

**МИНОБРНАУКИ РОССИИ**

**Федеральное государственное бюджетное образовательное  
учреждение высшего образования "Пермский  
государственный национальный исследовательский  
университет"**

**Кафедра фармакологии и фармации**

**Авторы-составители: Касьянов Захар Вячеславович  
Котегов Виктор Петрович**

Рабочая программа дисциплины

**PATHOLOGY**

Код УМК 96314

Утверждено  
Протокол №6  
от «23» марта 2020 г.

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## **1. Наименование дисциплины**

Pathology

## **2. Место дисциплины в структуре образовательной программы**

Дисциплина входит в обязательную часть Блока « С.1 » образовательной программы по направлениям подготовки (специальностям):

Специальность: **33.05.01** Фармация

направленность Программа широкого профиля (для иностранных граждан)

### **3. Планируемые результаты обучения по дисциплине**

В результате освоения дисциплины **Pathology** у обучающегося должны быть сформированы следующие компетенции:

**33.05.01** Фармация (направленность : Программа широкого профиля (для иностранных граждан))

**ОПК.3** Способен применять знания о морфофункциональных особенностях, физиологических состояниях и патологических процессах в организме человека для решения профессиональных задач

**Индикаторы**

**ОПК.3.2** Учитывает морфофункциональные особенности, физиологические состояния и патологические процессы в организме человека при выборе безрецептурных лекарственных препаратов и других товаров аптечного ассортимента

**ОПК.6** Способен оказывать первую помощь на территории фармацевтической организации при неотложных состояниях у посетителей до приезда бригады скорой помощи

**Индикаторы**

**ОПК.6.1** Осуществляет простейшие инструментальные исследования и оценивает общее состояние больного до приезда бригады скорой помощи

#### 4. Объем и содержание дисциплины

<b>Направления подготовки</b>	33.05.01 Фармация (направленность: Программа широкого профиля (для иностранных граждан))
<b>форма обучения</b>	очная
<b>№№ триместров, выделенных для изучения дисциплины</b>	4
<b>Объем дисциплины (з.е.)</b>	4
<b>Объем дисциплины (ак.час.)</b>	144
<b>Контактная работа с преподавателем (ак.час.), в том числе:</b>	56
<b>Проведение лекционных занятий</b>	28
<b>Проведение практических занятий, семинаров</b>	14
<b>Проведение лабораторных работ, занятий по иностранному языку</b>	14
<b>Самостоятельная работа (ак.час.)</b>	88
<b>Формы текущего контроля</b>	Письменное контрольное мероприятие (3)
<b>Формы промежуточной аттестации</b>	Экзамен (4 триместр)

## 5. Аннотированное описание содержания разделов и тем дисциплины

### **Introduction. Subject and tasks of pathology. General nosology. Etiology and pathogenesis. Morphological basis of the disease. The role of reactivity in pathology. Pathology of immunological reactivity. Allergy.**

Pathology, its content, tasks, objects and methods of research. Connection of pathology with related disciplines. Basic concepts of General nosology. Norm, health, transitional States of the organism between health and disease (pre-disease). The concept of pathological process, pathological reaction, pathological condition, typical pathological process. The concept of "disease". Disease as a dialectical unity of damage and adaptive reactions of the organism: criteria of disease. Stage of disease. The importance of biological and social factors in human pathology. Social criteria of the disease. Principles of disease classification; who classification.

Definition of etiology, value of knowledge of etiology of diseases for pharmacists. Causes of pathological processes, their classification, General characteristics. Conditions conducive to the development of diseases, their characteristics. Monocausality, conditionalism, constitutionalism, polyetiology, their characteristics and criticism. The modern theory of the etiology. The definition of "pathogenesis". Damage, as the initial link of pathogenesis. Cause – and- effect relations in pathogenesis. The concept of the leading link of pathogenesis, its essence and meaning. The concept of vicious circles. Local and General in pathogenesis. Specific and nonspecific changes in the pathogenesis of diseases. General principles of treatment of patients (etiotropic, pathogenetic and symptomatic treatment).

Reactivity, definition, main provisions and General characteristics. The role of reactivity in the emergence and development of diseases. Types of reactivity (biological, sexual, individual, age, pathological), their characteristics and significance. Mechanisms of reactivity (the role of the nervous, endocrine systems, connective tissue, nutrition and metabolism. Resistance of the organism, definition and characteristics. The relationship between reactivity and resistance. Changing the reactivity of the organism as one of the ways to increase its resistance

### **Metabolic disorder. Dystrophies. Pathology of water-electrolyte metabolism. Violation of tissue fluid metabolism. Oedemata.**

Pathology, its content, tasks, objects and methods of research. Connection of pathology with related disciplines. Basic concepts of General nosology. Norm, health, transitional States of the organism between health and disease (pre-disease). The concept of pathological process, pathological reaction, pathological condition, typical pathological process. The concept of "disease". Disease as a dialectical unity of damage and adaptive reactions of the organism: criteria of disease. Stage of disease. The importance of biological and social factors in human pathology. Social criteria of the disease. Principles of disease classification; who classification.

Analysis of some modern concepts of General nosology (neohippocratism, holism, existentialism, psychosomatics, social dysadaptapia, social ecology, diseases of civilization, etc.).

General etiology. The principle of determinism in pathology. The role of causes and conditions in the occurrence of diseases: their dialectical relationship. The concept of external and internal causes and risk factors of the disease. The concept of polyetiology of the disease.

Organophile and nosology. Autopsy of the corpses of the dead as one of the methods of studying the essence of diseases. Biopsy, its significance for in vivo diagnosis. Types of biopsy. Experimental reproduction of diseases as a method of studying and developing ways to influence the course of diseases.

### **Inflammation. Exudative and proliferative inflammation. Fever**

Inflammation. Definition. The value of inflammation. Etiology and pathogenesis of inflammation. Humoral and nervous regulation factors, inflammation and immunity. Inflammation is allergic or immune. Terminology. The definition of pulpitis, periodontitis, gingivitis, stomatitis, glossitis, cheilitis, osteomyelitis, dialoginit.

Morphology of inflammation: alteration, exudation, proliferation. Classification of inflammation: banal and specific, acute and chronic. Types of exudative inflammation: serous, fibrinous (croup, diphtheria), purulent (abscess, phlegmon, empyema, fistula, carbuncle, boil), putrid, hemorrhagic, catarrhal, mixed. Productive

inflammation: interstitial (interstitial), granulomatous, inflammation with the formation of polyps and genital warts. Causes, mechanism of development, morphology, outcomes. Specific inflammation, its difference from the banal, causes, mechanism of development, nosological characteristic of specific inflammation in tuberculosis, syphilis, leprosy, Sapa, scleroma. Morphology of tissue reactions, tuberculous tubercle, gum, leproma, scleroma and SAP granuloma. The concept, causes, mechanism of development, morphology of sclerosis and cirrhosis, their relationship with chronic inflammation.

Characteristics of the concept of "fever". The formation of a fever in phylogenesis and ontogenesis. Etiology and pathogenesis of fever. Fever as a component of acute phase response. Infectious and non-infectious fever. Pyrogenic substances: exopyrogens (lipopolysaccharides of bacteria) and endopyrogens (IL-1, IL-6, TNF, etc.). Mechanism of action implementation. Mediators of fever. Stages of fever. Thermoregulation at different stages of fever. Types of feverish reactions. Dependence of fever development on properties of pyrogenic factor and reactivity of organism. Participation of nervous, endocrine and immune systems in the development of fever. Biological significance of fever. Principles of antipyretic therapy. The concept of pyrotherapy. Antipyresis. Differences between fever and exogenous overheating and other types of hyperthermia.

### **Violation of blood and lymph circulation. Stasis. Thrombosis. Embolism.**

Disorders of blood and lymph circulation. General and local circulatory disorders, classification. Plethora. Arterial fullness, causes, species, morphology. Venous fullness: General and local, acute and chronic. Changes in organs and mucous membranes, in particular, in the mucous membrane of the mouth, lips. Outcomes. Morphogenesis of congestive sclerosis. Brown induration of the lungs, "nutmeg" liver. Anemia: causes, species, morphology, outcomes. Infarction: causes, pathogenesis, outcomes. Morphology of pre-necrotic and necrotic stages of infarction. Tests that reveal the ischemic stage. Types of heart attack. Myocardial infarction, brain, lungs, kidneys, intestines, spleen. Stasis, thrombosis, embolism: causes, mechanism of development, morphology, outcome. External and internal bleeding, hemorrhage. Plasmorrhage. Causes, mechanisms of development, morphology.

Violation of lymph circulation. Insufficiency of lymph formation. Causes, types (mechanical, dynamic, resorption), morphology, meaning for the organism. Lymphedema is acute and chronic. Elephantiasis, lymphostasis, lymphangiectasia; external and internal lymphorrhoea: chylous ascites, chylothorax.

Violation of the content of tissue fluid: swelling. Causes, mechanism of development, types, outcomes.

Necrosis. The definition of necrosis is local death, the concept of parametrisation, the necrobiosis, the autolysis. Causes, mechanism of development, morphology. Classification depending on the mechanism of action of the pathogenic factor (direct, indirect), depending on the cause of necrosis (traumatic, toxic, trophoneurotic, allergic, vascular). Clinical and morphological forms of necrosis (coagulation, colliquation necrosis, gangrene; infarction, sequestration). Meaning and outcome of necrosis.

Death, signs of death, postmortem changes. Cause of death. Death natural, violent, from diseases, clinical, biological. Signs of death, postmortem changes, morphology. Ethics of autopsy, the concept of thanatogenesis and resuscitation.

### **Necrosis. Clinical and morphological forms. The concept of apoptosis**

Apoptosis as a General biological effect. Characteristics of necrosis.

### **Adaptation process. Implementation mechanism. The doctrine of neoplasia. Carcinogenesis. Morphogenesis of tumors. Pathology of the blood system. Hemoblastoses. Anemias**

Adaptive processes in the evolutionary development of mammals. Levels of their implementation. Mechanisms of protection and adaptation of cells under damaging effects. Microsomal detoxification system, buffer systems, cellular antioxidants, antimutation systems. Adaptive changes in the functional activity of the cell, its receptor and genetic apparatus, the intensity of metabolism. Cellular and sub-cellular regeneration. Ways of increasing cell resistance to pathogenic factors and stimulation of recovery processes in damaged cells. Methods of

detection of cell damage of various organs and tissues in the clinic.

Cellular, intracellular forms of regeneration. Morphogenesis. Types of regeneration (physiological, reparative, pathological. Complete and incomplete regeneration), regenerative hypertrophy. Regeneration of individual organs and tissues. Hypertrophy and hyperplasia. Definition, essence. Types of hypertrophy: working, vicar, neuro-humoral, hypertrophic growths. Causes, mechanism of development, morphology. Atrophy-definition, types, morphology, causes and mechanism of occurrence. The restructuring of tissue and metaplasia. Causes, morphology. Organization. Species, mechanism of occurrence, morphology. Sclerosis. Definition. Classification. Regulation of connective tissue growth in sclerosis.

### **The doctrine of neoplasia. Carcinogenesis. Morphogenesis of tumors. Pathology of the blood system. Hemoblastoses. Anemias**

Theories of carcinogenesis, the role of the immune system. Leukemia and malignant anemia. Definition of concept. Etiology. Theories of tumor growth. Morphogenesis and histogenesis of tumors. Precancerous States, their essence, morphology. The concept of tumor progression. The body's immune response to the tumor. Antineoplastic resistance of the organism. Characteristics of anticancerogenic, antimutation (antitransformation) and anti-cellulite mechanisms of antitumor resistance of the organism. The significance of antitumor resistance depression in the origin and development of tumors. The interaction of the tumor and the body. Tumor cachexia, paraneoplastic syndromes.

The role of biopsy in Oncology. Methods of morphological diagnosis of tumors. Growth, structure of the tumor. Benign and malignant tumors, tumors with locally destructive growth. The distinction of benign from malignant. Metastasis, species. The concept of relapse, secondary changes in the tumor. Modern classification of the tumor. Epithelial tumors without specific localization (organ-specific) are benign and malignant. Cancer, species. Epithelial tumors are organ-specific. Benign and malignant tumors of the liver, kidneys, skin, breast, uterus, ovaries, testicles, thyroid, parathyroid, thymus, pancreas, adrenal glands, pituitary, epiphysis, gastrointestinal tract. Mesenchymal tumors are benign and malignant. Tumors of melanin-forming, nervous tissues and brain membranes. Teratomas. Species (gestione, organogeny, organismide).

### **Pathology of the circulatory system. The pathogenesis of cardiovascular disease.**

Vascular insufficiency (mechanism, characteristics, manifestations). Heart failure (acute and chronic). Diseases of the blood system.

Modern classification. Systemic tumor diseases of hematopoietic tissue (leukemia). Causes, pathogenesis, forms, morphology. Regional tumor diseases of hematopoietic tissue (malignant lymphomas). Causes, pathogenesis, forms, morphology. Defeat of lymph nodes of the neck, oral mucosa, jaw bones and salivary glands in leukemia and malignant lymphomas. Anemias. Causes, pathogenesis, species. Morphological characteristic. Changes in the oral mucosa.

### **Pathology of vascular tone. Hypertensive disease. Stroke.**

Levels of regulation of the blood pressure system. Hypertensive and hypotonic disease. Insufficiency of cerebral circulation. Diseases of the cardiovascular system. Atherosclerosis, etiology, pathogenesis, pathological anatomy (macro-and microscopic changes). Stages of atherosclerosis, clinical and morphological forms, causes of death. Hypertension and symptomatic hypertension. Etiology, pathogenesis, stages ("functional", common changes in arterioles, changes in organs, violation of intra-organ blood circulation). Morphology of hypertensive crisis. Clinical and morphological forms of hypertension. Cause of death. Coronary heart disease. Definition of the concept, connection with atherosclerosis and hypertension. Acute (myocardial infarction) and chronic ischemic heart disease (large-focal, small-focal postinfarction cardiosclerosis, chronic heart aneurysm). Morphology, complications, causes of death.

### **Pathology of respiratory organs. Insufficiency of external respiration. Hypoxia**

Inflammatory, specific and non-specific diseases of the respiratory system. Methods of experimental study of antihypoxic agents. Diseases of the respiratory system.

Characteristics of the concept of "respiratory failure" (DN). The types of respiratory failure according to the etiology, course, level of compensation, pathogenesis. Extrapulmonary and pulmonary etiological factors DN. Violations of non-gas exchange functions of the lungs. Indicators (signs) DN.

Shortness of breath, characteristic of concepts, kinds, mechanism of development. Changes in the gas composition of blood and acid-base state in DN in the stage of compensation and decompensation.

Ventilation forms of the bottom. The etiology and pathogenesis of violations of lung ventilation on obstructive type. Examples of diseases with obstruction of the upper and lower respiratory tract. Etiology and pathogenesis of pulmonary ventilation disorders by restrictive and mixed type. Examples of diseases. Methods of functional diagnosis of pulmonary ventilation disorders: spirometry, pneumotachometry, the indicator "loop flow / volume", evaluation of the elastic properties of the lungs, etc.

The diffusion of forms of days. Causes, manifestations, evaluation of disorders of gas diffusion through the alveolocapillary membrane.

Disorders of pulmonary blood flow. Their causes, consequences. The ratio of ventilation and perfusion in normal and pathological conditions: changes in ventilation-perfusion index, its evaluation. Alveolar dead space, alveolar venoarterial bypass.

Disorders of regulation of breathing. Pathological forms of breathing: remitting (tachypnea, bradypnea, hyperpnea, oligopnea, kussmaule breathing, monotonous breathing, apneustic and Gasping breathing), intermitting (Cheyne-Stokes breathing, Biota, alternating, undulating). Etiology and pathogenesis of pathological forms of breathing.

Acute inflammatory lung disease. Classification. Croup pneumonia (lobar). Etiology, pathogenesis, morphology, complications. Bronchopneumonia (focal). Etiology, pathogenesis, features of bronchopneumonia depending on the type of pathogen (pneumococcal, staphylococcal, streptococcal, fungal, pneumocystic, viral). Complications. Interstitial pneumonia (interstitial, peribronchiolar), pathogenesis, morphology. Acute destructive processes in the lungs (abscess, gangrene) pathogenesis, morphology. Chronic nonspecific lung diseases. Chronic bronchitis, bronchiectasis, chronic abscess, chronic pneumonia, pneumocystosis, emphysema, interstitial lung disease. Etiology, pathogenesis, ways of development (bronchiogenic, pneumonology, pneumonology). Bronchial asthma. Atelectasis. Etiology, pathogenesis, morphology, complications. Lung cancer. Etiology, pathogenesis, precancerous conditions. The concept of basal and peripheral lung cancer, complications. Forms of lung cancer, metastasis.

### **Pathology of the digestive system.**

Classification of diseases of the digestive tract. Pathology with the function of secretion, tone and motility of the digestive organs. Diseases of the gastrointestinal tract.

General etiology and pathogenesis of disorders of the digestive system. The role of food and nutrition in their occurrence; the importance of neurogenic and humoral factors. Infectious processes in the digestive system.

Pathogenic effects of Smoking and alcohol abuse. Functional connections of various departments of the digestive system in pathological conditions. Connection of disorders of digestion and metabolism.

Disorders of appetite: hyporexia, anorexia, parorexia, a bulimia, a polyphagia, a polydipsia, distresses of gustatory sensations. Disorders of salivation, Hypo- and hypersalivation. Disorders of chewing, swallowing, functions of the esophagus.

Diseases of the throat and pharynx. Angina. Causes, mechanism of development, complications. Esophageal diseases (esophagitis) – causes, morphology, complications. Esophagus cancer. Classification, morphology, complications. Stomach trouble. Acute and chronic gastritis. Peptic ulcer of the stomach and duodenum.

Pathological anatomy in the period of exacerbation and remission. Complications, outcomes. Chronic gastric ulcer as a precancerous condition. Stomach cancer. Etiology, pathogenesis, clinical and morphological



classification, histological forms, complications, metastasis. Bowel disease. Acute and chronic enteritis. Acute and chronic colitis. Etiology, pathogenesis, morphology, complications. Ulcerative colitis. Causes, pathogenesis, morphology, complications. Crohn's disease (large and small intestine). Causes, mechanism of development, morphology, complications. Appendicitis. Etiology, pathogenesis. Classification. Acute and chronic appendicitis. Complications. Tumors of the intestine. Colon cancer. Forms, morphology, metastasis, complications. Carcinoid. Morphology, carcinoid syndrome.

### **Liver pathology. Hepatosises. Hepatitises. Cirrhosises.**

Pathogenesis of dystrophy, hepatitis, liver cirrhosis. Diseases of the liver, gallbladder and pancreas. Liver failure. Definition of concept. Classification. Pathogenetic variants of hepatic insufficiency: cholestatic, hepatic-cellular, vascular, mixed. Experimental modeling of liver failure. Etiology and pathogenesis of symptoms and syndromes in liver diseases: "poor nutrition" syndrome, asthenovegetative, endocrinological, hematological, cutaneous, hypovitaminosis; hepatolienal syndrome, portal hypertension, ascites; cholestasis syndrome (primary and secondary); acholia, cholemia, jaundice. Hepatosis hereditary, acquired; acute, chronic. Toxic degeneration of the liver and cirrhosis and their relationship. Liver steatosis (fatty hepatosis). Etiology, pathogenesis. The role of alcohol. Complications, outcomes. Hepatitis is acute and chronic, primary and secondary. Viral, alcoholic hepatitis. Etiology, epidemiology, pathogenesis, clinical and morphological forms, morphology, complications. The connection with cirrhosis of the liver. Cirrhosis. Etiology, pathogenesis, morphogenesis, morphology. Complications. Hepatolienal, hepatorenal syndromes. Cause of death. Liver cancer, causes, cirrhosis as a precancerous condition. Micro-and macroscopic forms of liver cancer, complications, metastasis. Cholecystitis, gallbladder cancer. Pancreatitis is acute and chronic. Causes, pathogenesis, morphology, complications. Pancreatic cancer. Morphology.

### **Kidney pathology. ARF. HPN. Uremia.**

Diseases of the renal parenchyma, renal pelvis, ureters. Acute and chronic renal failure. Kidney disease. Violations of the main processes in the kidneys: filtration, excretion, reabsorption, secretion and incretion. The value of clearance for evaluating the filtration and excretory functions of the kidneys. Assessment of renal blood flow and the value of tubular reabsorption of water. Etiology and pathogenesis of renal glomerular and tubular disorders. Renal symptoms. Changes in daily diuresis (poly -, oligo -, anuria), changes in the relative density of urine, Hypo - and isostenuria, their causes and diagnostic value. The assessment of the concentration function of the tubules of the kidneys. «Urinary syndrome.» Proteinuria, hematuria, leukocyturia. Their types, causes, diagnostic value. Other pathological components of urine of renal and extrarenal origin. The extrarenal symptoms and syndromes in diseases of the kidneys. Pathogenesis and significance of azotemia, anemia, hypertension, edema. Nephritic and nephrotic syndromes. Etiology, types, pathogenesis. Modern clinical and morphological classification (glomerulopathy, tubulopathy). Glomerulonephritis-classification, etiology, pathogenesis, the importance of sensitization by bacterial and non-bacterial antigens in the development of glomerulonephritis. Immunomorphological characteristics of glomerulonephritis forms. Acute and chronic glomerulonephritis, pathological anatomy, complications, outcome. Hereditary alport nephritis. Primary and secondary nephrotic syndrome. Causes, pathogenesis, morphology, complications, outcomes. Renal amyloidosis. Causes, pathogenesis, morphology of stages, complications, outcomes. Acute renal failure (necrotic nephrosis). Causes, pathogenesis, morphology, complications, outcomes. Obstructive chronic tubulopathy. Paraproteinemic nephrosis, gouty kidney. Pathogenesis, morphology, complications, outcomes. Pyelonephritis acute and chronic. Etiology, pathogenesis, morphology, complications, outcomes. Nephrolithiasis (kidney stone disease). Etiology, pathogenesis, morphology, complications, outcomes. Nephrosclerosis. Causes, pathogenesis and morphogenesis. Species,

morphology. The concept of chronic renal failure, pathogenesis, morphology, pathomorphosis in connection with the use of chronic hemodialysis. Tumors of the kidney. Renal cell carcinoma, morphology.

**Pathology of the genital organs and mammary glands. Pathology of pregnancy. Gestosises. Pathology of the postpartum period.**

Female hypogonadism, hypogonadism. Problems of miscarriage. Postpartum period. Diseases of the genital organs and breast cancer

Prostatic hypertrophy. Glandular hyperplasia of the uterine mucosa. Forms morphological characteristics. Complications. Benign dysplasia of breast cancer. Classification. Non-proliferative and proliferative forms. Morphological characteristics, complications. Endometritis is acute and chronic. Causes, pathogenesis, morphology, complications. Mastitis is acute and chronic. Causes, pathogenesis morphology, complications. Uterine cancer. Ovarian cancer. Breast cancer. Frequency. Reasons. Precancerous condition. Classification of uterine cancer. Morphological characteristics, features of the course of cervical cancer and uterine body. Regularities of metastasis. Complications.

**The doctrine of the infectious process. Pathogenesis and morphogenesis of infectious diseases.**

The role of Mechnikov, Pasteur, Ehrlich in the development of the doctrine of the infectious process. Pathogenesis and morphogenesis of infectious diseases.

**Pathomorphology of tuberculosis.**

Stages of development of tuberculosis process. The value of the state of immunity.

**Pathology of the endocrine system.**

Diabetes. Hypothyroidism and hyperthyroidism. Hypogonadism and hypergonadism. Pheochromocytoma. Acromegaly, gigantism, dwarfism.

**Mechanisms of drug pathomorphosis of diseases and pathological processes.**

Principles of action of drugs. Effect on receptors, ion channels, enzymes, biological membranes, PH-media, osmotic pressure.

## **6. Методические указания для обучающихся по освоению дисциплины**

Освоение дисциплины требует систематического изучения всех тем в той последовательности, в какой они указаны в рабочей программе.

Основными видами учебной работы являются аудиторские занятия. Их цель - расширить базовые знания обучающихся по осваиваемой дисциплине и систему теоретических ориентиров для последующего более глубокого освоения программного материала в ходе самостоятельной работы. Обучающемуся важно помнить, что контактная работа с преподавателем эффективно помогает ему овладеть программным материалом благодаря расстановке необходимых акцентов и удержанию внимания интонационными модуляциями голоса, а также подключением аудио-визуального механизма восприятия информации.

Самостоятельная работа преследует следующие цели:

- закрепление и совершенствование теоретических знаний, полученных на лекционных занятиях;
- формирование навыков подготовки текстовой составляющей информации учебного и научного назначения для размещения в различных информационных системах;
- совершенствование навыков поиска научных публикаций и образовательных ресурсов, размещенных в сети Интернет;
- самоконтроль освоения программного материала.

Обучающемуся необходимо помнить, что результаты самостоятельной работы контролируются преподавателем во время проведения мероприятий текущего контроля и учитываются при промежуточной аттестации.

Обучающимся с ОВЗ и инвалидов предоставляется возможность выбора форм проведения мероприятий текущего контроля, альтернативных формам, предусмотренным рабочей программой дисциплины. Предусматривается возможность увеличения в пределах 1 академического часа времени, отводимого на выполнение контрольных мероприятий.

Процедура оценивания результатов обучения инвалидов и лиц с ограниченными возможностями здоровья по дисциплине предусматривает предоставление информации в формах, адаптированных к ограничениям их здоровья и восприятия информации.

При проведении текущего контроля применяются оценочные средства, обеспечивающие передачу информации, от обучающегося к преподавателю, с учетом психофизиологических особенностей здоровья обучающихся.

## **7. Перечень учебно-методического обеспечения для самостоятельной работы обучающихся по дисциплине**

При самостоятельной работе обучающимся следует использовать:

- конспекты лекций;
- литературу из перечня основной и дополнительной учебной литературы, необходимой для освоения дисциплины (модуля);
- текст лекций на электронных носителях;
- ресурсы информационно-телекоммуникационной сети "Интернет", необходимые для освоения дисциплины;
- лицензионное и свободно распространяемое программное обеспечение из перечня информационных технологий, используемых при осуществлении образовательного процесса по дисциплине;
- методические указания для обучающихся по освоению дисциплины.

## 8. Перечень основной и дополнительной учебной литературы

### Основная:

1. Suvarna S. Kim Cardiac Pathology. A Guide to Current Practice. Cham: Springer Nature Switzerland AG, 2019. Online ISBN 978-3-030-24560-3. Текст электронный: // <https://link.springer.com/book/10.1007/978-3-030-24560-3>
2. Lloyd Ricardo V. Endocrine Pathology: Differential Diagnosis and Molecular Advances. NY: Springer-Verlag New York, 2010. Online ISBN 978-1-4419-1069-1. Текст электронный: // <https://link.springer.com/book/10.1007/978-1-4419-1069-1> <https://link.springer.com/book/10.1007/978-1-4419-1069-1>

### Дополнительная:

1. Slootweg Pieter J. Dental Pathology. A Practical Introduction. Berlin: Springer, 2013. Online ISBN 978-3-642-36714-4. Текст электронный: // <https://link.springer.com/book/10.1007/978-3-642-36714-4>
2. Cummings Thomas J Ophthalmic Pathology. A Concise Guide. NY: Springer Science+Business Media, New York, 2013. Online ISBN 978-1-4614-4394-0. Текст электронный: // <https://link.springer.com/book/10.1007/978-1-4614-4394-0> <https://link.springer.com/book/10.1007/978-1-4614-4394-0>

## 9. Перечень ресурсов сети Интернет, необходимых для освоения дисциплины

<http://ibooks.ru/> Электронно-библиотечная система

## 10. Перечень информационных технологий, используемых при осуществлении образовательного процесса по дисциплине

Образовательный процесс по дисциплине **Pathology** предполагает использование следующего программного обеспечения и информационных справочных систем:

Presentation materials (slides on topics of lectures and practical classes);

on-line access to the Electronic library system (EBS)

access to the electronic information and educational environment of the University;

Internet services and electronic resources (search engines, e-mail, professional thematic chats and forums, audio and video conferencing systems, online encyclopedias, etc.).

List of required licensed and (or) freely distributed software :

1.The application allows you to view and play the media content of PDF files "Adobe Acrobat Reader DC".

2.Programs, video demonstrations (player) "Windows Media Player".

3.The program of browsing Internet content (a browser) "Google Chrome".

4.Office Suite of applications "LibreOffice".

При освоении материала и выполнения заданий по дисциплине рекомендуется использование материалов, размещенных в Личных кабинетах обучающихся ЕТИС ПГНИУ (**student.psu.ru**).

При организации дистанционной работы и проведении занятий в режиме онлайн могут использоваться:

система видеоконференцсвязи на основе платформы BigBlueButton (<https://bigbluebutton.org/>).

система LMS Moodle (<http://e-learn.psu.ru/>), которая поддерживает возможность использования текстовых материалов и презентаций, аудио- и видеоконтент, а так же тесты, проверяемые задания, задания для совместной работы.

система тестирования Indigo (<https://indigotech.ru/>).

## 11. Описание материально-технической базы, необходимой для осуществления образовательного процесса по дисциплине

1. Lecture classes-an Audience equipped with presentation equipment (projector, screen, computer / laptop) with appropriate software, chalk (s) or marker Board.

2. Seminar-type classes (seminars, practical classes) - an Audience equipped with presentation equipment (projector, screen, computer/laptop) with appropriate software, chalk (s) or marker Board.

3. Laboratory classes - Laboratory of Pharmaceutical and Industrial Technology, equipped with specialized equipment. The composition of the equipment is defined in the passport of the laboratory.

4. Group (individual) consultations-an Audience equipped with presentation equipment (projector, screen, computer / laptop) with appropriate software, chalk (s) or marker Board.

5. Current control-Audience equipped with presentation equipment (projector, screen, computer / laptop) with appropriate software, chalk (s) or marker Board.

6. Independent work-the Audience for independent work, equipped with computer equipment with the ability to connect to the Internet, provided with access to the electronic information and educational environment of the University. Premises of the Scientific library, Perm, Russia

Помещения научной библиотеки ПГНИУ для обеспечения самостоятельной работы обучающихся:

1. Научно-библиографический отдел, корп.1, ауд. 142. Оборудован 3 персональными компьютера с доступом к локальной и глобальной компьютерным сетям.

2. Читальный зал гуманитарной литературы, корп. 2, ауд. 418. Оборудован 7 персональными

компьютерами с доступом к локальной и глобальной компьютерным сетям.

3. Читальный зал естественной литературы, корп.6, ауд. 107а. Оборудован 5 персональными компьютерами с доступом к локальной и глобальной компьютерным сетям.

4. Отдел иностранной литературы, корп.2 ауд. 207. Оборудован 1 персональным компьютером с доступом к локальной и глобальной компьютерным сетям.

5. Библиотека юридического факультета, корп.9, ауд. 4. Оборудована 11 персональными компьютерами с доступом к локальной и глобальной компьютерным сетям.

6. Читальный зал географического факультета, корп.8, ауд. 419. Оборудован 6 персональными компьютерами с доступом к локальной и глобальной компьютерным сетям.

Все компьютеры, установленные в помещениях научной библиотеки, оснащены следующим программным обеспечением:

Операционная система ALT Linux;

Офисный пакет Libreoffice.

Справочно-правовая система «КонсультантПлюс»

**Фонды оценочных средств для аттестации по дисциплине  
Pathology**

**Планируемые результаты обучения по дисциплине для формирования компетенции.  
Индикаторы и критерии их оценивания**

**ОПК.6**

**Способен оказывать первую помощь на территории фармацевтической организации при неотложных состояниях у посетителей до приезда бригады скорой помощи**

<b>Компетенция (индикатор)</b>	<b>Планируемые результаты обучения</b>	<b>Критерии оценивания результатов обучения</b>
<b>ОПК.6.1</b> Осуществляет простейшие инструментальные исследования и оценивает общее состояние больного до приезда бригады скорой помощи	To know: the main instrumental methods for assessing the General condition of the patient. To be able to: conduct the simplest instrumental research. To possess: skills of carrying out the simplest instrumental researches, an assessment of the General condition of the patient before arrival of crew of ambulance.	<b>Неудовлетворител</b> The student is not able to assess the General condition of the patient before the arrival of the ambulance. <b>Удовлетворительн</b> The student is able to conduct simple instrumental studies, but it is difficult to assess the General condition of the patient before the arrival of the ambulance. <b>Хорошо</b> The student is able to conduct simple instrumental studies, is able to assess the General condition of the patient before the arrival of the ambulance, there are difficulties in interpreting the detected pathology. <b>Отлично</b> The student is able to conduct simple instrumental studies, is able to assess the General condition of the patient before the arrival of the ambulance.

**ОПК.3**

**Способен применять знания о морфофункциональных особенностях, физиологических состояниях и патологических процессах в организме человека для решения профессиональных задач**

<b>Компетенция (индикатор)</b>	<b>Планируемые результаты обучения</b>	<b>Критерии оценивания результатов обучения</b>
<b>ОПК.3.2</b> Учитывает морфофункциональные особенности, физиологические состояния и патологические процессы в организме человека при выборе	To know: morphofunctional organization of the person, features of activity in different periods of individual development. To be able to: recognize changes in human condition depending on the pathological process. To possess: skills of an	<b>Неудовлетворител</b> The student does not know the basic forms of morphofunctional, physiological States and pathological processes in the human body, the pathogenesis and outcome of diseases of internal organs, is not able to recognize changes in the human condition depending on the pathological process. <b>Удовлетворительн</b>

<b>Компетенция (индикатор)</b>	<b>Планируемые результаты обучения</b>	<b>Критерии оценивания результатов обучения</b>
<p>безрецептурных лекарственных препаратов и других товаров аптечного ассортимента</p>	<p>assessment of the General condition of the patient in the conditions of pathological process.</p>	<p style="text-align: center;"><b>Удовлетворительн</b></p> <p>The student knows the basic forms of morphofunctional, physiological States and pathological processes in the human body, the pathogenesis and outcome of diseases of internal organs, is not able to recognize and interpret changes in the human condition depending on the pathological process.</p> <p style="text-align: center;"><b>Хорошо</b></p> <p>The student knows the basic forms of morphofunctional, physiological States and pathological processes in the human body, the pathogenesis and outcome of diseases of internal organs, is able to recognize, analyze and interpret the nature of changes in the human condition depending on the pathological process. Not able, according to the principles of evidence-based medicine, to assess the General condition of the patient in the pathological process.</p> <p style="text-align: center;"><b>Отлично</b></p> <p>The student knows the basic forms of morphofunctional, physiological States and pathological processes in the human body, the pathogenesis and outcome of diseases of internal organs, is able to recognize, analyze and interpret the nature of changes in the human condition depending on the pathological process. Able, according to the principles of evidence-based medicine, to assess the General condition of the patient in the pathological process.</p>



## Оценочные средства текущего контроля и промежуточной аттестации

Схема доставки : Базовая

**Вид мероприятия промежуточной аттестации :** Экзамен

**Способ проведения мероприятия промежуточной аттестации :** Оценка по дисциплине в рамках промежуточной аттестации определяется на основе баллов, набранных обучающимся на контрольных мероприятиях, проводимых в течение учебного периода.

**Максимальное количество баллов :** 100

### Конвертация баллов в отметки

«отлично» - от 81 до 100

«хорошо» - от 61 до 80

«удовлетворительно» - от 50 до 60

«неудовлетворительно» / «незачтено» менее 50 балла

Компетенция (индикатор)	Мероприятие текущего контроля	Контролируемые элементы результатов обучения
<b>ОПК.3.2</b> Учитывает морфофункциональные особенности, физиологические состояния и патологические процессы в организме человека при выборе безрецептурных лекарственных препаратов и других товаров аптечного ассортимента	The doctrine of neoplasia. Carcinogenesis. Morphogenesis of tumors. Pathology of the blood system. Hemoblastosises. Anemias <b>Письменное контрольное мероприятие</b>	Basic theories and concepts of neoplasia, carcinogenesis, morphogenesis of tumors, pathology of the blood system, hemoblastosis, anemia
<b>ОПК.6.1</b> Осуществляет простейшие инструментальные исследования и оценивает общее состояние больного до приезда бригады скорой помощи	Pathology of the genital organs and mammary glands. Pathology of pregnancy. Gestosis. Pathology of the postpartum period. <b>Письменное контрольное мероприятие</b>	Pathology of genitals and mammary glands, pathology of pregnancy, gestosis, pathology of the postpartum period. Pathology of the circulatory system. Pathogenesis of cardiovascular insufficiency, vascular tone. Hypertensive disease. Stroke. Pathology of respiratory organs. Insufficiency of external respiration. Hypoxia. Pathology of the digestive system. Liver pathology. Hepatosises. Hepatitis. Cirrhosis. Kidney pathology. ARF. HPN. Uremia.

<b>Компетенция (индикатор)</b>	<b>Мероприятие текущего контроля</b>	<b>Контролируемые элементы результатов обучения</b>
<p><b>ОПК.3.2</b> Учитывает морфофункциональные особенности, физиологические состояния и патологические процессы в организме человека при выборе безрецептурных лекарственных препаратов и других товаров аптечного ассортимента</p> <p><b>ОПК.6.1</b> Осуществляет простейшие инструментальные исследования и оценивает общее состояние больного до приезда бригады скорой помощи</p>	<p>Mechanisms of drug pathomorphosis of diseases and pathological processes.</p> <p><b>Письменное контрольное мероприятие</b></p>	<p>Pathology as a science. Metabolic disorder. Inflammation. Disorders of blood and lymph circulation. Apoptosis as a General biological effect. Adaptive processes in the evolutionary development of mammals. Theories of carcinogenesis, the role of the immune system. Pathology of vascular tone. Inflammatory, specific and nonspecific diseases of the respiratory system. Pathology of digestion, liver, kidneys, genitals and mammary glands, endocrine system. Infectious process. Mechanisms of drug pathomorphosis of diseases and pathological processes.</p>

### **Спецификация мероприятий текущего контроля**

#### **The doctrine of neoplasia. Carcinogenesis. Morphogenesis of tumors. Pathology of the blood system. Hemoblastosises. Anemias**

Продолжительность проведения мероприятия промежуточной аттестации: **2 часа**

Условия проведения мероприятия: **в часы самостоятельной работы**

Максимальный балл, выставляемый за мероприятие промежуточной аттестации: **30**

Проходной балл: **15**

<b>Показатели оценивания</b>	<b>Баллы</b>
Knowledge of morphological and physiological characteristics of diseases	4
Knowledge of apoptosis as a General biological influence, characteristics of necrosis	4
Knowledge of the main pathological processes in the body	4
Knowledge of pathology of water-electrolyte metabolism, metabolic disorders of tissue fluid, edema	3
Knowledge of phases of inflammation, clinical manifestations of inflammation	3
Knowledge of metabolic disorders, dystrophy	3
Knowledge of types of anemia and leukopenia, hemorrhagic manifestations, thrombosis and embolism	3
Knowledge of adaptive processes in the evolutionary development of mammals, levels of their implementation	3
Knowledge of experimental research methods of anti-inflammatory drugs	3

#### **Pathology of the genital organs and mammary glands. Pathology of pregnancy. Gestosises. Pathology of the postpartum period.**

Продолжительность проведения мероприятия промежуточной аттестации: **2 часа**

Условия проведения мероприятия: **в часы самостоятельной работы**

Максимальный балл, выставляемый за мероприятие промежуточной аттестации: **30**

Проходной балл: **15**

<b>Показатели оценивания</b>	<b>Баллы</b>
Knowledge of cerebral circulation disorders	3
Knowledge of pathology of genitals and mammary glands, pathology of pregnancy, gestosis, pathology of the postpartum period	3
Knowledge of pathology of the circulatory system	3
Knowledge of pathology of vascular tone, hypertension	3
Knowledge of the pathology of the liver, hepatosis, hepatitis, cirrhosis	3
Knowledge of respiratory failure, hypoxia	3
Knowledge of respiratory pathology	3
Knowledge of the pathogenesis of cardiovascular failure	3
Knowledge of the pathology of digestion	3
Knowledge of renal disease, acute renal failure, chronic renal failure, uremia	3

**Mechanisms of drug pathomorphosis of diseases and pathological processes.**

Продолжительность проведения мероприятия промежуточной аттестации: **3 часа**

Условия проведения мероприятия: **в часы самостоятельной работы**

Максимальный балл, выставляемый за мероприятие промежуточной аттестации: **40**

Проходной балл: **20**

<b>Показатели оценивания</b>	<b>Баллы</b>
A complete answer to the first question of the ticket	10
The answer to the additional questions of the second question of the ticket	10
The answer to the additional questions of the first question of the ticket	10
A complete answer to the second question of the ticket	10