

Subject: <b>Pathological physiology 2</b>	Subject type: <b>Compulsory</b>
Study year: <b>3</b>	Content: <b>3/3 summer semester</b>
Study program: <b>General Medicine</b>	

## Aim of the course

Pathophysiology is the essential part of pre-clinical medical education. Pathological Physiology 2 provides a systematic review of pathophysiology of organ systems. It is devoted to analysis and explanation of pathomechanisms involved in functional disturbances of the organs and systems of the organism such as cardiovascular system, respiratory system, nervous system, endocrinology, gastrointestinal tract and connective tissue.

The course is included in the summer semester of the 3rd year of study. The prerequisite subjects are Pathological Physiology 1 and Medical Biochemistry 1. Pathophysiology is an integrative biomedical subject that helps to understand the mechanisms of diseases. It is an important part of undergraduate medical education and a necessary prerequisite for the study of clinical subjects.

**Education:** lectures/seminars

**Assessment:** exam (written and oral)

## Syllabus

### Week 1

Cardiovascular system I: Congenital heart diseases; Congenital and acquired valve defects; Heart failure; Electrical activity of the heart – action potential, conduction system of the heart  
Introduction to ECG diagnostics

### Week 2

Cardiovascular system II: Atherosclerosis; Coronary heart diseases – acute and chronic; Cardiomyopathy; Myocardial infarction, angina pectoris, ECG diagnostics of the myocardial infarction

### Week 3

Cardiovascular system III: Dysrhythmias – etiology, mechanisms, classification, ECG diagnostics; Systemic hypertension

### Week 4

Respiratory system I: Pathophysiology of the basic manifestations of respiratory diseases; Pulmonary hypertension, Pulmonary embolism; Respiratory failure; Disorders of ventilation, Sleep apnea; Ventilometric parameters - spirometry

### Week 5

Respiratory system II: Obstructive and restrictive lung diseases; Pulmonary edema; Manifestation of heart and pulmonary disorders; Heart and lung murmurs

### Week 6

Cardiovascular system IV: Hypotension, collapse, syncope;  
Review of knowledge

Week 7

Nervous system I: Pathophysiology of the main clinical manifestations of motor dysfunction; Motor disorders; Autonomic nervous system; Multiple sclerosis; Spinal cord disorders

Week 8

Nervous system II: Neurodegenerative disorders; Dementia; Cerebrovascular diseases; Neuromuscular diseases; Epilepsy

Week 9

Endocrine system I: Mechanisms of hormonal regulation disorders; Hypothalamic-pituitary diseases; Adrenal diseases; Thyroid disorders

Week 10

Endocrine system II: Diabetes mellitus; Complications of Diabetes mellitus; Parathyroid diseases; Gonadal disorders

Week 11

Gastrointestinal tract I: Pathophysiol. of the main clinical manifestations of GIT diseases, Diseases of the of the oral cavity, esophagus; stomach, small and large intestines; Pancreas diseases

Week 12

Gastrointestinal tract II: Pathophysiology of the liver and gallbladder  
Connective tissue: Pathophysiology of the bones and joints

Week 13

Nervous system III: Pathophysiology of the senses – vision, hearing  
Review of knowledge

Week 14

Discussion of selected topics, knowledge assessment, evaluation of semester, credits