the various immunological tests will end the matter. Sixteen chapters make up the course.</p> <p>Practical works: The practical works realize the main tests in immunology : isolation of mononuclear blood cells, determination of different immuno-competent cells after coloration on blood smears, immunodetections by enzymatic technique (ELISA) and realization of numerous hemato-immunological tests (ABO group and rhesus).</p>
Inline resources	Moodle: Power point and PDF files
Bibliography	<ul style="list-style-type: none"> <li>• Cours Moodle</li> <li>• Optionnel : Roitt's Essential Immunology (2016) Ivan M. Roitt, Jonathan Brostoff, David Male et Veterinary Immunology: An Introduction by Ian R. Tizard (2017).</li> </ul>
Other infos	The immunology course aims to provide basic training on the main mechanisms involved in the immune response. It also addresses the knowledge needed to understand immuno-pathologies and their treatment. In addition, the main applications of immunology in biotechnology are discussed.
Faculty or entity in charge	VETE

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Chemistry and Bioindustries	BIRC2M	3		
Master [120] in Agricultural Bioengineering	BIRA2M	3		
Master [120] of Education, Section 4 : Biology	BIOL2M4	3		