UCLouvain

wsbim2185

2026

Cellular and molecular pathophysiology of human diseases

3.00 credits	30.0 h	Q1

Teacher(s)	Bertrand Luc ;Corbet Cyril ;Dumoutier Laure ;Henriet Patrick ;Horman Sandrine ;Jonas Jean-Christophe (coordinator) ;Maggi Pietro ;
Language :	English
Place of the course	Bruxelles Woluwe
Prerequisites	This course requires good knowledge of cellular and molecular biology, biochemistry of cell metabolism, immunology, cell and organ physiology, and human pathology.
Main themes	The classes will cover the pathophysiological mechanisms underlying the development of frequent non-communicable human diseases, the drugs targeting these mechanisms and unanswered questions on the topic (biomedical research). The link between the molecular, cellular, and tissue alterations and their impact on the whole organism will be highlighted as much as possible. Topics covered during classes (subject to variation depending on the group of teacher in charge): cellular therapy; cardiovascular and respiratory diseases; hemostatic disorders; endothelial dysfunction and vascular remodeling in cardiovascular diseases; neurodegenerative diseases ; cancers; endometriosis ; chronic inflammatory diseases; diabetes.
Learning outcomes	**At the end of this learning unit, the student is able to :** - know the pathophysiology of the diseases covered during classes, from the molecule to the cell, the cell to the organ, and the organ to the organism - understand/be able to explain the link between the molecular and cellular alterations described and the development of the chronic diseases covered during classes, as well as the mode of action of drugs targeting these alterations and their impact in other organs - be able to analyze and criticize a conference or paper in that field ; use his/her new knowledge and skills to investigate unanswered questions on the topic - imagine new approaches to study the pathophysiology of other diseases
Evaluation methods	The evaluation will consist in several assignments as defined during the class. Instructions and evaluation criteria will be detailed by each professor. The final note will be computed as the geometrical mean of the notes, with equal weight for each professor (final note = root 7th of the product of the 7 notes). As a consequence, the final note will be 0/20 if one assignment (or more) has not been submitted for grading. This rule remains true for the third session of the academic year (in august).
Teaching methods	Depending on the topic, from regular classes to inverted classesor other teaching ways deemed appropriate by the teacher.
Content	The classes will cover the pathophysiological mechanisms underlying the development of frequent non-communicable human diseases, the drugs targeting these mechanisms and unanswered questions on the topic (biomedical research). The link between the molecular, cellular, and tissue alterations and their impact on the whole organism will be highlighted as much as possible. Topics covered during classes (subject to variation depending on the group of teacher in charge): cellular therapy; cardiovascular and respiratory diseases; hemostatic disorders; endothelial dysfunction and vascular remodeling in cardiovascular diseases; neurological diseases (multiple sclerosis...) ; cancers; endometriosis ; chronic inflammatory diseases; diabetes.
Inline resources	Slides projected during classes and additional documents will be posted on MoodleUCL.
Other infos	This course requires good knowledge in cellular and molecular biology, biochemical metabolism, immunology, physiology, and pathology.
Faculty or entity in charge	SBIM

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Biomedicine	SBIM2M	3		🔍
Master [60] in Biomedicine	SBIM2M1	3		🔍