Module name	**Immunobiology**
Module code	B-BA.096
ISCED code	
Study cycle	I˚
Semester	Winter semester
Responsible for this module	dr hab. Iwona Wojda, prof. UMCS (wojda@poczta.umcs.lublin.pl)
Language of instruction	English
Website	
Prerequisites	Basic knowlege in biochemistry and molecular biology
ECTS	5.0
ECTS points hour equivalents	Contact hours (work with an academic teacher) – lecture (30 hrs), laboratory (30 hrs), consultations (5 hrs) Total number of hours with an academic teacher – 65 hrs Number of ECTS points with an academic teacher 3.5 Non-contact hours (students' own work) – preparing to classes, including study of recommended scientific papers (10), preparing to exam (30 hrs) Total number of non-contact hours – 40 hrs Number of ECTS points for non-contact hours –1.5 **Total number of ECTS points for the module – 5.0**
Educational outcomes verification methods	written exam (lecture), continuous evaluation of the laboratory classes
Description	Ability to defend against infections as a condition for the survival of organisms. The Red Queen hypothesis. Immune mechanisms in the world of living organisms: organs and cells of defensive functions. Different strategies for achieving immunological memory. Innate and acquired immunity; humoral and cellular branches of immunity. Antigens and antibodies. Antimicrobial proteins: structure, activity and biological role. Methods of detecting antimicrobial activity and identification of proteins responsible for antibacterial and antifungal activity. Techniques for studying the influence of immune peptides on living organisms. Techniques that use antibodies to qualitative and quantitative protein detection in the analyzed samples. Methods for the analysis of the level of expression of selected genes after immune

	stimulation..
Reading list	recommended review papers of the current scientific literature.
Educational outcomes	**KNOWLEDGE** A student who completed the course: Understands and describes the immune mechanisms found in living organisms. He knows the immune proteins and peptides and the mechanism of their action. Understands the need for constant updating of knowledge and improvement of bioanalytical techniques **SKILLS** Uses contemporary immunobiological techniques. **ATTITUDES** The student understands the need for continuous updating of knowledge.
Practice	

Information about classes in the cycle

Website	
Educational outcomes verification methods	continuous evaluation of the laboratory classes
Comments	
Reading list	recommended papers of the current scientific literature
Educational outcomes	**KNOWLEDGE** Student understands and can describe the immune mechanisms found in living organisms. Knows the immune proteins and peptides and the mechanism of their action. Knows and understands the techniques and methods used in research on molecular defense mechanisms. **SKILLS** The student is able to plan and perform an experiments with the use of immune techniques in bioanalytics. **ATTITUDES** The student follows ethical principles.
A list of topics	Different techniques detecting antimicrobial activity in biological samples, detection of muramidase activity, phenoloxidase activity and coagulation. Immunodetection of polypeptides. Separation of low molecular polypeptides.
Teaching methods	practical laboratory, presentation, discussion

Assessment methods	continuous evaluation