



## BIO1335 Immunology

[25h+15h exercises] 3 credits

This course is taught in the 1st semester

**Teacher(s):** Jean-Paul Dehoux  
**Language:** French  
**Level:** First cycle

### Aims

The immunology course aims to give a fundamental formation carrying on the main mechanisms used in immune response. They cover the necessary knowledge to the immuno-pathological comprehension as well as their treatment. Besides, the main applications of immunology in the field of biotechnology are seen.

The course is divided in two modules adapted for students in veterinary and biology (A) and, on the other side, for agronomy students (B).

### Main themes

Module A (30 hours) : biology students and veterinary students. 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 .

Module B (15 hours) : Agronomy students.

The objective of this module is to give the essential notions of the immune system: natural immunity and acquired immunity, antigens, structure of antibodies and the classes of immunoglobulin, main interactions between humoral and cellular responses. Besides, the module shows the technological applications of fundamental immune knowledge : monoclonal antibodies, immunological techniques of detection and dosage and vaccinology.

Practical work (15 hours)

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).

### Content and teaching methods

To give a global view of the mechanisms involved in the innate and adaptative immune response.

**Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)**

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Prerequisites :

Knowledge in biology, in physiology, in anatomy and in biochemistry

Organization : the course is given during the first semester (2 hours per week).

Written notes : syllabus and books: Immunology Ivan M. Roitt, Jonathan Brostoff, David Male (in French or in English) et Veterinary Immunology: An Introduction by Ian R. Tizard (2005).

Assessment : Oral evaluation on the theory and the practical course.

**Other credits in programs**

<b>BIOL22/B</b>	Deuxième licence en sciences biologiques (Biologie des organismes et des populations)	(3 credits)	
<b>VETE12BA</b>	Deuxième année de bachelier en médecine vétérinaire	(3 credits)	Mandatory