

Program of Study : **GENERAL MEDICINE**

Course : **PATHOLOGICAL PHYSIOLOGY**

Abbreviation : **PFY/VAA11**

Schedule : **30 hours of lectures**
45 hours of exercises

Course Distribution : **3rd year, 5th semester**

Number of Credits : **0**

Course Form : **Lectures, exercises**

Learning objectives

On the 1st course of Pathological Physiology students will

- acquire knowledge about characteristics of disease / pathological states and the role of internal and external factors in their development;
- study molecular, cellular, organ and systemic mechanisms of pathogenesis of major symptoms, syndromes, and diseases including:
 - o inflammation, fever, disorders of nutrition, macro- and microelements' balance, water, ion and acid-base balance, lipid carbohydrate and protein metabolism
 - o typical disorders of the blood, haemostasis and of the immune system
 - o major disorders and diseases of digestive system
 - o major disorders and diseases of nervous system
- *learn the basic terminology of the description of diseases / pathological conditions and their course, study important connections between pathophysiology and clinical disciplines, interpret uncomplicated clinical cases of patients with disorders of metabolism, coagulation, immunity, digestive and nervous system*

Learning outcomes

After completing the course students should be able to

- demonstrate a basic understanding of the concepts and elements of disease
- discuss etiology, pathogenesis, major clinical and laboratory manifestations of typical diseases / pathological processes
- *apply acquired knowledge for interpretation of uncomplicated clinical cases of patients with disorders of metabolism, coagulation, immunity, digestive and nervous system*
- understand the basis of the major laboratory tests and other diagnostic procedures related to the above mentioned disorders
- understand principles of treatment of disorders of coagulation, immunity, digestive and nervous system
- be prepared to make correlations between pathophysiology and information they will be learning in their subsequent preclinical and namely clinical subjects.

Lectures:

Teacher: Professor(s) of the dept., event. guest teachers

Study: Continuous

Time 11:45 – 13:15 (Mondays)

Location: Left Lecture Hall

	Date	Title	Duration (hrs).
1	21. 9. 2020	Introduction. History and contents of the subject.	2

2	28. 9. 2020	Holiday. General mechanisms of disease.	2
3	5. 10. 2020	Pathogenetic principles at gene level.	2
4	12. 10. 2020	Pathophysiology of nutrition.	2
5	19. 10. 2020	Pathophysiology of water and salt balance.	2
6	26. 10. 2020	Acid-base disturbances.	2
7	2. 11. 2020	Pathophysiology of gastrointestinal tract.	2
8	9. 11. 2020	Pathophysiology of the liver.	2
9	16. 11. 2020	Pathophysiology of blood clotting.	2
10	23. 11. 2020	Pathophysiology of blood and haemopoietic tissues.	2
11	30. 11. 2020	Pathophysiology of the immune system.	2
12	7. 12. 2020	Pathophysiology of central nervous system I.	2
13	14. 12. 2020	Pathophysiology of central nervous system II.	2
14	21. 12. 2020	Aging of the organism.	2
15	4. 1. 2021	Summary from winter term.	2

Exercises:

Teacher: Assistant Profs. / Lecturers

Study: Continuous

	Date	Title	Duration (hrs.)
1	24. 9. 2020	Introduction, organization of the course. Health and disease. Pathophysiology of fever.	3
2	1. 10. 2020	Pathophysiology of inflammation. Wound healing, reparation and restitution.	3
3	8. 10. 2020	Pathophysiology of external factors contributing to the development of disease.	3
4	15. 10. 2020	Pathophysiology of food intake and nutritional status. Midterm test No. 1 (content of exercises No. 1-3 and lectures No. 1-3). Analysis of body composition by bioelectrical impedance.	3
5	22. 10. 2020	Water and salt balance. Pathophysiology of edemas. Disorders of microcirculation and lymphatic circulation.	3
6	29. 10. 2020	Acid-base disturbances. Examination of lactate, principles and applications in diagnostics.	3
7	5. 11. 2020	Pathophysiology of the esophagus, stomach and intestines. Midterm test No.2 (contents of practical exercises No. 4-6 and lectures No. 4-6).	3
8	12. 11. 2020	Selected problems of the pathophysiology of the liver, biliary tract and exocrine pancreas.	3
9	19. 11. 2020	Disorders of hemostasis. Bleeding disorders.	3
10	26. 11. 2020	Pathophysiology of blood. Anemia. Leukopenia and leukocytosis. Midterm test No.3 (contents of practical exercises No. 7-9 and lectures No.7-9).	3
11	3. 12. 2020	Pathophysiology of the immune system.	3

		<i>Discussion of pathophysiological mechanisms using simulator (Subject to change.)</i>	
12	10. 12. 2020	Disorders of the central and peripheral nervous system I.	3
13	17. 12. 2020	Disorders of the central and peripheral nervous system II. <i>Heart rate variability analysis.</i> Midterm test No.4 (contents of practical exercises No. 10-12 and lectures No. 10-13).	3
14	24. 12. 2020	Pathophysiologic interpretation of clinical cases, <i>discussion of simplified cases with illustrative symptoms of various clinical and laboratory disorders.</i>	3
15	7. 1. 2021	Credit. Credit test. Substitutions of absences confirmed by relevant document.	3

The practical exercises are held in the seminar room of the Department of Pathophysiology on Thursdays, from 8.00 a.m. to 10.15 a.m. - group C; from 10.30 a.m to 12.45 p.m. - group A and B.

Completed by: Credit

Credit conditions are as follows:

1. In accordance with Directive of the dean of the faculty of medicine and dentistry LF-B-18/14, article 7. item 1, Department sets the following limit for absences: 4,5 teaching hours (10%, this means 1 whole and 0.5 exercises) without apologies. Substitutions are provided at the 15th week of the study.
2. Credit will be granted upon successful answering 2/3 of questions from the respective term topics in the final test in the 15th week of the term. To take (or retake) the Credit students must register on STAG.
3. *Midterm tests and credit test contain questions from the theoretical and practical part of teaching including discussion of pathophysiological mechanisms based on teaching on a simulator, or a discussion of simplified clinical cases.*
4. There are two possibilities for correction of unsuccessful credit test; after that, at the discretion of the department, opportunity for oral correction with at least two teachers will be considered.
5. Unpreparedness of the student, i.e. the basic deficit in knowledge of the material discussed in the previous Pathophysiology lessons or crucial deficits from previous subjects, especially Physiology, Biochemistry, Histology, Anatomy, etc., can be a reason for exclusion from the lesson.

The conditions for granting the credit will be specified during the course of teaching, in connection with the development of the epidemiological situation.

Literature:

1. Porth's Pathophysiology: Concepts of Altered Health States (9th Edition) by Sheila Grossman, Carol Mattson Porth. Wolters Kluwer Health | Lippincott Williams & Wilkins, 2014.
 2. McCance K. L., Huether S. E.: Pathophysiology. 8th Edition. Mosby, 2018.
 3. Silbernagl S, Lang F. Color Atlas of Pathophysiology, 3rd Ed. Thieme, 2016.
 4. <https://pfyziol.upol.cz/>
- For revision e. g. S.Silbernagl, A.Despopoulos. Color Atlas of Physiology. 7th edition. Thieme 2015