

Program of Study	:	DENTISTRY
Course	:	PATHOLOGICAL PHYSIOLOGY 1
Abbreviation	:	PFY/ZAB11
Schedule	:	30 hours of lectures 45 hours of exercises
Course distribution	:	2nd year, 4th semester
Number of Credits	:	0
Course Form	:	Lectures, exercises

Learning objectives

In the course of Pathological Physiology, students will

- acquire knowledge about the role of genetic, ageing and environmental factors in the development of pathological states and diseases with emphasis on the disorders of the orofacial area;
- study molecular, cellular, organ and systemic mechanisms of pathogenesis of significant medical symptoms, syndromes, and diseases, including:
 - o inflammation, fever, disorders of water, ion and acid-base balance, metabolism of lipids, carbohydrates, purines and proteins
 - o typical disorders of the blood and hemostasis
 - o major disorders and diseases of the respiratory and cardiovascular system
- learn basic clinical terminology and essential connections between pathophysiology and clinical disciplines
- study relationships between local disorders of the oral cavity and diseases of blood, cardiovascular and respiratory systems

Learning outcomes

After completing the course, students must be able to

- demonstrate a basic understanding of the concepts and elements of disease
- discuss etiology, pathogenesis, and major clinical and laboratory manifestations of typical pathological processes providing examples related to orofacial area
- learn to analyse the role of different risk factors in the pathogenesis of arterial hypertension, coronary heart disease, bronchial asthma, chronic obstructive pulmonary disease, circulatory, respiratory failure and other important pathological states
- understand the basis for significant laboratory tests and other diagnostic procedures related to disorders mentioned above
- understand principles of treatment of disorders of blood, coagulation, cardiovascular and respiratory systems
- discuss principles of diagnostics and treatment of patients in sepsis, shock, coma
- make correlations between pathophysiology and clinical skills they are learning in their allied health science programs.

Lectures:

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

	Date	Subjects	Duration (hrs)
1	13. 2. 2023	Introduction to the course of pathophysiology. General mechanisms of disease.	2
2	20. 2. 2023	Pathogenetic principles at the gene level.	2
3	27. 2. 2023	Pathophysiology of water and salt balance.	2
4	6. 3. 2023	Acid-base disturbances.	2
5	13. 3. 2023	Pathophysiology of the respiratory system I.	2
6	20. 3. 2023	Pathophysiology of respiratory system II.	2
7	27. 3. 2023	Pathophysiology of coronary heart disease.	2
8	3. 4. 2023	Pathophysiology of heart failure.	2
9	10. 4. 2023	Holiday. Pathophysiology of ageing.	2
10	17. 4. 2023	Pathophysiology of critical states.	2
11	24. 4. 2023	Pathophysiology of blood and hematopoietic tissues.	2
12	1. 5. 2023	Holiday.	2
13	8. 5. 2023	Holiday. Pathophysiology of clotting.	2
14	15. 5. 2023	Pathophysiology of the immune system.	2
15	22. 5. 2023	Localised and generalised disease manifestations in the orofacial area.	2

The lectures are scheduled on Mondays from 8.00 a.m. to 9.30 a.m., in room No. 2.517 (Theoretical Institutes - New Building).

Exercises:

Teacher: Assistant Profs./Lecturers
Study : Continuous

	Date	Subject	Duration (hrs)
1	13. 2. 2023	Introduction to the course of pathophysiology. General mechanisms of disease. Fever.	3
2	20. 2. 2023	Pathophysiology of reactivity I.	3
3	27. 2. 2023	Pathophysiology of reactivity II.	3
4	6. 3. 2023	Pathophysiology of water and salt balance.	3
5	13. 3. 2023	Acid-base disturbances. Examination of lactate, principles and applications in diagnostics. Midterm test No. 1 (the content of weeks 1-4).	3
6	20. 3. 2023	Hypoxia. Respiratory system disorders I. Principles of pulse oximetry.	3
7	27. 3. 2023	Respiratory system disorders II.	3
8	3. 4. 2023	ECG interpretation basics.	3
9	10. 4. 2023	*Holiday. Pathophysiology of coronary heart disease. Exercise tolerance bicycle ergometry test.	3

10	17. 4. 2023	Pathophysiology of changes in blood pressure. Midterm test No. 2 (the content of weeks 5-8).	3
11	24. 4. 2023	Pathophysiology of heart failure. Cardiac overload. Pathophysiology of critical states.	3
12	1. 5. 2023	*Holiday. Shock, coma and seizures. Falls.	3
13	8. 5. 2023	*Holiday.	3
14	15. 5. 2023	Pathophysiology of blood clotting. Pathophysiology of blood and hemopoietic tissues. Midterm test No. 3 (the content of weeks 9-12). Credit. Credit test.	3
15	22. 5. 2023	Credit. Credit test. Substitutions of absences confirmed by a relevant document.	3

* The department will supply materials for self-study. Students are encouraged to discuss the topic during consultation hours at the department.

The exercises are scheduled on Mondays from 9.45 a.m. to 12.00 a.m., in room No. 2.517 (Theoretical Institutes - New Building).

Control Midterm tests in the 5th, 10th and 14th teaching week are mandatory. The way of their implementation will be specified at the beginning of the semester.

Completed by: Credit

Credit conditions are as follows:

- 1) 100% participation in practical exercises. The 15th teaching week is reserved for the substitution of justified absences (health or other serious reasons).
- 2) The readiness of students for the study course, which is continuously monitored. The unpreparedness of the student, i.e. basic ignorance from the material covered in previous lessons and also inadequate knowledge of basic of physiology, biochemistry, etc., may be a reason for exclusion from the lesson and the need to substitute it after the student adequately prepares.
- 3) Compulsory completion of all three control Midterm tests in terms specified in the syllabi (in case of duly excused absence due to health or other serious reasons, the test will be substituted in term by agreement with the assistant professor) with a total average success rate of at least 2/3 (i.e. a total average of at least 66.7%).
- 4) Passing a credit test with the possibility of two retakes in the form of an oral discussion.

Midterm tests and credit test contain questions from the theoretical and practical part of the study course.

Note: It cannot be ruled out that the form of practical teaching and the implementation at the end of the semester may be subject to partial changes, e.g. in connection with 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. <http://pfyziol.upol.cz>