

## COURSE/MODULE DESCRIPTION (SYLLABUS)

1.	Course:  <b style="text-align: center;">Virology</b>
2.	Language of instruction:  <b>English</b>
3.	Faculty:  <b>Faculty of Biotechnology</b>
4.	Course code:  <b>29-BT-S2-E3-V</b>
5.	Course/module type ( <i>mandatory or elective</i> ):  <b>mandatory</b>
6.	Programme:  <b>Medical Biotechnology</b>
7.	Study cycle:  <b>2nd cycle</b>
8.	Year:  <b>2nd</b>
9.	Semester ( <i>autumn or spring</i> ):  <b>autumn</b>
10.	Form of tuition and number of hours:  <b>Lecture, 30 h</b>
11.	Name, Surname, academic title:  <b>Beata ORZECZOWSKA, PhD</b>
12.	Initial requirements (knowledge, skills, social competences) regarding the course/module and its completion:  <b>Knowledge and skills in subjects: cell and molecular biology microbiology, biochemistry, basic knowledge of immunology.</b>
13.	Objectives:  <b>This course will cover the principles of virology. The main emphasis of the course is on biology of human, animal viruses. The course aims to provide the student with the cognitive and methodological tools necessary to:</b> <ul style="list-style-type: none"> <li>• <b>understand the structure and life cycle of viruses;</b></li> <li>• <b>know the mechanisms of host immune responses to viral infections;</b></li> <li>• <b>gain knowledge about of virus classification;</b></li> <li>• <b>understand the epidemiology of viral infections;</b></li> <li>• <b>approach the therapeutic strategies, diagnostic, and antiviral prophylaxis in virus infection;</b></li> <li>• <b>gain knowledge of selected groups of viruses, primarily those that infect humans.</b></li> </ul>

14.	<p>Content</p> <ul style="list-style-type: none"> <li>• <b>History of Virology</b></li> <li>• <b>Virus structure (viral particle)</b></li> <li>• <b>Structure of the viral genome</b></li> <li>• <b>The classification and nomenclature of viruses</b></li> <li>• <b>Viral evolution</b></li> <li>• <b>Viral life cycle</b></li> <li>• <b>The bases of viral genetic variability</b></li> <li>• <b>The interaction virus-host and mechanisms of disease</b></li> <li>• <b>Overview of major families of viruses: Herpesviridae, Picornaviridae (genus Hepatovirus and Enterovirus), Adenoviridae, Flaviviridae, Rhabdoviridae, Hepadnaviridae, Papillomaviridae, Polyomaviridae, Poxviridae, Orthomyxoviridae, Reoviridae, Paramyxoviridae, Mimiviridae</b></li> <li>• <b>Viral transmission and pathogenesis</b></li> <li>• <b>Epidemiology of viral infections (Influenza virus variability; Global smallpox eradication; Types of viral hepatitis; Ebola virus epidemiology)</b></li> <li>• <b>Antiviral chemotherapy and vaccines</b></li> <li>• <b>Oncogenic viruses and cancer</b></li> <li>• <b>Oncolytic viruses</b></li> </ul>	
15.	<p>Learning outcomes: The student should:</p> <ul style="list-style-type: none"> <li>• possess advanced knowledge of the structure of viruses, their replicative cycle, and the interaction virus – host;</li> <li>• possess advanced knowledge of the principles of viral taxonomy;</li> <li>• possess advanced knowledge of available antiviral drugs and vaccines;</li> <li>• has an extended knowledge of certain groups of viruses;</li> <li>• possess knowledge of the current issues prevailing in scientific literature;</li> <li>• provide qualitative and quantitative descriptions of complex biological phenomena and processes;</li> <li>• show ability to formulate legitimate opinions on the basis of data derived from different sources;</li> <li>• understand the need for lifelong learning, inspire and organize the learning process for other people;</li> <li>• regularly revise biotechnological knowledge(in virology field) and its practical applications.</li> </ul>	<p>Outcome symbols:</p> <p>K_W01, K_W03, K_W04, K_W05</p> <p>K_U07,</p> <p>K_K01, K_K07</p>
16.	<p>Recommended literature</p> <ul style="list-style-type: none"> <li>• 4th edition of <b>Principles of Virology</b>, Jane Flint, Vincent Racaniello, Glenn Rall, and</li> </ul>	

	<p>Ann Skalka</p> <p>Volume I: Molecular Biology</p> <p>Volume II: Pathogenesis &amp; Control</p> <ul style="list-style-type: none"> <li>• <b>Introduction to Modern Virology</b>, 7th Edition, Nigel J. Dimmock, Andrew J. Easton, Keith N. Leppard</li> <li>• <b>Molecular Virology of Human Pathogenic Viruses</b>, 1st Edition, Wang-Shick Ryu</li> </ul>	
17.	<p>Methods of verification of the assumed learning outcomes:</p> <p><b>Written test in the form of multiple-choice test</b></p>	
18.	<p>Conditions of earning credits:</p> <p><b>Passing the multiple-choice test (over 50% of correct answers)</b></p>	
19.	Student's workload:	
	Activity	Number of hours for the activity
	Hours of instruction (as stipulated in study programme) : <b>lecture</b>	30 h
	Student's own work <ul style="list-style-type: none"> <li>• preparation for classes</li> <li>• individual study</li> </ul>	30 h
	Total number of hours:	<b>60 h</b>
	Number of ECTS:	<b>3 ECTS</b>