Federal State Budget Educational Institution
of Higher Education
Pacific State Medical University
of the Ministry of Health of the Russian Federation

APPROVED BY

Director of the Institute of Surgery
_____ / Kostiv E.P.
"4th" of April 2025

SUBJECT GUIDE FOR TEACHERS AND STUDENTS FOR

Б1.О.39 Traumatology, orthopedics

(Name of discipline)

Specialty	**31.05.01 General Medicine for international students (in English)** (code, name)
Degree	Specialist's degree
Profile	02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system)
Mode of study	**Full-time**
Period of mastering the BEP	**6 years** (nominal length of study)
Institute	of Surgery

Vladivostok, 2025

Subject guide for teachers and students for **Б1.О.39 Traumatology, orthopedics** is based on:

1) Federal State Educational Standard of Higher Education for the specialty approved by the Order No. 988 of Ministry of Science and Higher Education of the Russian Federation dated August 12, 2020.

2) Curriculum for the 31.05.01 General Medicine for international students (in English), profile 02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system), approved by the Academic Council of FSBEI HE PSMU of the Ministry of Health of Russia, Report No. 8/24-25 dated March 31, 2025.

Subject guide for teachers and students for **Б1.О.39 Traumatology, orthopedics** was developed by the writing team of the Institute of Surgery of the FSBEI HE PSMU of the Ministry of Health of Russia, under the guidance of the director of the institute, Doctor of Medical Sciences, Professor Kostiv E.P.

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1. GENERAL PROVISIONS

Subject guide for **Б1.О.39 Traumatology, orthopedics** is a set of recommendations and explanations that facilitate to optimal organization of mastering this discipline.

Regular analysis of lecture materials and work with end-of-the-text questions are necessary for better understanding of the material and systematization of knowledge of **Б1.О.39 Traumatology, orthopedics**. Particular attention should be paid to emerging questions, confusing terms, and conflicts of points of view during the independent review of the lecture material. If necessary, a student should contact the teacher for advice. Lecture material streamlines students' thinking, while practical classes provide deeper insight into the material of the discipline.

Special attention should be paid to the content of the main provisions and conclusions, explanation of phenomena and facts, and clarification of the practical application of theoretic aspects of topic when preparing for a practical class. During this process students should aim to understand and remember the main provisions of the material under consideration, examples provided, as well as understand the illustrative material.

Collections of assessment tools are used to organize independent study of topics of **Б1.О.39 Traumatology, orthopedics**.

Independent work of students is facilitated by the following:

1. availability and accessibility of the necessary educational and reference material;
2. a system of regular quality control of completed independent work;
3. availability of teacher's advice.

Subject guides for self-study are presented as literary sources. Subject guides for independent work of students include a list of library resources of the educational institution and other materials accessible to students.

Independent work is a type of in-person extracurricular work of teachers and students of **Б1.О.39 Traumatology, orthopedics**. Control of independent work is conducted by the leading teacher. Evaluation of independent work results is taken into account when conducting interim examination of students throughout the **Б1.О.39 Traumatology, orthopedics** course.

Continuous assessment during **Б1.О.39 Traumatology, orthopedics** course is implemented in order to check indicators of achieving competencies, to stimulate students' academic work, and improve methods of mastering new knowledge. Continuous assessment during **Б1.О.39 Traumatology, orthopedics** course is conducted during the semester to assess all types and sections of the academic discipline that encompass the competencies developed by the discipline: classroom questioning, conducting discussions, working with tests, and preparing reports. Continuous assessment of students' knowledge and results of their preparation for practical classes is conducted during every class session.

Interim assessment aims to determine the level of mastery of competency indicators. It is conducted in the exam format after the student has mastered all sections of **Б1.О.39 Traumatology, orthopedics** and takes into account learning outcomes for all types of student work over the entire period of mastering **Б1.О.39 Traumatology, orthopedics** course.

Time allotted for interim assessment is indicated in the schedule.

Assignments given during practical classes, as well as assignments aimed to prepare students for continuous and interim assessment, are included in the collection of assessment tools for **Б1.О.39 Traumatology, orthopedics**. If necessary, students should contact the teacher for advice. It is necessary to thoroughly think over questions that need clarification before seeking teacher's advice.

2. SUBJECT GUIDES FOR LECTURE CLASSES

Table 1. Subject Guides for **Б1.О.39 Traumatology, orthopedics** Lectures

Semester No.10 **Topic No.1 Subject and objectives of traumatology and orthopedics. History of traumatology. Organization of the trauma care in the Russian Federation. Examination methods in traumatology and orthopedics**
Duration of the lecture (in academic hours): 2
Purpose of the lecture: 1. tell students about the history of the development of traumatology, founders of traumatology and orthopedics; 2. define fracturology, traumatology, orthopedics; 3. examine the organization of the outpatient service in the conditions of the polyclinic (emergency room); 4. analyze the methods of examination of a traumatological and orthopedic patient.
Lecture plan, order of presentation of its sections: - Fracturology - History of development of traumatology and orthopedics. Contribution of Soviet scientists - Organization of work of the trauma care in the Russian Federation - Examination methods in traumatology and orthopedics - Classification of fractures
Recommended literature 1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"
Topic No.2 Bone tissue regeneration. Impaired fracture healing. False joint. Treatment of impaired fracture healing
Duration of the lecture (in academic hours): 2
Purpose of the lecture: 1. tell students about the formation of a bone callus, types of bone tissue regeneration; 2. define a false joint; 3. examine methods of treating patients with impaired fracture consolidation.
Lecture plan, order of presentation of its sections: - Types of bone callus. Stages of bone tissue regeneration - Causes of impaired fracture healing - False joints. Clinical manifestation, diagnostics - Treatment of patients with impaired fracture healing
Recommended literature 1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"
Topic No.3 Non-surgical and surgical methods of treating fractures. Urgent medical care
Duration of the lecture (in academic hours): 2

Purpose of the lecture:
1. tell students about the types of conservative and surgical treatment of fractures;
2. define osteosynthesis;
3. examine the principles of conservative and surgical treatment of patients with fractures;
4. analyze the types of emergency care for patients with fractures.

Lecture plan, order of presentation of its sections:
- Conservative methods of treating fractures:
  - Types of anesthesia in traumatology
  - Types of fracture reduction
  - Types of plaster casts
  - System of skeletal traction
- Surgical treatment of fractures:
  - Indications and contraindications for surgery
  - Types of osteosynthesis
  - Types of surgical interventions for fractures and other diseases
  - Complications of fracture treatment
- Emergency medical care for the victim:
  - Types of transport tires
  - Methods of bleeding arrest, applying a tourniquet

Recommended literature
1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"

Topic No.4 Fractures of the bones of the upper limbs. Anatomy, classification, clinical manifestation, diagnosis, treatment

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about the topographic anatomy of the upper limb;
2. give a classification of fractures of the upper limb;
3. examine methods of treating patients with injuries of the upper limb.

Lecture plan, order of presentation of its sections:
- Topographic anatomy of the upper limb
- Classification of fractures of the upper limb
- Fractures of the scapula. Clinical manifestation, diagnostics, treatment
- Fractures of the clavicle. Clinical manifestation, diagnostics, treatment
- Fractures of the proximal part of the shoulder. Clinical manifestation, diagnostics, treatment
- Diaphyseal fractures of the shoulder. Clinical manifestation, diagnostics, treatment
- Fractures of the distal part of the shoulder. Clinical manifestation, diagnostics, treatment
- Fractures of the bones of the forearm. Clinical manifestation, diagnostics, treatment
- Fractures of the radius in the typical location. Clinical manifestation, diagnostics, treatment
- Fractures of the bones of the wrist, metacarpal bones, and phalanges of the fingers
- Principles of treatment for patients with upper limb injuries

Recommended literature
1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"

Topic No.5 Fractures of the bones of the lower limbs. Anatomy, classification, clinical manifestation, diagnosis, treatment

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about the topographic anatomy of the lower limb;
2. provide the classification of fractures of the lower limb;
3. examine the methods of treating patients with damage to the lower limb.

Lecture plan, order of presentation of its sections:
- Topographic anatomy of the lower limb
- Classification of fractures of the lower limb
- Fractures of the proximal part of the thigh. Clinical manifestation, diagnostics, treatment
- Diaphyseal fractures of the thigh. Clinical manifestation, diagnostics, treatment
- Fractures of the distal part of the thigh. Clinical manifestation, diagnostics, treatment
- Fractures of the patella. Clinical manifestation, diagnostics, treatment
- Fractures of the proximal part of the lower leg. Clinical manifestation, diagnostics, treatment
- Diaphyseal fractures of the lower leg bones. Clinical manifestation, diagnostics, treatment
- Fractures of the calcaneus and talus. Clinical manifestation, diagnostics, treatment
- Injuries in the joints of Chopart and Lisfranc. Clinical manifestation, diagnostics, treatment
- Principles of treatment of patients with lower limb injuries

Recommended literature
1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"

Topic No.6 Injuries of the muscles, tendons, capsule and ligamentous structures, and peripheral nerves

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about injuries of the soft tissues of the musculoskeletal system;
2. provide the classification of injuries of the soft tissues of the musculoskeletal system;
3. examine the methods of treating patients with soft tissue injuries of the musculoskeletal system.

Lecture plan, order of presentation of its sections:
- Classification of soft tissue injuries
- The concept of bruises, sprains, tears
- Rotator cuff tear of the shoulder joint. Clinical manifestation, diagnostics, treatment
- Biceps tear of the shoulder (damage to the long and short head). Clinical manifestation, diagnostics, treatment
- Quadriceps tear. Clinical manifestation, diagnostics, treatment
- Damage to the capsule and ligaments of the knee joint. The main symptoms of ligament rupture, symptoms of meniscal damage. Clinical manifestation, diagnostics, treatment
- Achilles tendon rupture. Clinical manifestation, diagnostics, treatment
- First aid for patients with soft tissue injuries

Recommended literature
1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"

Topic No.7 Traumatic dislocations. Clinical manifestation, diagnosis, treatment	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about traumatic dislocations; 2. provide classification of dislocations; 3. examine methods of treatment (reduction) of traumatic dislocations in patients.	
Lecture plan, order of presentation of its sections: - Classification of dislocations - Dislocations of the acromioclavicular joint. Clinical manifestation, diagnostics, treatment - Dislocations of the shoulder joint. Classification, clinical manifestation, methods of reduction - Perilunate dislocation. Classification, clinical manifestation, methods of reduction - Dislocations of the hip joint. Classification, clinical manifestation, methods of reduction - Dislocations of the tibia. Clinical manifestation, diagnostics, treatment - Foot dislocations. Clinical manifestation, diagnostics, treatment - First aid for patients with traumatic dislocations	
Recommended literature 1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"	
Topic No.8 Spinal injuries. Anatomy, classification, clinical manifestation, diagnostics, treatment	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about uncomplicated spinal injuries; 2. provide the classification of spinal fractures; 3. examine the methods of treating patients with spinal fractures.	
Lecture plan, order of presentation of its sections: - Classification of fractures of the spine - Fractures of the cervical spine. Clinical manifestation, diagnostics, treatment - Fractures of the thoracolumbar spine. Clinical manifestation, diagnostics, treatment - Provision of first medical care to patients with fractures of the spine	
Recommended literature 1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"Traumatology and Orthopedics: Textbook / - 4th edition, revised and expanded. and add. under the editorship of N. V. Kornilov, A. K. Dulaev- M.: GEOTAR-Media, 2020. - 656 p. URL: http://www.studentlibrary.ru	
Topic No.9 Pelvic bone fractures. Classification, clinical manifestation, diagnostics, treatment	
Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about pelvic bone fractures;
2. provide the classification of pelvic bone fractures;
3. examine the methods of treating patients with pelvic bone fractures.

Lecture plan, order of presentation of its sections:
- Classification of fractures of the pelvic bones
- Fractures of the pelvic bones without damage to the pelvic ring. Clinical manifestation, diagnostics, treatment
- Fractures of the pelvic bones with damage to the pelvic ring. Clinical manifestation, diagnostics, treatment
- Fractures of the pelvic bones with damage to internal organs. Clinical manifestation, diagnostics, treatment
- Fractures of the acetabulum. Clinical manifestation, diagnostics, treatment
- Providing first aid to patients with pelvic fractures

Topic No.10 Polytrauma. Concomitant and multiple traumatic injuries. Multimodal injuries. Traumatic shock. Crush syndrome. Etiology, pathogenesis, clinical manifestation, and treatment

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about traumatic shock and crush syndrome;
2. define polytrauma, concomitant and multiple traumatic injuries, multimodal injuries;
3. examine the principles of treatment of patients with polytrauma.

Lecture plan, order of presentation of its sections:
- Polytrauma. Concomitant and multiple traumatic injuries. Mutual aggravation syndrome
- Multimodal injuries. Radiation sickness
- Traumatic shock. Classification, etiology, pathogenesis, clinical manifestation, diagnostics, principles of treatment
- Crush syndrome. Classification, etiology, pathogenesis, clinical manifestation, diagnostics, principles of treatment
- Providing first aid to victims with multiple injuries

Recommended literature
1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"

Semester No.11
Topic No.1 Wounds and wound infections. Sepsis, aerobic and anaerobic infection, tetanus. Surgical tactics. Prevention of rabies

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about wound infection, aerobic and anaerobic;
2. provide the classification of wounds;
3. examine methods of surgical intervention in wounds;
4. analyze seroprophylaxis of tetanus and rabies.

Lecture plan, order of presentation of its sections:
- Classification of wounds

- Aerobic wound infection. Principles of treatment
- Anaerobic wound infection. Principles of treatment
- Generalized infection. Sepsis. Principles of treatment
- Primary surgical treatment of the wound
- Tetanus. Clinical manifestation, diagnostics. Tetanus seroprophylaxis
- Rabies. Prevention. Clinical manifestation, diagnosis

Recommended literature

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"

Topic No.2 Open and gunshot fractures. Chronic posttraumatic osteomyelitis. Surgical tactics

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about open and gunshot fractures, chronic post-traumatic osteomyelitis;
2. provide the classification of open and gunshot fractures;
3. examine the methods of treating patients with open and gunshot fractures.

Lecture plan, order of presentation of its sections:

- Classification of open and gunshot fractures
- Reasons for treating patients with open and gunshot fractures
- Chronic post-traumatic osteomyelitis. Surgical tactics
- First aid for victims with open and gunshot fractures

Recommended literature

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"

Topic No.3 Amputation and prosthetics. Tumors of the bones and joints

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about the types of amputations, indications;
2. define amputation and exarticulation of a limb;
3. provide the classification of tumors of the bones;
4. examine the methods of treating patients with tumors of the bones.

Lecture plan, order of presentation of its sections:

- Types of amputation. Absolute and relative indications. Exarticulation of a limb
- Phantom pain. Causes. Treatment. A defective stump
- Types of prosthetics for the upper and lower limbs
- Classification of bone tumors
- Treatment of patients with bone tumors

Recommended literature

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023. - 784 p. - Electronic Library System "Student Consultant"

Topic No.4 Orthopedic pathology of the hand

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about orthopedic pathology of the hand;
2. provide the classification of orthopedic pathology of the hand;
3. examine treatment methods in patients with orthopedic pathology of the hand.

Lecture plan, order of presentation of its sections:
- Classification of orthopedic pathology of the hand
- Complex regional pain syndrome. Clinical manifestation, diagnostics, treatment
- Carpal tunnel syndrome. Clinical manifestation, diagnostics, treatment
- Tendovaginitis. Clinical manifestation, diagnostics, treatment
- De Quervain tendinopathy. Clinical manifestation, diagnostics, treatment
- Ligamentitis (locking finger). Clinical manifestation, diagnostics, treatment
- Dupuytren's contracture. Clinical manifestation, diagnostics, treatment
- Kienböck's disease. Clinical manifestation, diagnostics, treatment

Recommended literature
1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.5 Congenital orthopedic pathology in children. Congenital dislocation of the hip. Congenital clubfoot. Congenital muscular torticollis

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about congenital orthopedic pathology;
2. provide the classification of congenital orthopedic pathology;
3. examine treatment methods in patients with congenital orthopedic pathology.

Lecture plan, order of presentation of its sections:
- Classification of congenital orthopedic pathology
- Congenital dislocation of the hip. Clinical manifestation, diagnostics, treatment
- Congenital clubfoot. Clinical manifestation, diagnostics, treatment
- Congenital muscular torticollis. Clinical manifestation, diagnostics, treatment

Recommended literature
1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.6 Impaired posture. Scoliosis. Osteochondropathies. Chondrodysplasias

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about impaired posture, prevention of scoliosis;
2. provide the classification of scoliosis;
3. provide the classification of osteochondropathies;
4. provide the classification of chondrodysplasias;
3. examine treatment methods in patients with scoliosis.

Lecture plan, order of presentation of its sections:
- Types of impaired posture, prevention

- Classification of scoliosis. Classification of scoliosis.
- Classification of osteochondropathies (Legg-Calve-Perthes disease, Osgood-Schlatter disease, Köhler disease, Scheuermann-Mau disease, Haglund-Schinz disease / Sever's disease)

Recommended literature

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.7 Acquired orthopedic diseases in adults. Osteoarthritis. Structural (static) foot deformities

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about acquired orthopedic diseases;
2. provide classification of acquired orthopedic diseases;
3. examine surgical methods of treating patients with acquired orthopedic diseases.

Lecture plan, order of presentation of its sections:

- Classification of acquired orthopedic diseases.
- Osteoarthritis of the hip joint. Clinical manifestation, diagnostics, indications for endoprosthetics. Types of endoprosthetics. Possible complications in the postoperative period
- Osteoarthritis of the knee joint. Clinical manifestation, diagnostics, indications for endoprosthetics. Types of endoprosthetics. Possible complications in the postoperative period
- Transverse flatfoot. Clinical manifestation, diagnostics, types of surgical treatment

Recommended literature

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.8 Rehabilitation and medical examination in accident victims and patients with long-term effects of injuries and diseases of the musculoskeletal system

Duration of the lecture (in academic hours):	2

Purpose of the lecture:
1. tell students about the basics of rehabilitation of patients with injuries of the musculoskeletal system;
2. examine the main documentation for the registration of disability of patients;
3. analyze medical and social examination of victims with injuries of the musculoskeletal system;
4. define medical rehabilitation;
5. examine the types and terms of disability of patients.

Lecture plan, order of presentation of its sections:

- Types of rehabilitation of patients with injuries of the musculoskeletal system. Indications;
- Medical rehabilitation;
- Medical and social examination of victims with injuries of the musculoskeletal system;
- Examination of temporary disability;
- Terms of temporary disability;
- Examination of permanent disability
- Functions of the Main Disability Evaluation Bureau

Recommended literature

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

3. SUBJECT GUIDES FOR PRACTICAL CLASSES

Table 2. Subject Guides for Practical **Б1.О.39 Traumatology, orthopedics** Classes

September No.10 **Topic No.1 Subject and objectives of traumatology and orthopedics. History of traumatology. Organization of the trauma care in the Russian Federation. Examination methods in traumatology and orthopedics**	
Duration of the practical class (in academic hours):	6
Purpose of the practical class: 1. consolidate acquired knowledge on fracturology and examination methods in traumatology and orthopedics; 2. during the discussion, outline the main principles of organization of the trauma care in the Russian Federation; 3. thoroughly go over definitions and concepts of traumatism. The mechanism of injury; 4. study the patterns of classification of fractures based on the type of traumatic factor; 5. develop clinical thinking when diagnosing and selecting a treatment algorithm for patients with injuries to the musculoskeletal system.	
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.	
Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.	
Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.	
Recommended reading: 1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"	
Topic No.2 Bone tissue regeneration. Impaired fracture healing. False joint. Treatment of impaired fracture healing. **Non-surgical and surgical methods of treating fractures. Urgent medical care**	
Duration of the practical class (in academic hours):	6
Purpose of the practical class: 1. consolidate acquired knowledge gained on the basics of osteogenesis. Disorders of reparative osteogenesis; 2. during the discussion, outline the main bone callus types, causes of impaired fracture healing, and the main types of conservative and surgical treatment of fractures; 3. thoroughly go over definitions and concepts of reparative regeneration, osteogenesis, false joint, reposition, osteosynthesis, osteotomy, osteoplasty; 4. study the patterns of the technique of imposing skeletal traction, the technique of closed one-stage manual reposition;	

5. form clinical thinking in the diagnosis and selection of the algorithm of treatment in a patient with injuries of the musculoskeletal system.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.3 Fractures of the bones of the upper limbs. Anatomy, classification, clinical manifestation, diagnosis, treatment

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on the topographic anatomy of the upper limb;
2. during the discussion, outline the mechanisms of fractures, diagnosis, and treatment;
3. thoroughly go over definitions and concepts of intra-articular fractures;
4. study the patterns of classification of fractures by the type of traumatic factor;
5. form a clinical mindset in the diagnosis and selection of the algorithm of treatment in a patient with injury of the upper limb..

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.4 Fractures of the bones of the lower limbs. Anatomy, classification, clinical manifestation, diagnosis, treatment

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on the topographic anatomy of the lower limb;
2. during the discussion, outline the mechanisms of fractures, diagnostics, treatment;
3. thoroughly go over the definitions and concepts of intra-articular fractures;
4. study the patterns of classification of fractures by the type of traumatic factor;
5. form clinical thinking in the diagnosis and selection of the algorithm of treatment in a patient with injury of the lower limb.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.5 Injuries of the muscles, tendons, capsule and ligamentous structures, and peripheral nerves. Traumatic dislocations. Clinical manifestation, diagnosis, treatment

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on bruises, sprains, and tears;
2. during the discussion, outline the main principles of providing emergency care to patients with traumatic dislocations;
3. thoroughly go over definitions and concepts of the main symptoms of knee joint meniscus injuries;
4. study the patterns of classification of soft tissue injuries and dislocations based on the type of traumatic factor;
5. develop clinical thinking when diagnosing and selecting a treatment algorithm for a patient with a musculoskeletal injury.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.6 Spinal injuries. Anatomy, classification, clinical manifestation, diagnostics, treatment. Pelvic bone fractures. Classification, clinical manifestation, diagnostics, treatment

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on the topographic anatomy of the pelvic bones and the spine;
2. during the discussion, outline the main provisions on providing first aid to patients with pelvic bone fractures and spinal fractures;
3. thoroughly go over definitions and concepts of the mechanism of injury, the typical localization of injuries, and the principles of diagnosis;
4. study the patterns of classification of fractures based on the type of traumatic factor;

5. develop clinical thinking when diagnosing and selecting a treatment algorithm for patients with injuries of the pelvic bone or spine.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.7 Open injuries of bones and joints. Surgical tactics. Wounds and wound infections. Sepsis, aerobic and anaerobic infection, tetanus

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge gained on open and gunshot wounds; anaerobic and anaerobic infection, seroprophylaxis of tetanus and rabies;
2. during the discussion, outline the main provisions for providing surgical care to patients with open and gunshot fractures;
3. thoroughly go over definitions and concepts of sepsis, tetanus, anaerobic and aerobic infection;
4. study the patterns of classification of fractures by the type of traumatic factor;
5. form a clinical mindset in the diagnosis and selection of a treatment algorithm for a patient with open injuries of the musculoskeletal system.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.8 Polytrauma. Classification. Aspects of clinical manifestation and progression. Treatment. Ischemic injury of the limbs. Amputation and prosthetics

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on combined injuries, diagnostic methods, and treatment features;
2. during the discussion, outline the basic principles of rehabilitation treatment for polytrauma;
3. thoroughly go over definitions and concepts of polytrauma concomitant and multiple traumatic injuries, ischemic injury of a limb, amputation, exarticulation of a limb; prosthetics;

4. study the patterns of fracture classification by type of traumatic factor;
5. form clinical thinking in the diagnosis and selection of the algorithm of treatment of patients with polytrauma.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.9 Polytrauma-induced disease. Shock. Etiology and pathogenesis. Main treatment principles. Crush syndrome. Etiology and pathogenesis. Main treatment principles

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on polytrauma-induced disease;
2. during the discussion, outline the basic provisions of the choice of the method of anti-shock therapy in patients with polytrauma;
3. thoroughly go over definitions and concepts of traumatic shock. Crush syndrome;
4. study the patterns of classification, etiology and pathogenesis of traumatic shock and crush syndrome;
5. form clinical thinking in the diagnosis and selection of the algorithm of treatment in a patient with damage to the musculoskeletal system in traumatic shock.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

September No.11
Topic No.1 Congenital orthopedic pathology in children. Congenital dislocation of the hip. Congenital clubfoot. Congenital muscular torticollis

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on congenital orthopedic pathology;
2. during the discussion, outline the main provisions of the diagnosis of congenital orthopedic pathology;

3. thoroughly go over definitions and concepts of congenital dislocation of the hip, congenital clubfoot, congenital muscular torticollis;
4. study the patterns of classification and the main early and late symptoms of congenital orthopedic diseases;
5. form clinical thinking in the diagnosis and selection of the algorithm of treatment in patients with congenital orthopedic diseases.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.2 Impaired posture. Scoliosis. Osteochondropathies. Chondrodysplasias

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on congenital and acquired spinal pathology;
2. during the discussion, outline the basic provisions on the organization of follow-up care and observation of patients with congenital orthopedic diseases.;
3. thoroughly go over definitions and concepts of scoliosis, osteochondropathy, chondrodysplasia;
4. study the patterns of classification of scoliosis, osteochondropathies, chondrodysplasias;
5. form a clinical mindset in the diagnosis and selection of a treatment algorithm for a patient with congenital orthopedic diseases.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.3 Acquired orthopedic diseases in adults. Osteoarthritis. Structural (static) foot deformities

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on orthopedic diseases;
2. during the discussion, outline the basic provisions on the organization of orthopedic care for patients with acquired orthopedic diseases;

3. thoroughly go over definitions and concepts of endoprosthetics;
4. study the patterns of classification of acquired orthopedic diseases;
5. form clinical thinking in the diagnosis and selection of the algorithm of treatment in patients with acquired orthopedic diseases.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.4 Tumors of the bones. Amputations and prosthetics

Duration of the practical class (in academic hours):	6

Purpose of the practical class:
1. consolidate acquired knowledge on tumors of the bones;
2. during the discussion, outline the main provisions on the organization of trauma care for patients with tumors of the bones;
3. thoroughly go over definitions and the concept of tumors of the bones, orthopedic diseases of the hand;
4. study the patterns of classification of tumors of the bones, orthopedic diseases of the hand;
5. form clinical thinking in the diagnosis and selection of the algorithm of treatment in patients with tumors of the bones.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.

Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.

Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.

Recommended reading:

1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

Topic No.5 Rehabilitation and medical examination in accident victims and patients with long-term effects of injuries and diseases of the musculoskeletal system. Disability examination

Duration of the practical class (in academic hours):	4

Purpose of the practical class:
1. consolidate acquired knowledge on the rehabilitation of patients with injuries of the musculoskeletal system;

2. during the discussion, outline the main provisions of the structural and functional subdivisions of the traumatological point, the consultative and diagnostic center; 3. thoroughly go over definitions and concepts of the examination of temporary and permanent disability evaluation; 4. study the patterns of classification of rehabilitation treatment methods; 5. form clinical thinking in determining the possible terms of outpatient treatment of patients with orthopedic diseases and consequences of injuries.
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, and subject guides for the discipline.
Independent work of the student: writing a research paper. Preparing a summary of the lecture. Working with educational literature.
Methods of evaluation of acquired knowledge and skills: conducting discussions, classroom questioning, tests.
Recommended reading: 1. Traumatology and Orthopedics : textbook A. V. Garkavi, A. V. Lychagin, G. M. Kavalerskiy [et al.].- Moscow: GEOTAR-Media, 2023 - 784 p. - Electronic Library System "Student Consultant"

4. GUIDELINES FOR CONTINUOUS AND INTERIM ASSESSMENT

Table 3. Guidelines for Conducting Continuous and Interim Assessment during **Б1.О.39 Traumatology, orthopedics** Course

Type of assessment	Assessment format
Continuous assessment	- conducting and evaluating oral quizzes during practical classes; - assessment and evaluation of completion and results of assignments given during practical classes; - assess and evaluate completion and results of individual assignments and exam tasks given during practical classes; - assessment and evaluation of lecture notes quality.
Interim certification	is conducted in oral exam format; it allows to assess the development of students' competencies correlating with types of professional activity.

5 ASPECTS OF THE IMPLEMENTATION OF THE COURSE FOR STUDENTS WITH DISABILITIES AND SPECIAL NEEDS

5.1. Availability of accessible environment

For students with disabilities and special needs, if a written application is submitted, lectures and practical classes are carried out taking into account health limitations, individual capabilities and medical status (hereinafter referred to as individual characteristics) of the student. Compliance with the following general requirements is ensured: teaching aids for collective and individual use are provided, required technical assistance is provided by an assistant, buildings and premises where lectures and practical classes are taking place meet accessibility requirements, other arrangements lack of which makes it impossible or difficult to master the discipline are made.

5.2. Compliance with general requirements

When lectures and practical classes are carried out at the written application of the student, the following general requirements are met: lectures and practical classes for students with disabilities

and special needs take place at the same location as for students who do not have disabilities, if this does not cause difficulties for students; an assistant (assistants), who provide(s) students with the necessary technical assistance taking into account individual characteristics of the student, is (are) provided; necessary teaching aids are provided, taking into account individual characteristics of the student.

5.3. Availability of the internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia to students with disabilities in a form accessible to them.

All internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia concerning the discipline are made available to students with disabilities in a form accessible to them.

5.4. Increase in the duration of interim assessment of students with disabilities and special needs in relation to the established duration

Format of the interim assessment of academic performance within the scope of the discipline for students with disabilities and special needs is selected taking into account individual characteristics (orally, by writing on paper, by typing on a computer, as a test, etc.). The duration of the interim assessment in relation to the established duration is increased at the written application of the student with disabilities. Time limit for the student's preparation for the test is increased by at least 0.5 hours

6. STAFFING REQUIREMENTS OF THE DISCIPLINE

Academic teaching personnel that ensure the implementation of the discipline education process meet the requirements of the Federal State Educational Standard of Higher Education for the 31.05.01 General Medicine for international students (in English) specialty; list of the aforementioned personnel is available on the website of the educational organization.