

[C1.4] <i>Infection and Pathobiology</i>	Infection and pathobiology	Compulsory elective module in the core area C1	6 - 8 CP (total) = 180 - 240 h				4 - 6 SWS
			Contact study 4 - 6 SWS / 60 - 90 h	Self-study 120 - 150 h			
Content							
<p><u>Seminar - Immunology</u>: Cells and organs of the immune system; innate immunity; complement cascade, Toll-like receptors; structure and applications of antibodies; structure and function of MHC molecules and T cell receptors; antigen processing; cross presentation; development of B and T cells; positive and negative selection of B and T cells; dendritic cells; natural killer cells; allergy, autoimmune diseases; course of an immune response.</p> <p><u>Lecture – Molecular Virology (CEM)</u>: Methods of virology, cell entry, intracellular transport, particle formation, capsid structures and symmetries, replication strategies, antiviral strategies, RNA processing, reverse transcription, transposable elements, virulence, epidemiology, evolution, molecular biology of HIV, acute and latent infections, transformation, oncogenesis, viruses and immunology, viral vectors. The focus is on teaching molecular mechanisms and principles.</p> <p><u>Lecture - Tumor Biology (CEM)</u>: Biochemistry of oncogenic signaling pathways, epigenetic changes and sequence and structural changes in the human genome and their tumorigenic potential, senescence in tumor cells, pathological changes in proliferation control, cell differentiation and cell communication, significance of the tumor microenvironment, immune recognition and immune escape mechanisms of tumor cells, tumor pharmacology, cell therapy of cancer diseases, antibody therapy of cancer, future perspectives in cancer therapy.</p> <p><i>The seminar must be combined with at least one of the lectures (CEM) or optionally both.</i></p>							
Learning outcomes / competency goals							
<p><u>Lecture - Molecular Virology</u>: After attending the module, the students have a broad basic knowledge of the molecular processes of viral replication, viral diseases and their therapy options. On this basis, they can competently discuss and evaluate current developments and debates on emerging viral infections and the use of vaccines.</p> <p><u>Lecture - Tumor Biology</u>: The students have developed a basic understanding of the development of tumor cells and their interaction with the immune system. On this basis, they can take a critical stand on the current development of prevention and early detection programs as well as critically assess current therapy concepts.</p> <p><u>Seminar - Immunology</u>: After completing the module, the students have a basic understanding of the different stages of an immune response. This knowledge enables the students to understand pathological connections in immunology and to search for possible solutions.</p>							
Participation requirements for the module or for individual courses of the module							
None							
Recommended requirements							
None							
Organizational details							
<p>The seminar takes place as a multi-day block event during the lecture-free period.</p> <p>A very good seminar presentation can improve the grade of the final exam by 0.3.</p>							
Module allocation (degree programme/faculty)			Master Biochemistry / FB14				
Module transferrable to other degree programmes							
Module offered			- Seminar: lecture-free period before the summer semester - Lectures: winter semester				
Duration			2 semesters				
Module coordinator			Prof. Tampé				
Course requirements for credits							
Participation record			Seminar: regular and active participation				
Coursework			Presentation				
Forms of teaching / learning			Lecture, seminar				
Language teaching and instruction			English				
Module assessment			Form / duration / content, if applicable				
Final module assessment							
Cumulative module assessment consisting of			Lectures: written exam (90 min.) or oral exam (30 min.)				
Composition of the module grade for cumulative module assessment			CP-weighted average of the grades				
		Type of teaching session	Semester hours per week	Semester CP			
				1	2	3	4
	Immunology	S	2		4		
	CEM: Molecular virology	L	2	2			
	CEM: Tumor biology	L	2	2			
	TOTAL		4 - 6	6 - 8			