Optional course – main information	
Academic subject	Immunogenomics
ECTS credits (CFU)	4
Compulsory attendance	Yes
Teaching language	Italian
Accademic Year	2019/2020

Professor/Lecturer	
Name & SURNAME	Salvatrice Maria Ciccarese
email	salvatricemaria.ciccarese@uniba.it
Tel.	080/5443384
Tutorial time/day	Tutorial time/day on appointment by e-mail

Course details	Pass-fail exam/Exam with mark out of 30	SSD code	Type of class
	Exam with mark out of 30	BIO/18	Lecture/workshop

Teaching schedule	Semester	day and time (afternoon)	Room
	I°	Tuesday and Thursday 14,30 – 17,00	to be defined

Lesson type	CFU/ECTS	Lessons (hours)	CFU/ECTS lab	Lab hours	CFU/ECTS tutorial/workshop	Tutorial/workshop hours	CFU/ECTS field trip	Field trip Hours
	4	32						

Time management	Total hours	Teaching hours	Self-study hours
	100	32	68

Academic Calendar	First lesson	Final lesson
	The 14th November	The 14th January

Syllabus	
Course entry requirements	Prerequisites: Attendance at the Genetics and Molecular Biology Courses of the three-year Degree in Biological Science
Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in A4a, A4b, A4c tables of the SUA-CdS)	
Knowledge and understanding	To acquire the elements that allow the study of basic genomics and applied genomics to the loci involved in the immune response. Through the classroom lessons the student learns the fundamental principles for genomic analysis and the main applications of genomics inherent in the immune system.
Applying knowledge and understanding	General knowledge of the methodologies used in Immunogenomics and its main ones Applications.
Making informed judgements and choices	Acquisition of critical skills in the analysis of the results of investigations in the field of the Immunogenomics and in their interpretation.
Communicating knowledge and understanding	Ability to express information and concepts learned through correct and rigorous scientific terminology.
Capacities to continue learning	The course of Immunogenomics provides the student with a method of learning and applications in scientific experimentation activities, as well as the ability to search and consult the appropriate bibliographic material.

Sylabus	
Course content	The immune system: innate and adaptive immunity. Genomic organization of single gene groups (gene loci) of immunoglobulins and T cell receptors.

	Mechanisms that generate the variability of immune system proteins: gene duplication, somatic recombination and somatic hypermutation. From genes to immune response proteins through allelic exclusion and somatic rearrangement. Definition of Recombinational Signal Sequences. Molecular model of the gene rearrangement mechanism. Role of the enzyme AID in gene conversion. The development and differentiation of B cells proceeds through consecutive stages of rearrangement of the variable genes of the heavy and light chains of the immunoglobulins. Clonal selection amplifies lymphocytes that respond to individual antigens. Development and differentiation of T cells. Stages of thymocyte maturation. T-lymphocyte receptors: alpha / beta and gamma / delta heterodimers. Genomic organization of T-lymphocyte receptor loci in man and mouse. Genome plasticity in loci for the T gamma / delta receptor in animal models other than humans and mice (Bovidae, Tylopoda and Cetacea).
Course books/Bibliography	The Gene X by Benjamin Lewin "Somatic recombination and hypermutation in the system immune " The teaching material will be provided by the teacher.
Notes	Some topics not present on the textbook may need to be supplemented with scientific articles. The PowerPoint of the lessons are made available to the students
Teaching methods	Lectures and exercises with the use of PowerPoint; workshops at the blackboard.
Assessment methods (indicate at least the type written, oral, other)	Oral exam by interview.
Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are	Students must demonstrate that they can develop a rigorous thought in relation to scientific processes illustrated during the course, leading to the formulation of experimental questions and plan Immunogenomics experiments applied to specific topics.
Further information	