University of Novi Sad

Faculty of Medicine

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Integrated Academic Studies in Medicine
Study Program 2014

www.mf.uns.ac.rs
MEDICINE
6 YEARS – 360 ECTS (Integrated 1st and 2nd level study)
Professional title acquired: MEDICAL DOCTOR
Access to further study: PhD study; Academic Specialization Study
Accreditation (see page 4.): National Committe for Accreditation and Quality Control, Decision No. 612-00-208/2009-04 dated 09 April, 2010
Last accreditation (renewed) dated August 2014.

Curriculum Structure
The Integrated Academic Studies in Medicine leading to the medical doctor degree last 6 years, that is 12 semesters (5530 classes), out of which 4665 are active training programs: 1) lectures (2325 classes), 2) practical training (2340 classes), 3) other forms of active training (seminars, round table sessions, summer schools, research and so on. Apart from this, the curriculum includes clinical practice – 715 classes, and research activities leading to the final exam (150 classes).

The total student workload throughout the Integrated Academic Studies in Medicine (active training, continuous training programs, exams and colloquia preparation, and final written exam preparation) equals 360 ECTS credit points. One ECTS credit stands for approximately 27 working hours.

The most important teaching methods include:
1. Interactive communication in the teaching process;
2. Teaching in small groups;
3. Individual laboratory and clinical practice;
4. Skills demonstration;
5. Lectures illustrated by slides and video clips.

All forms of active teaching are based on interactive teaching characterized by discussions on the topic, explanation of personal attitudes supported by theoretical or experience-based arguments, defining dilemmas regarding the topic and their solutions. Interactive teaching, as a current teaching method, provides better understanding of the teaching subjects, acquiring the inventive knowledge, development of personal opinions and adoption of the existing scientific doctrines.

After completing the whole Curriculum of the Integrated Academic Studies in Medicine at the Faculty of Medicine of the University of Novi Sad, students gain knowledge and skills necessary for independent individual work.

Purpose of the Curriculum
Reforms taking place in all areas of social life necessitate new approaches to higher education and health care systems. In these fields priority is given to all the actions contributing to the adjustment of our systems with the standards and principles of the European health care and higher education (Bologna and Munich Declarations).

This Curriculum is based on: University Law, Higher Education Law of the Republic of Serbia, recommendations and standards of the World Federation of Medical Education, principles of the European higher education incorporated in the Bologna Declaration, and on the need for highly educated health care professionals capable to follow the rapid development of medical science and practice.

This study program promotes the following European principles:
- Rationalization and modularization of study programs;
- Implementation of the ECTS credit system;
- Introduction of new teaching modalities and continuing learning process for students;
- Introduction of instruments for teaching process quality control;
- Involving students into the process of education as partners.

The Curriculum has clearly defined goals:
- Efficient learning;
- Higher levels of professional and scientific competence of graduate medical students should be of social and national interest;
- Curricula adjustments according to the standards of European Medical schools (from the aspect of quality, workload and teaching methods), which would certainly contribute to greater mobility of students, faculty and research ideas;
- Introduction of standards into the assessment of knowledge, skills and professional competence, which would be comparable with standards in Europe. In this way all medical students would be equal with their colleagues in the whole Europe.

**Objectives of the Curriculum**

The ultimate goal of this study program is to educate students to apply scientific and professional knowledge in prevention, diagnosis and treatment of patients, including promotion of healthy lifestyle, legal and ethical conduct, further professional education, all in accordance with the principles of good clinical practice.

Graduate students of the Integrated Academic Studies in Medicine acquire and develop a variety of skills and clinical competence. In regard to numerous aspects of the study program, medical doctors master principles of professional conduct, develop their research activities and abilities to systematically present a topics in writing, orally or in electronic format, as well as efficiently use resources and take part in team work.

The goals of the Medical Curriculum are to provide knowledge, understanding and attitudes which are necessary for a six-month internship followed by independent individual clinical work.

The acquired knowledge will allow them to get included in the process of permanent medical education and further professional and scientific improvement.

**Competencies of Graduate Students**

After completing the study program of Integrated Academic Studies in Medicine, students develop competencies and use their theoretical knowledge, clinical skills and professional communication standards during their professional and research activities.
РЕПУБЛИКА СРБИЈА
КОМИСИЈА ЗА АКРЕДИТАЦИЈУ И ПРОВЕРУ КВАЛИТЕТА

УВЕРЕЊЕ
О АКРЕДИТАЦИЈИ СТУДИЈСКОГ ПРОГРАМА

УНИВЕРЗИТЕТ У НОВОМ САДУ-МЕДИЦИНСКИ ФАКУЛТЕТ са седиштем у ХАЈДУК ВЕЉКОВА 3, НОВИ САД, ПИБ: 100451043, Матични број: 08113599, испунио је стандарде прописане Правилником о стандардима и поступку за акредитацију високошколских установа и студијских програма („Службени гласник РС“ број 106/06), за акредитацију студијског програма Интегрисане академске студије - МЕДИЦИНА-НА ЕНГЛЕСКОМ ЈЕЗИКУ у оквиру поља медицинских наука и то за 180 студената у седишту.

Ово уверење издаје се на основу члана 16. став 5. тачка 1) Закона о високом образовању („Службени гласник РС“ број 76/05).

Број: 612-00-208/2009-04

Београд, 09.04.2010. године

ПРЕДСЕДНИК

Проф. др Вера Вујчић
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- Introduction to research scientific work
- History of medicine and dentistry
- Sports medicine
- Microscopy laboratory techniques in medicine
- Variations in anatomy

Total

Active teaching 480 375 855
Professional practice 15 60.0
Teaching hours at II study year 870
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**Description**

Clinical surface anatomy

Experimental animals and experimental pharmacology in medical research

Clinical genetics

Transfusion medicine

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- **Experimental pharmacodynamic methods in experimental animals**
- **Clinical immunology**
- **Nuclear medicine**
- **Rational drug use in pregnancy and lactation**
- **Rational phytotherapy**
- **History of sexuality**

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<th>Professional practice</th>
<th>Research activities</th>
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T – theoretical teaching (Lectures)
P – practical teaching (Practice)
IA – individual activities
SRA – Study- research activities

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ANATOMY (M1-ANT)

STUDY PROGRAM | INTEGRATED STUDIES IN MEDICINE
DEPARTMENT | DEPARTMENT OF ANATOMY

COURSE TITLE / CODE | ANATOMY
COURSE STATUS | COMPULSORY

Condition: -

<table>
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<tr>
<th>Year of study</th>
<th>Winter semester (hours/week)</th>
<th>Summer semester (hours/week)</th>
<th>Colloquia</th>
<th>Seminars</th>
<th>ECTS Credits</th>
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Teaching methods | Lectures and Practice

AIM

Acquiring knowledge about the anatomy of human body, which will be the basis for further study of histological structure and function, and application of acquired knowledge in all branches of medicine, biomedicine, pharmaceutical-therapeutic and technological fields.

GOAL

Knowledge

Students will get acquainted with the morphology and structure of particular body parts. They will learn about the systematic and topographical anatomy applicable in practical part of the course. This knowledge is the basis of all clinical disciplines, such as pathological anatomy and histopathology, forensic medicine, pathophysiology, radiology and radiotherapy (nuclear medicine) as well as all surgical branches.

Skills

Acquiring practical knowledge in anatomy: identification of mutual relations of particular anatomical structures of organ systems, including vessel-nerve structures, as well as morphological and functional features of individual systemic and topographic parts. Learning about anatomical structures using cadaveric preparations, as well as the X-ray, NMR and CT techniques as the basis for post mortem examination and surgical techniques, radiological treatments and radiotherapy, as well as understanding biomedical and borderline disciplines.

COURSE DESCRIPTION

1. General anatomy: general osteology, general arthrology, general myology, general angiology, general neurology
2. Bones, joints, muscles, blood vessels, lymphatics and nerves of upper extremities
3. Topographic regions of upper extremities
4. Bones, joints, muscles, blood vessels, lymphatics and nerves of lower extremities
5. Topographic regions of lower extremities
6. Spinal cord
7. Thoracic walls
8. Thoracic duct (lungs, heart, esophagus, blood vessels, lymphatics and nerves)
9. Abdominal walls
10. Abdominal cavity (organs of the peritoneal cavity – abdominal part of the esophagus, stomach, small and large intestine, liver and bile ducts, pancreas, spleen; retroperitoneal cavity – kidneys and urinary tract, adrenal glands, blood vessels, lymphatics and nerves)
11. Pelvic walls
12. Pelvic cavity: male and female reproductive organs, urinary bladder and rectum
13. Craniofacial bones, craniofacial cavity, joints, muscles, blood vessels, lymphatics and nerves of head and neck
14. Head and neck: oral cavity, nasal cavity and paranasal sinuses, pharynx, thyroid and parathyroid glands
15. Topographic regions of the head and neck
16. Eye and ear
17. External morphology of the central nervous system (spinal cord, medulla, brain barrier, cerebellum, midbrain, cerebrum), meninx and central nervous system cavities (chambers and spinal fluid)
18. Central nervous system structure
19. Cerebral pathways
20. Blood vessels of the central nervous system
### Practical classes

1. Bones, joints, muscles, blood vessels, lymphatics and nerves of upper extremities
2. Topographic regions of upper extremities
3. Bones, joints, muscles, blood vessels, lymphatics and nerves of lower extremities
4. Topographic regions of lower extremities
5. Spinal cord
6. Thoracic walls
7. Thoracic duct (lungs, heart, esophagus, blood vessels, lymphatics and nerves)
8. Abdominal walls
9. Abdominal cavity (organs of the peritoneal cavity – abdominal part of the esophagus, stomach, small and large intestine, liver and bile ducts, pancreas, spleen; retroperitoneal cavity – kidneys and urinary tract, adrenal glands, blood vessels, lymphatics and nerves)
10. Pelvic walls
11. Pelvic cavity: male and female reproductive organs, urinary bladder and rectum
12. Craniofacial bones, craniofacial cavity, joints, muscles, blood vessels, lymphatics i and nerves of head and neck
13. Head and neck: oral cavity, nasal cavity and paranasal sinuses, pharynx, thyroid and parathyroid glands
14. Topographic regions of the head and neck
15. Eye and ear
16. External morphology of the central nervous system (spinal kord, medulla, brain barrier, cerebellum, midbrain, cerebrum), meninx and central nervous system cavities (chambers and spinal fluid)
17. Brain sections
18. Blood vessels of the central nervous system

### RECOMMENDED LITERATURE

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<tr>
<th>Compulsory</th>
<th>Recommended Literature</th>
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<table>
<thead>
<tr>
<th>Optional</th>
<th>Student’s activity assessment (points)</th>
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<tbody>
<tr>
<td>11. Kiss-Szentagothai. Anatomisk atlas čovjeke (različita izdanja)</td>
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<tr>
<td>12. Netter FH. Atlas anatomije čoveka (različita izdanja)</td>
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<td>13. Sinelaniškov RD. Atlas anatomii čeloveka (različita izdanja)</td>
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### Pre-exam activities

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### Teaching staff

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<thead>
<tr>
<th>Techn.</th>
<th>Teaching Ass.</th>
<th>Lecturer</th>
<th>Assist.Prof.</th>
<th>Assoc.Prof.</th>
<th>Full-time Prof.</th>
<th>Scient. Res.</th>
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</tr>
</tbody>
</table>

1. Prof. Dr. Marija Mihalj
2. Prof. Dr. Ljilja Mijatov-Ukropina
3. Prof. Dr. Nada Mihić
4. Prof. Dr. Ljubica Stojšić-Džunja

5. Assist. Dr. Siniša Babović
6. Doc. Dr. Dragan Krivokuča
7. Assist. Dr. Dušica Marić
8. Assist. Dr. Biljana Srdić
9. Assist. Dr. Mirela Erić
10. Assist. Dr. Bojana Kristonošić
11. Assist. Dr. Mirjana Milošević
12. Teach. Assist. d. Nikola Vučinić

---

Head of the Department  
Prof. Dr. Ljilja Mijatov-Ukropina
2. HISTOLOGY AND EMBRYOLOGY (M1HI/EM)

<table>
<thead>
<tr>
<th>STUDY PROGRAM</th>
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<th>Colloquia</th>
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</table>

| Teaching methods | Lectures and Practice |

<table>
<thead>
<tr>
<th>AM</th>
<th>Acquiring knowledge and skills necessary to 1. recognize and distinguish specific tissues and organs including their ultrastructural characteristics, and recognize structures deviating from normal morphological characteristics of tissues and organs, 2. distinguish specific phases in human embrional and fetal development, describe basic disorders of particular organs and organ systems.</th>
</tr>
</thead>
</table>

| GOAL | Knowledge | Student needs to be able to specify 1. ultrastructural cell characteristics, morphological characteristics of organelles as well as their functions, ultrastructural characteristics of specific cell types with regard to their function 2. types of tissues, their morphological characteristics, location and function 3. morphological characteristics of all organs in particular organ systems with their basic functions 4. morphological features of preembrional, embrional and fetal human development 5. histological elements associated with particular developing organs relevant to assessment of fetal age 6. morphological basis of disorders in development of specific organs and organ systems |
|---|---|

| Goals | Skills | Student needs to become capable to 1. recognize all cell organelles in electron microscope fotografies and register changes inconsistent with normal cells 2. under light microscope distinguish 4 basic types and all subtypes of tissues and register changes inconsistent with normal tissues 3. distinguish under light microscope all organs covered in practical classes, point to their elements relevant for structure and for differentiating them from other organs and to recognize changes inconsistent with normal structure 4. describe and recognize in graphic representations and photographs specific phases of intrauterine fetal development 5. make an assessment of approximate fetal age based on histological structure of developing organs as seen under light microscope 6. recognize basic disorders in development of particular organs and organ systems when seen in graphic representations, drawings and photographs |
|---|---|

<table>
<thead>
<tr>
<th>COURSE DESCRIPTION</th>
<th>Theoretical classes</th>
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<tr>
<td></td>
<td>1. Ultrastructural characteristics of the cell: cell membrane, cytoplasm, nucleus, cytoskeleton, membrane bound and non membrane bound organelles, cytoplasmic inclusions, cell cycle, cell division and cell renewal, cell death, apoptosis.</td>
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<tr>
<td></td>
<td>2. Histological characteristics of epithelial, connective, muscle and nervous tissue, subtypes, structure and function.</td>
</tr>
<tr>
<td></td>
<td>3. Histological structure of organs of the circulatory and immune system, digestive system and glands of digestive system, respiratory system, urinary system, male and female reproductive system, endocrine and nervous system, sense organs, integumentary system, bone and joints.</td>
</tr>
<tr>
<td></td>
<td>4. Fertilization, umbilical cord and placenta, preembrional development, germ layers - ectoderm, mesoderm and endoderm and their further differentiation, embrional and fetal development of tissues, folding of the embrion and formation of the primitive gut, formation of the head and neck, development of the digestive, respiratory, circulatory system, lymph organs, development of nervous, sensory and endocrine system, reproductive system, urinary system and skeleton. Malformations in the process of development, macroscopical and microscopical characteristics and importance for the survival.</td>
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<table>
<thead>
<tr>
<th>Practical classes</th>
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<tbody>
<tr>
<td>1. The cell and cellular organelles at the level of electron microscope – microphotographies</td>
</tr>
<tr>
<td>2. Epithelial tissue, covering, glandular and sensory epithelia, simple, stratified and pseudostratified epithelia, connective tissues with fluid, viscous and hard matrix</td>
</tr>
<tr>
<td>3. Histological structure of: heart, arteries, veins, capillaries; thymus, lymph nodes, spleen, tonsils; organs of the oral cavity, pharynx, esophagus, stomach, small intestine, large intestine, salivary glands, pancreas, liver, gallbladder; respiratory and olfactory region of the nasal cavity, larynx, trachea, bronchial tree, lungs, pleura; kidneys and excretory passages of the urinary system; ovaries, oviducts, uterus, vagina, mammary glands, testes, extratesticular ducts, accessory male genital glands; pineal body, pituitary, thyroid, parathyroid and suprarenal gland; organs of the central and peripheral nervous system, organs of the sensory system-eye, ear, taste buds; the skin and derivatives of the skin, bone and joints.</td>
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</table>
4. Histological structure of embryonal and fetal tissues and organs: umbilical cord, placenta, development of epithelial, connective, muscle and nervous tissue, development of skeleton, ossification, development of lips and teeth, fetal liver, pancreas, lungs, kidneys, ovaries, testes.

Recommended Literature

**Compulsory**


**Optional**

5. Sadler T.W. Langman’s Medical embryology. Williams & Wilkins, Baltimore, 1995 (i novija izdanja)

**Student activity assessment** (points)

<table>
<thead>
<tr>
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<th>Total</th>
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**Teaching staff**

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1. Prof. Dr. Dušan Lašović
2. Prof. Dr. Matilda Dolai
3. Assist. Dr. Mihaela Mocko-Kaćanski
4. Assist. Dr. Aleksandra Ferko-Levakov
5. Assist. Dr. Tamara Bošković
6. Assist. Dr. Bojana Andrejić-Višnjić
7. Assist. Dr. Ivan Čapo
8. Assist. Dr. Jelena Amidžić
9. Assist. Dr. Jelena Iljić-Sabo

Head of the Department
Prof. Dr. Dušan Lašović
### 3. ENGLISH LANGUAGE I (M1-FLE)

<table>
<thead>
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<th>STUDY PROGRAM</th>
<th>INTEGRATED STUDIES IN MEDICINE</th>
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<th>Seminars</th>
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| Teaching methods | Oral Approach and Situational Language Teaching; Audiolingual Method; Audiovisual method (video presentations, Internet); Lexical Approach; Communicative Approach; Task-Based Language Teaching |

#### AIM

Acquisition of the basic language skills which help students to use language actively and make progress in both general and medical English. To make students aware of how important it is to learn and use English as an international language of science.

#### GOAL

**Knowledge**
- Learning terminology in both general and medical English.
- Learning grammar, but concentrating more on language in context.
- Helping students to understand the basic differences between ESL and ESP and acquire new knowledge in both areas.

**Skills**
- Improving reading, listening, writing and speaking skills.
- Active communication and usage of sources in the subject area.

#### COURSE DESCRIPTION

**Theoretical classes**

1. **Introduction**: The importance of using English in everyday life as well as in the professional area; the human body seen from a layman’s and a doctor’s angle.
2. **Chemical elements and compounds**: Structure of the atom, ions, isotopes, chemical bonds, basic elements that make up human body.
3. **The Cell**: Different living organisms (single-celled, multi-celled), the cell – structure and functions, different types of cells and their functions in the human body.
4. **The Skeletal System**: Types of bones; bone formation and structure - functions; the names of the major bones (their location in the skeleton); articulations.
5. **The Muscular System**: Types of muscles (their functions and structure); tendons and ligaments.
6. **The Digestive System**: The main parts and other organs which take part in the process of digestion; general and specific functions.
7. **The nervous System**: Nerve cell (structure and functions); generation and conduction of electrical impulses; the central nervous system; the peripheral nervous system (structure and functions).
8. **The Circulatory System**: Lymphatic system (parts), Cardiovascular system (structure and functions), the heart, arteries and veins, blood pressure.
9. **The Respiratory System**: Respiration (external and internal); transport of gases; different parts of the system and their functions.
10. **The Excretory System**: Bodysystems and organs which remove waste products (skin, digestive and respiratory system); the urinary system – main organs and their functions.
11. **The Endocrine System**: Basic characteristics and functions, endocrine glands, different hormones and their roles.
12. **The Reproductive System**: Male and female reproductive systems (anatomy); gonads, fertilization, gestation, parturition.
13. **Senses**: Sense organs – their structure and functions (eye, ear, nose, tongue, skin).
14. **Body movements**: Words used for various body movements in everyday life.
15. **Physical appearance**: Description of appearance (hair, face, constitution, skin, general appearance).
16. **Character**: Description of various human characteristics (intelligence, attitudes, behavior, ambitions, righteousness and so on).
17. **Clothes**: Vocabulary on clothes and usage, materials, colors, general appearance, style.
18. **Interpersonal and family relationships**: Friendship, acquaintance, fellowhip, kinship, love.
20. **Food**: Various kinds of foods and their effects on health, national cuisines, food preparation, dining-out.
21. **Young people and society**: Childhood, growing up, adolescence, man’s role in the society, individuals as factors of change, students.
22. **Humor**: Humor as a reflection of intelligence and positive way of thinking, humor as a factor of health, cultural phenomenon, sense of humor.
23. **Fear**: Types of fear, causes of fear, overcoming fear, the role of fear in manipulating people.
24. **Memory**: Reliability of memories, training memory, motivation and memory, attention, learning.
25. **Loneliness**: As a subjective phenomenon, circumstances leading to loneliness, solitude and loneliness.

**Practical classes**
### Recommended Literature

<table>
<thead>
<tr>
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<table>
<thead>
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<th>Optional</th>
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### Student’s activity assessment (points)

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<th>Pre-exam activities</th>
<th>Final exam</th>
<th>Total</th>
</tr>
</thead>
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### Teaching staff

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<tr>
<th>Technical Demonstrator</th>
<th>Teaching Assistant</th>
<th>Lecturer</th>
<th>Ass. Prof.</th>
<th>Assoc. Prof.</th>
<th>Full Prof.</th>
<th>Scientific Researcher</th>
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</tbody>
</table>

1. Prof. Zoran Marošan
2. Pof. Vuk Marković

---

Head of the Department
Prof. Dr. Dušica Rakić
## 4. HUMAN GENETICS (M1-HUGE)

<table>
<thead>
<tr>
<th>STUDY PROGRAM</th>
<th>INTEGRATED STUDIES IN MEDICINE</th>
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<th>Summer semester (hours/week)</th>
<th>Colloquia</th>
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### Teaching methods

Lectures and Practice

### AIM

This course has been designed to introduce fundamental concepts and technological advances in the study of human genome as well as genetic mechanisms of hereditary diseases. Each of the major subspecialties will be addressed: cytogenetics, molecular genetics, biochemical genetics, clinical genetics, reproductive and prenatal genetics and genetic counselling. Genetic variability provides the basis for the development of both, rare diseases and common disorders.

### GOAL

#### Knowledge

Students will be able to use basic genetic entities and recognize the importance of genetics in modern science. They will get knowledge about: morphological and functional organization of chromosomes and mutation mechanisms. Using examples they will apply Mendel laws, understand intra and interloci gene interactions. They will be able to predict possible mechanisms of inheritance and to construct genealogy. They will understand and differ basic techniques of molecular genetics in prenatal diagnostics, forensics and gene therapy.

#### Skills

After fulfilling pre-exam and exam obligations students will be able to:
- differ levels of structural and functional organization of human genome,
- identify mechanisms of gene expression,
- comprehend processes of genetic experimentation leading to determination of the etiology of hereditary diseases of various complexity,
- explain the methodology of basic techniques in molecular genetics in prenatal diagnosis and forensics,
- use available internet sources and professional literature

### COURSE DESCRIPTION

#### Theoretical classes

1. Introduction to human genetics. Structure of nucleic acids.
6. Intralocus and interlocus gene interactions.
7. Sex determination. Sex and holandric inheritance.
9. Mutations, repair and DNA recombinations.

#### Practical classes

1. Nucleic acids and gene expression.
2. Structural and molecular organization of chromosomes.
5. Genealogy analysis.
6. Gene interactions. Multiple alleles and blood groups.
8. Sex determination. Sex-related characteristics.
10. Chromosomal structure mutations.
11. Multifactorial inheritance.

### Recommended Literature

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### Optional

### Student’s activity assessment (points)

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### Teaching staff

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<tr>
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<th>Scientific Researcher</th>
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<td>2. Prof. Dr. Mihajla Đan</td>
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<td>3. Prof. Dr. Dragana Obreht</td>
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Head of the Department
Prof. Dr. Dušica Rakić
5. MEDICAL ETHICS AND SOCIOLOGY (M1-ME/SC)

**STUDY PROGRAM**
INTEGRATED STUDIES IN MEDICINE

**DEPARTMENT**
DEPARTMENT OF GENERAL SUBJECTS

**COURSE TITLE / CODE**
MEDICAL ETHICS AND SOCIOLOGY

**COURSE STATUS**
COMPULSORY

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**Teaching methods**
Oral, video presentation

**AIM**
To encourage students to develop and adopt ethical schemes for the future profession. Making the students familiar with the recent trends in sociology and adopting sociological way of thinking.

**GOAL**
To offer the students knowledge on all the oaths and codex of medical ethics as on deontological and jurisdictional rules and legislation conditions related to health service. To offer better understanding the problems of mankind, society and history, as well as self-understanding of the profession.

**SKILLS**

**THEORETICAL CLASSES**
1. Moral, morality, ethics and deontology, oaths and codexes.
2. Ethical attitude of the doctors to patients in medicine.
3. Ethical dilemmas – euthanasia, medical secrets, abortion etc.
4. Ethics and society -. Relationship between doctors, patients, colleges and profession.
5. Medical deontology and medical law.
6. The subject and methods in sociology.
7. The society and the elements in social structure.
8. The culture as a specific human need.
9. Social process and changes.
10. The main characteristics of contemporary society of Serbia

**PRACTICAL CLASSES**

**RECOMMENDED LITERATURE**

**STUDENT’S ACTIVITY ASSESSMENT (POINTS)**

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**TEACHING STAFF**
1. Prof. Dr. Aleksandra Doronjski
2. Prof. Dr. Branimir Gudurić, emeritus
5. Prof. Dr. Dragan Koković

Head of the Department
Prof. Dr. Dušica Rakić

6. FIRST AID (M1-FA)

**STUDY PROGRAM**
INTEGRATED STUDIES IN MEDICINE
### DEPARTMENT
DEPARTMENT OF EMERGENCY MEDICINE

### COURSE TITLE / CODE
FIRST AID

### COURSE STATUS
COMPULSORY

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Teaching methods: Practical work: demonstration and simulation of injured and diseased patients and first aid. Work on models.

#### AIM

**Knowledge**
Principles and basic knowledge of first aid

**Skills**
Training and skills for immediate action in critically ill or injured casualties to save lives

#### Theoretical classes

**Practical classes – simulation of critical situations**

1. Critical care and triage of casualties
2. Evacuation of the injured (extraction and transportation)
4. Proper casualty positions (relaxed, lateral, semi-lateral, laying on the stomach, semi-lying, semi-sitting, sitting, knee-elbow, kneeling, autotransfusion position)
5. Cardiopulmonary arrest (signs and symptoms). Basic life support (BLS)
7. Open and closed wounds (signs and symptoms) – first aid
8. Fractures (signs and symptoms) - first aid (RICE principle).
11. Hypothermia and local cooling (signs and symptoms)-first aid.
12. Special conditions (hearth conditions, asthma, fainting, stroke, epilepsy, low blood sugar, high blood sugar, poisoning (signs and symptoms) – first aid.

#### RECOMMENDED LITERATURE

**Compulsory**
2. Crveni krst Srbije: Prva pomoć, Zavod za udžbenike Beograd

**Optional**

#### Student’s activity assessment (points)

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**Teaching staff**

1. Doc. Dr. Vladan Popović
2. Assist. Dr. Snežana Stanisavljević
3. Assist. Dr. Vesna Pažić
4. Assist. Dr. Vladimir Manojlović
5. Doc. Dr. Ilija Srdanović
6. Assist. Dr. Srdan Gavrilović
7. Assist. Dr. Nemanja Gvozdenović

Head of the Department
Doc. Dr. Vladan Popović
7. MEDICAL STATISTICS AND INFORMATICS (M1-MS/IN)

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Teaching methods: Lectures, practice, practical computer work

 AIM

To enable student for evaluation of his own and other people’s work using statistical-analytical procedures, to design simple survey for improvement of the quality of his work, to read critically professional and scientific literature for better understanding of procedures of science based medicine.

The aim of this course is to introduce students with elements of computer literacy and especially use of informations-communications technology in medicine.

 GOAL

Knowledge


Skills

Application of statistical techniques, their interpretation, use of statistical-analytical procedures and presentation of results in professional literature.

Using computers to solve problems with current software solutions. To use Internet. To use office applications for text arrangement, cross table calculation, computers presentations and creation of simple web presentations. Simple statistical processing of medical data by using programs for cross table calculation.

Theoretical classes

2. Controlling gathered data. Grouping data and their encryption.
3. Data presentation: tables, graphs and figures.
5. Mean values.
7. Sample and standard deviation.
8. Trend and correlations.
9. Statistical tests.
11. Indicators of population health status.
13. Natural demographics.
14. Mechanical demographics.
15. Morbidity.
16. Solving problems by using computer (the role of computers, algorithm and computer programme).
17. Basics of hardware and software architecture of the computer.
20. The use of computers in medicine (processing of medical data, medical and information systems, medical diagnostic, standards in medical informatics, telemedicine and health care)

Practical classes
1. Poll, research instrument—questionnaire
2. Construction of tables, horizontal and vertical structures
3. Relative numbers
4. Mean values
5. Measures of variability
6. Sample processing, Standard deviation
7. Estimation (population and samples)
8. Correlation
9. T-test
10. $\chi^2$ test
11. Indicators of sex and age distribution
12. Birth rate, fertility, reproduction
13. Indicators of mortality
14. Birth rate and vital index
15. Indicators of morbidity
16. Basic functions of operating system
17. Work with files
18. The use of Internet services (Web, FTP, e-mail)
19. Text processing
20. Cross table calculations
21. Statistical processing of data by using programs for cross table calculation
22. Integration into a unique document
23. Creation of simple computer presentation
24. Creation of simple web presentation

RECOMMENDED LITERATURE

Compulsory


Optional


**Student’s activity assessment (points)**

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<th>Lectures</th>
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**Teaching staff**

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<th>Lecturer</th>
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1. Prof. Dr. Vera Grujić
2. Prof. Dr. Mirjana Martinov Cvejin
3. Doc. Dr. Eržebet Ać Nikolić
4. Prof. Dr. Zora Konjović
5. Doc. Dr. Svetlana Krvgić
6. Doc. Dr. Vesna Mijatović Jovanović
7. Doc. Dr. Snežana Ukropina
8. Doc. Dr. Olja Ničiforović Šurković

9. Assit. Dr. Sonja Šušnjević
10. Assit. Dr. Nataša Dragnić
11. Assit. Dr. Dušan Čanković
12. Assit. Dr. Sanja Harhaji
13. Assit. Dr. Sonja Čanković
14. Assit. Dr. Ivana Radić

Head of the Department
Prof. Dr. Mirjana Martinov Cvejin
8. INTRODUCTION TO CLINICAL PRACTICE I (M1-ICP1)

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Teaching methods

AIM

Medical students will get acquainted with the organization of clinical work; responsibilities of medical staff, especially medical doctors. Students will get basic skills for a daily clinical practice.

GOAL

Knowledge

Basic theoretical knowledge required for working with patients.

Skills

Basic skills required by admission of the patient to the health care institution and all aspects of the treatment and care.

COURSE DESCRIPTION

Theoretical classes

1. Relation of health practitioners and medical students towards patients
2. Admission of patients to the hospital
3. Identification of basic disorders on admission
4. Evaluation of the patient on admission and during hospitalization
5. Basic measurements
6. Vital functions
7. Mobile patients – basic care
8. Immobile patients – basic care
9. Hygiene of the patients
10. Nourishment of patients and types of diet
11. Infusions
12. Obtaining body fluids and blood for analysis
13. Patient transport
14. Hygiene for bedridden patients
15. Means and modes for heating and cooling the body

Practical classes

1. Getting familiar with the Institute/Clinic and organization of work;
2. Admission and history taking;
3. Evaluation of patient’s consciousness;
4. Measuring patients’ height and weight;
5. Measuring of waist circumference and limbs;
6. Evaluation of vital functions (temperature, pulse, arterial pressure, respiration, skin appearance);
7. Changing clothes of mobile patients;
8. Changing clothes of immobile patients;
9. Setting urine bottle, pouch, bed pan;
10. Changing urine-bags;
11. Basic types of diet;
12. Fluid intake monitoring;
13. Procedures for obtaining blood and body fluids for diagnostic purposes;
14. Moving patients from bed to the wheelchair;
15. Hygiene for bedridden patients;
16. Means and modes for heating and cooling the body

RECOMMENDED LITERATURE

Compulsory


Optional


Student’s activity assessment (points)

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<td><strong>Head of the Department</strong></td>
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<tr>
<td>Doc. Dr. Janko Pasternak</td>
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1. Prof. Dr. Goran Ercegan
2. Prof. Dr. Tibor Somer
3. Prof. Dr. Smiljana Marinković
4. Prof. Dr. Jasenko Dozić
5. Prof. Dr. Milan Breberina
6. Prof. Dr. Radovan Cvijanović
7. Prof. Dr. Goran Marušić
8. Prof. Dr. Ljiljana Gvozdenović
9. Prof. Dr. Zlata Janjić
10. Prof. Dr. Zoltan Horvat
11. Prof. Dr. Pavle Milošević
12. Prof. Dr. Bogoljub Mihajlović
13. Prof. Dr. Pavle Kovačević
14. Prof. Dr. Dragan Savić
15. Prof. Dr. Lazar Petković
16. Prof. Dr. Svetozar Šećen
17. Prof. Dr. Dušanka Dobanovački
18. Prof. Dr. Tomislav Cigić
19. Prof. Dr. Miroslav Milković
20. Prof. Dr. Petar Vuleković
21. Prof. Dr. Katarina Šarčev
22. Prof. Dr. Zoran Milošević
23. Prof. Dr. Biljana Drašković
24. Prof. Dr. Pavle Jeremić
25. Prof. Dr. Miroslav Ilić
26. Prof. Dr. Đorđe Gajdobranski
27. Prof. Dr. Tomislav Petrović
28. Prof. Dr. Vuk Šekuljić
29. Prof. Dr. Aleksandar Milovančev
30. Prof. Dr. Jan Varga
31. Prof. Dr. Radoica Jokić
32. Prof. Dr. Slobodan Grebeldinger
33. Prof. Dr. Milan Stanković
34. Prof. Dr. Stamenko Šušak
35. Prof. Dr. Dejan Ivanov
36. Prof. Dr. Milana Obradović-Tomašev
37. Prof. Dr. Miloš Koledin, docent
38. Prof. Dr. Biljana Đanić
39. Prof. Dr. Aleksandar Komarčević
40. Prof. Dr. Ferenc Vicko
41. Prof. Dr. Milorad Bjelović
42. Prof. Dr. Janko Pasternak
43. Prof. Dr. Aleksandar Đerđek
44. Docent. Dr. Milan Korica
45. Docent. Dr. Svetlana Bukarica
46. Docent. Dr. Milanka Tatić
47. Docent. Dr. Goran Petković
48. Docent. Dr. Jovo Bogdanović
49. Docent. Dr. Srdan Ninković
50. Docent. Dr. Dušan Marić
51. Docent. Dr. Saša Vojinov
52. Docent. Dr. Dejan Đurić
53. Docent. Dr. Draga Radovanović
54. Docent. Dr. Vladimir Harhaji
55. Docent. Dr. Radovan Veljković
56. Docent. Dr. Mladen Protić
57. Docent. Dr. Ivan Levakov
58. TA Dr. Dragan Momčilović
59. TA Dr. Milenko Rosić
60. TA Dr. Sanja Vucković
61. TA Dr. Zoran Gojković
62. TA Dr. Aleksandar Marcikić
63. TA Dr. Aleksandar Glinović
64. TA Dr. Mladen Jovanović
65. TA Dr. Duško Manić
66. TA Dr. Nataša Janjić
67. TA Dr. Arsen Uvelin
68. TA Dr. Dragan Nikolić
69. TA Dr. Lazar Velicki
70. TA Dr. Gorana Jovanović
71. TA Dr. Nemanja Kovačev
72. TA Dr. Predrag Rašović
73. TA Dr. Dula Đilvesi
74. TA Dr. Vladimir Papić
75. TA Dr. Ana Uram Benka
76. TA Dr. Izabela Fabri
77. TA Dr. Teodora Božić
78. TA Dr. Radmila Popović
79. TA Dr. Đorđe Milošević
80. TA Dr. Srdan Živojinov
81. TA Dr. Dimitrije Jeremić
82. TA Dr. Jelena Nikolić
83. TA Dr. Ivan Kuhajda
84. TA Dr. Milorad Bjelović
85. TA Dr. Jelena Antić
86. TA Dr. Vukadin Milankov

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<tr>
<td><strong>Head of the Department</strong></td>
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<tr>
<td>Doc. Dr. Janko Pasternak</td>
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9. PHYSIOLOGY (M2 – PHYS)

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| Teaching methods | Lectures, Practice |

AIM

Basic goals of education in the field of physiology are introducing students with basis of functioning of organs and systems of organs and aspects of their organisation in complex functional systems.

Knowledge

Introduction with basic mechanisms of functioning of different systems of organs and aspects of organisation of regulatory mechanisms of complex homeostatic parameters in the functional systems. Introduction with complex neural and humoral regulatory mechanisms of different functional systems.

Skills

Students need to learn basic principles and rules of laboratory usage and to get acquainted with principal laboratory procedures. Also, students will be trained to perform daily laboratory routines by themselves. Students will learn to use animal models and animal tissue for demonstration of physiological processes. Students will be trained in detail for sampling and preparation of body liquids (blood, urine) as well as with the methods of basic laboratory analysis used in daily practice (sedimentation, hematocrit, red blood and white blood cell count, white blood cell formula, time of bleeding and coagulation, general and chemical characteristics of urine). Student will learn basic electrophysiological methods (ECG, EEG, EMNG, EP), and will be trained to perform the recordings and explain the basic parameters of the recordings. Student will learn to perform blood pressure measurement and heart auscultation. Also student will learn to determine the respiratory volumes and capacities.

COURSE DESCRIPTION:

**Theoretical classes**

12. AUTONOMOUS NERVOUS SYSTEM: Sympathetic and parasymphetic nervous system: structure, classification, of the vegetative ganglia and their function, specific mediators. Division of vegetative reflexes and the significance of dual organ inervation.

### Practical classes

1. Excitable tissue (reobasis, chronaction, useful time, anelectrotone, catelectrotone, polarization current, Pflüger lows)
2. Muscles (basic and complex muscle contraction, summation, influence of intensity of stimuli on the size of muscle contraction, maximal muscle contraction with different loads, ergography, influence of temperature and fatigue on muscle contraction)
3. Breathing (model of the ribs, Donders model, spirometry, spiography, pneumography, forced spirometry, air content)
4. Digestion (digestion in the mouth, digestion in the stomach).
5. Heart and the circulation (heart regulation, ECG, measurement of the blood pressure, auscultation, polycardiography, capillaries).
6. Blood (plasma buffers, sedimentation, hematocrit, hemolysis, red blood and white blood cell count, white blood cell formula, time of coagulation and bleeding).
7. Excretion (general characteristics of the urine, chemical chr. of urine, urine sediment).
8. Senses (examination of the eyes, ears and hearing, balance, surface and deep sensibility).
9. CNS (spinal reflexes of the decapitated frog, spinal shock, testing of the reflex arc, examination of the reflexes of clinical significance, EEG, neuronal activity, EMNG, EP, reaction)

<table>
<thead>
<tr>
<th>Recommended Literature</th>
<th>Compulsory</th>
<th>Optional</th>
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<tbody>
<tr>
<td>A.C. Guyton. Medical Physiology</td>
<td>V. Ivetic. Test pitanja iz fiziologije</td>
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<tr>
<td>Dj. Sterio i sar. Praktikum iz fiziologije</td>
<td>A. Despopulos, S. Silbermagl. Fiziološki atlas u boji</td>
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<td>V.M. Mujović. Medicinska fiziologija</td>
<td>K.V. Sudakov. Fiziologija – osnovi i funkcionalni sistemi</td>
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### Student activity assessment (points)

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<th>Essay</th>
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### Teaching stuff

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<tr>
<th>Techn.demo</th>
<th>Teach.Ass.</th>
<th>Lecturer</th>
<th>Ass.Prof.</th>
<th>Assoc.Prof.</th>
<th>Full Prof.</th>
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</table>

1. Prof. Dr. Nikola Grujić
2. Prof. Dr. Vesna Ivetić
3. Prof. Dr. Danka Filipović
4. Prof. Dr. Nada Naumović
5. Doc. Dr. Damir Lukač
6. Doc. Dr. Miodrag Drapšin
7. Doc. Dr. Oto Barak
8. Doc. Dr. Dea Karaba Jakovljević
9. Doc. Dr. Jelena Popadić Gaćeša
10. Assist. Dr Aleksandar Klašnja
11. Dr. Vedrana Karan

Head of the Department
Prof. Dr. Danka Filipović
### 10. MEDICAL BIOCHEMISTRY AND CHEMISTRY (M2-MB/CH)

<table>
<thead>
<tr>
<th>STUDY PROGRAM</th>
<th>INTEGRATED STUDIES IN MEDICINE</th>
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<tr>
<td>DEPARTMENT</td>
<td>DEPARTMENT OF BIOCHEMISTRY</td>
</tr>
<tr>
<td>COURSE TITLE / CODE</td>
<td>MEDICAL BIOCHEMISTRY AND CHEMISTRY</td>
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<td>COURSE STATUS</td>
<td>COMPULSORY</td>
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<tr>
<td>Condition</td>
<td>HUMAN GENETICS</td>
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</table>

#### Condition

**Year of study** | Winter semester (hours/week) | Summer semester (hours/week) | Colloquia | Seminars | ECTS credits
---|---|---|---|---|---
II | Lectures | Practice | Lectures | Practice | 4 | - | 16

**Teaching methods**

Oral presentations for small group of students using multimedial didactic tools. Control of knowledge by the use of tests with multiple choice questions. Practical work in independent execution of biochemical tests and interpretation of the obtained results.

**AIM**

The aim of this course is to fit the students with biochemical knowledge necessary for studies of medicine, and for better understanding of physiologic and pathologic processes in the body. Also, to offer an overview of basic biochemical tests used in clinical chemistry as diagnostic tools and so to prepare the future physicians to use these tests properly and with understanding.

**GOAL**

**Knowledge**

The goal of the course is to offer the following knowledge: Knowledge about basic chemical constituents of the body. Knowledge about common biochemical pathways, bioenergetics, regulatory mechanisms and its importance for the normal metabolism. Knowledge about biological events on the molecular level and understanding of the essence of the diseases. Knowledge about specific biochemical processes occurring in several tissues and organs, and their importance for the function of the organism as a whole.

**Skills**

The goal of the course is to offer the following skills: Proper sampling of biologic material for biochemical tests. Evaluation of reliability and plausibility of several biochemical tests and their proper diagnostic use. The proper use of analytical methods and devices in biochemical laboratory, as so as their results in the diagnostic algorithm. Functional examination of metabolisms of several body components on the basis of their estimation in the biological samples. Proofing of the basic biochemical laws by laboratory methods.

**COURSE DESCRIPTION**

**Theoretical classes**

**Chemistry**

1. Chemical bonds
2. Solutions
5. Oxydoreduction.

**Medical biochemistry**

1. Introduction to biochemistry
2. Water as a biological solvent
5. Nucleic acids – structure of DNA and RNA, function of DNA and RNA
7. Lipids, phospholipids and biological membranes.
14. Biosynthesis of heme.
22. Biochemistry of the blood – blood plasma, blod clotting, biochemistra of red blood cell.
23. Biochemistry of connective tissue.
26. Prostaglandines, thromboxan and leukotrienes.
27. Biochemical basis of the immunological defence.
28. Molecular mechanisms of muscular contraction
29. Biochemistry of the kidneys.

Practical classes

Chemistry
1. Solutions. Chemical kinetics
2. Basic types of non-organic compounds. Oxydoreductions.

Medical biochemistry
6. Methodology of recombinant DNA. Estimation of RNA by orcinole reaction and DNA bay diphenilamine reaction.
9. Ion-exchange chromatography of aminoacids.

Recommended Literature

### Compulsory

### Optional

#### Student activity assessment (points)

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Practices</th>
<th>Colloquium</th>
<th>Essay</th>
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#### Teaching staff

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<th>Teaching</th>
<th>Lecturer</th>
<th>Ass. Prof.</th>
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1. Doc. Dr. Tatjana Ćebović
2. Prof. Dr. Ljiljana Andrejević
3. Prof. Dr. Katica Bajin-Katić
4. Prof. Dr. Kamen Stankov
5. Doc. Dr. Mirjana Milošević-Tošić
6. Assist. Dr. Jelena Stojčević-Maletić
7. Assist. Dr. Milica Momčilović
8. Assist. Dr. Jasmina Katanić

Head of the Department
Prof. Dr. Tatjana Ćebović
11. MICROBIOLOGY AND IMMUNOLOGY (M2-MB/IM)

STUDY PROGRAM INTEGRATED STUDIES IN MEDICINE
DEPARTMENT DEPARTMENT OF MICROBIOLOGY WITH PARASITOLOGY AND IMMUNOLOGY
COURSE TITLE / CODE MICROBIOLOGY AND IMMUNOLOGY
COURSE STATUS COMPULSORY

Condition: HUMAN GENETICS

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<th>Year of study</th>
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Teaching methods: Lecture, Practice, testovi, praktični ispiti i teoretski ispiti

AIM
To integrate knowledge from fields of microbiology and immunology in order to use them in theory and practice.

SKnowledge
Theoretical preparation for establishing diagnosis and differential diagnosis.

Skills
Preparation for practical work, choosing appropriate methods and their interpretation.

Theoretical classes

Practical classes

**Student’s activity assessment (points)**

<table>
<thead>
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**Teaching staff**

1. **Prof. Dr. Marija Kulauzov**
2. **Prof. Dr. Mira Mihajlović-Ukropina**
3. **Prof. Dr. Vesna Milošević**
4. **Prof. Dr. Zora Jelesić**
5. **Prof. Dr. Ivana Hrnjaković-Cvetković**
6. **Doc. Dr. Gordana Bojić**
7. **Assist. Dr. Vera Gusman Pasterko**
8. **Assist. Dr. Deana Medić**

Head of the Department
Prof. Dr. Vesna Milošević
## 12. ENGLISH LANGUAGE II (M2-FLE)

<table>
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<tr>
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- **Condition:**

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- **Teaching methods:** Practice, conversation, grammar exercises, vocabulary building exercises, group and individual work, visual and auditive methods (video presentations), panel discussion and presentation, progress tests

### AIM

The basic aims of the English Language Course are for the students to attain a higher level of general language competence, to improve their communication skills in the target language, to build their general and medical English vocabulary, to provide them with the basic of academic writing and enable them to study textbooks and medical journals in English, to promote their creative thinking and expression. The third semester includes discussions on acquired knowledge and exercises for comprehensive use of vocabulary and grammar structures in a text.

### GOAL

#### Knowledge

- Learning general and medical terminology;
- Learning and comprehensive grammar exercises in a text;
- Pointing to the differences between the common day and professional and academic English language;
- Furthering their knowledge in the four basic language skills – reading, writing, speaking and listening.

#### Skills

- General language skills – reading, writing, listening and speaking, academic writing, English for medical purposes;
- Active communication, research using English language sources

### COURSE DESCRIPTION

#### Theoretical classes

- **Preliminaries**
  - Medecine articles
- **Methods of Prevention** – text analysis, lexical and grammar exercises, argumentation, discussion
- **Dangers of Smoking** – text analysis, lexical and grammar exercises, argumentation, discussion
- **Cholesterol** – text analysis, lexical and grammar exercises, argumentation, discussion
- **Diabetes** – text analysis, lexical and grammar exercises, argumentation, discussion
- **Measles** – text analysis, lexical and grammar exercises, argumentation, discussion
- **Grammar Review**
- **Past Tenses** – formation, usage, time vs. tense
- **Basic Present Tenses** – formation, usage, time vs. tense
- **Basic Future tenses** – formation, usage, time vs. tense
- **The Passive voice** – theoretical framework, usage
- **Indirect Speech** – theoretical framework, usage
- **Conditional Sentences** – formation and usage, three types of conditional clauses
- **Discussion Topics**
- **Student Life** – personal experiences, exchanging experiences, expectations and plans, future
- **Experiences with diseases/treatment** - exchanging experiences, doctor-patient relations, both standpoints
- **Future** – personal and general – general and professional standpoints
- **Professional Plans** – specialization, advancement opportunities, professional training
- **Medicine Today, Medicine Tomorrow** – perception of medicine, consideration of scientific issues.

#### Practical classes

<table>
<thead>
<tr>
<th>RECOMMENDED LITERATURE</th>
<th>Compulsory</th>
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Optional


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<th>Pre-exam activities</th>
<th>Final exam</th>
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1. Prof. Zoran Marošan, Lecturer
2. Prof. Vuk Marković, Lecturer

Head of the Department
Prof. Dr. Dušica Rakić
13. INTRODUCTION TO CLINICAL PRACTICE II (M2-INCP)

STUDY PROGRAM INTEGRATED STUDIES IN MEDICINE
DEPARTMENT DEPARTMENT OF INTERNAL MEDICINA
COURSE TITLE / CODE INTRODUCTION TO CLINICAL PRACTICE II
COURSE STATUS COMPULSORY

Condition: INTRODUCTION TO CLINICAL PRACTICE I (EXAM)

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Teaching methods

**AIM**
The aim of the course Introduction to clinical practice 2 in integrated studies of medicine is acquisition of practical-professional knowledge in the field of clinical practice and its application in clinical and research scientific work. It is necessary to develop critical thinking important in diagnosis and treatment, as well as abilities for teamwork.

**GOAL**
Knowledge
Students will acquire knowledge in clinical work in the field of nephrology, immunology, endocrinology, gastroenterology, pulmonology, hematology, cardiology and oncology. Students will be able to recognize and identify the disease, its severity and to perform initial treatment of critically ill patients.

Skills
Students will be able to work individually and in a team with patients with cardiological, pulmonary, nephrological, endocrinological, gastroental, hematological and oncological diseases and to apply diagnostic and therapy procedures.

**Theoretical classes**

**Practical classes**

**Recommended literature**
Compulsory
Textbook - In Press
Optional

Student’s activity assessment (points)

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<tr>
<td>1. Prof. Dr. Slobodan Pavlović</td>
<td>43. Doc. Dr. Bojan Vujin</td>
</tr>
<tr>
<td>2. Prof. Dr. Đorđe Považan</td>
<td>44. Doc. Dr. Ivan Nikolić</td>
</tr>
<tr>
<td>3. Prof. Dr. Nevena Sečen</td>
<td>45. Asist. Dr. Tijana Ilin</td>
</tr>
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<td>4. Prof. Dr. Vesna Kuruc</td>
<td>46. Asist. MS Jovanka Novaković Paro</td>
</tr>
<tr>
<td>5. Prof. Dr. Stevan Popović</td>
<td>47. Asist. MS Radoslav Pejin,</td>
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<tr>
<td>6. Prof. Dr. Ljiljana Hadnadev</td>
<td>48. Asist. Ivana Bajkin</td>
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<td>7. Prof. Dr. Zora Petrović</td>
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<td>8. Prof. Dr. Branka Kovačev Zavišić</td>
<td>50. Asist. Dr. Violeta Knežević</td>
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<tr>
<td>9. Prof. Dr. Milica Medić Stojanoska</td>
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<tr>
<td>10. Prof. Dr. Edita Stokić</td>
<td>52. Asist. MS Gordana Stražmešter Majstorović</td>
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<td>12. Prof. Dr. Katka Pavlović</td>
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<tr>
<td>14. Prof. Dr. Slobodan Dođić</td>
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<td>16. Prof. Dr. Robert Jung</td>
<td>58. Asist. Olgica Latinović</td>
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<tr>
<td>17. Prof. Dr. Dušan Jovanović</td>
<td>59. Asist. MS Ivana Milošević</td>
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<tr>
<td>18. Prof. Dr. Igor Mitić</td>
<td>60. Asist. Borivoj Sekulić</td>
</tr>
<tr>
<td>19. Prof. Dr. Branislav Perin</td>
<td>61. Asist. Ivanka Perčić</td>
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<tr>
<td>20. Prof. Dr. Mirna Đurić</td>
<td>62. Asist. Bogdan Bogdanović</td>
</tr>
<tr>
<td>21. Prof. Dr. Biljana Zveždin</td>
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<td>22. Prof. Dr. Tijana Momčilov Popin</td>
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<td>23. Prof. Dr. Dragan Kovačević</td>
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<td>24. Prof. Dr. Dragomir Damjanov</td>
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<td>68. Asist. Marija Vukoja</td>
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<td>30. Prof. Dr. Jadranka Dejanović</td>
<td>72. Asist. MS Vladimir Ivanović</td>
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<td>32. Doc. Dr. Ivan Kopitović</td>
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<td>39. Doc. Dr. Ivana Urošević</td>
<td>81. Dr. Milena Avramov</td>
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<td>40. Doc. Dr. Anastazija Stojišić Milosavljević</td>
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<td>42. Doc. Dr. Igor Ivanov</td>
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14. ELECTIVE I
1. INTRODUCTION TO RESEARCH SCIENTIFIC WORK (M2-ELI/II)

STUDY PROGRAM INTEGRATED STUDIES IN MEDICINE

DEPARTMENT DEPARTMENT OF GENERAL SUBJECTS

COURSE TITLE / CODE INTRODUCTION TO RESEARCH SCIENTIFIC WORK

COURSE STATUS COMPULSORY

Condition: MEDICAL STATISTICS AND INFORMATICS (EXAM)

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Teaching methods Lectures

The aim of this course is to point out the importance of research and provide students with knowledge about basic principles of research-scientific work in the field of biomedicine.

Knowledge
- differentiate science from pseudoscience,
- know conditions for authorship, and know what authorship is not,
- know ethical aspects of research, and about dishonesty in science,
- know about necessary conditions for scientific research,
- understand and define scientific problems,
- understand and test hypothesis,
- differ scientific publications and their characteristics,
- know about electronic search services, databases and electronic journals,
- know basic characteristics of the descriptive method, cross studies, anamnestic studies, cohort studies, as well as experiments in the community and field experiments, their application, advantages and disadvantages, sample selection, result generalization, establishing and testing hypotheses,
- understand importance of various statistical methods in research, as well as interpretation of scientific significance,
- know about measurement errors due to bias or affiliation and their effects on results of investigation,
- understand basic principles of clinical trials, sample selection, and specificities of clinical drug investigations,
- know about scientific projects, their preparation, components, review and evaluation,
- know about modes of data collection and processing data,
- know the structure of a scientific work,
- understand citation, and rules in reference citation,
- know about evaluation criteria regarding scientific papers.

Goal
After completing the course student should be able to:
- define the scientific problem on their own,
- independently set the hypothesis based on the defined scientific problem,
- independently gather professional information, including Internet search
- differentiate relevant from irrelevant information,
- create a descriptive, anamnestic, cohort study, cross-sectional study, field experiment and community experiment,
- use an adequate statistical method,
- know to read statistical significance,
- recognize the applied method, define the examined population, know principles of sample formation, dividing study and control groups,
- establish measurement errors and explain their effects on study results,
- conceive and create trial protocols,
- conceive and create ways of data collection,
- conceive and create project drafts,
- create a draft for a scientific paper,
- cite references according to certain rules.

Course Code COURSE DESCRIPTION Theoretical Classes
- Science and pseudoscience.
- Research problem.
- Research hypothesis.
- Structure of logical pattern of scientific research.
- Biomedical scientific information.
- Reference citation.
- Descriptive method.
- Cross-sectional studies.
- Anamnestic studies.
- Cohort studies.
- Clinical trials.
- Clinical drug trials.
- Bias and affiliation.
- Data collection.
- Sampling.
- Categories of scientific publications.
- Evaluation of scientific work.
- Analysis of statistical results in research.
- Ethical principles in research.
- Science projects.
- Research presentation.
- Research structure.
- Authorship and intellectual dishonesty.

Practical classes
- Science and pseudoscience – differentiation
- Identification of a research problem
- Setting a hypothesis
- Electronic databases
- Reference citation
- Descriptive studies
- Cross-sectional studies
- Anamnestic studies
- Cohort studies
- Clinical trials
- Bias and affiliation
- Research presentation
- Science projects
- Questionnaires and sampling
- Analysis of statistical results.

RECOMMENDED LITERATURE
- Compulsory

Optional

Student’s activity assessment (points)

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Teaching staff

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Head of the Department
Doc. Dr. Dušica Rakić
## 2. HISTORY OF MEDICINE AND DENTISTRY (M2-ELI/II)

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### Condition:

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#### Teaching methods
- Video presentation; Lecture

### AIM

- Student should adopt the attitude towards modern medicine as a dynamic development of medical thoughts, and not as an uppermost and constant scientific and practical achievement.

### GOAL

#### Knowledge
- Provide students with basic knowledge and initiate critical attitude towards the most important periods of historical development of medicine and dentistry

#### Skills

### COURSE DESCRIPTION

**Theoretical classes**

- An overview of history of medicine and dentistry from prehistoric times to the 21st century.
- Outstanding individuals throughout the history of medicine, founders of theoretical directions, diagnostic and therapeutic procedures

**Practical classes**

- 1. Debates on certain important historical dates in medicine.

### RECOMMENDED LITERATURE

<table>
<thead>
<tr>
<th>Compulsory</th>
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<tbody>
<tr>
<td>2. Stanojević V. Istorija medicine, Medicinska knjiga, Beograd-Zagreb, 1953.</td>
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### Teaching staff

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<tr>
<td>1. Doc. Dr. Dušica Rakić</td>
</tr>
<tr>
<td>2. Assist. Dr. Maja Grujičić</td>
</tr>
<tr>
<td>3. Assist. Dr. Gordana Višotijević-Dautović</td>
</tr>
</tbody>
</table>

Head of the Department
Doc. Dr. Dušica Rakić
The basic aim of the course in Sports Medicine is to acquaint students with basics of sports physiology and sports medicine, as well as functional status of organs and organ systems under altered regimens.

### Knowledge

Students should adopt the general principles and rules of working in sports laboratory. Students should become familiar with basic laboratory procedures of functional testing and acquire skills necessary to perform laboratory tests. Student should get acquainted with the procedures for obtaining blood and urine samples for testing, as well as methods and basic laboratory analyses of blood and urine commonly performed in sports - clinical practice (sedimentation, hematocrit, erythrocyte count, leukocyte count, differential blood count, lactate concentration, general features and chemical composition of urine). Students will be able to apply basic electrophysiological methods (ECG, EMNG, EP), to gain experience in performing recordings and to recognize the basic parameters recorded. Student should be able to perform measurement of the arterial blood pressure, heart auscultation, to determine the respiratory volumes and capacities (determining oxygen consumption during inactive phase and maximum oxygen consumption VO2 max).

### Skills

Students should be able to determine the respiratory volumes and capacities (determining oxygen consumption during inactive phase and maximum oxygen consumption VO2 max).

### Course Description

**Theoretical classes**


f. **HOMEOSTASIS:** Regulation of acid - base balance. Chemical and physiological buffers. Glycemic regulation. Regulation of body calcium levels. Regulation of protein metabolism (impact of physical activity on anabolic processes in the body)


h. **ERGOMETRY:** Energy capacity and its measurement. "Steady State". Sports training and types of training.


### Practical classes

1. Investigation of functional ability (functional test selection, selection of workload type)
2. Determination of aerobic capacity (determining maximal oxygen uptake, "vita maxima" and "all - out" tests, Astrand test, indirect tests)
3. Determination of anaerobic capacity ("Wingate" anaerobic test, maximum power, the average power, explosive power, fatigue index; determining oxygen debt and oxygen deficit)
4. Determination of stable states (test selection, heart rate monitoring, monitoring of respiratory parameters, oxygen consumption monitoring)
5. Determination of heart rate (pulparation, auscultation, heart rate monitoring by ECG)
6. Measurement of arterial blood pressure
7. Dynamometry (dynamometry apparatus, basic parameters of dynamometric testing of muscular strength, arm flexor strength testing, arm extensor strength testing, leg extensor strength testing)
8. Analysis of body composition - basic anthropometrics measurements (basic instruments - scales, pelvimeter, slide calipers, calipers, centimeter tape; determining of BMI; somatotype determination, calculation of physical constitution by Heath - Carter, determining body fat mass utilizing bioelectrical impedance)

| RECOMMENDED LITERATURE          | Compulsory | 1. Costill and Wilmore. Sportska Medicina  
|                                |            | 2. Barak and sar. Praktikum iz fiziologije sporta |
| Optional                       |            | 1. N. Grujić, Fiziologija Sporta  
|                                |            | 2. V. M. Mujović. Medicinska fiziologija |

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<tr>
<td>1. Prof. Dr. Nikola Grujić</td>
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<tr>
<td>2. Prof. Dr. Vesna Ivetić</td>
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<tr>
<td>3. Prof. Dr. Danka Filipović</td>
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<td>4. Prof. Dr. Nada Naumović</td>
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<td>5. Doc. Dr. Damir Lukač</td>
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<td>6. Asist. Dr. Miodrag Drapšin</td>
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<td>8. Asist. Dr. Dea Karaba Jakovljević</td>
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<td>9. Asist. Dr. Jelena Popadić Gaćeša</td>
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<tr>
<td>10. Dr. Aleksandar Klašnja</td>
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Head of the Department
Prof. Dr. Danka Filipović
4. MICROSCOPIC LABORATORY TECHNIQUES IN MEDICINE (M2-ELI/II)

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Teaching methods: Lecture, Practice, essay

**AIM**

Students will get acquainted with techniques of making histological preparations for microscopic examination

**GOAL**

**Knowledge**

Main postulates of laboratory work, selection of microscopic fixative when working with biological materials, methods of processing biological materials intended for microscopic examination, including specific features of particular simple and complex staining methods, tissue cultures in laboratory medicine, pathology of laboratory animals, norms and disease prevention when working with laboratory animals

**Skills**

Laboratory work with biological materials with special emphasis on accident prevention, preparation of laboratory solutions, preparation of native and vital microscopic specimens, fixation and further processing of the different tissue samples (rinsing, dehydration, inclusion, moulding), the use of microtome, staining of microscopic preparations, working with laboratory animals, preparation and maintenance of tissue cultures, techniques of post mortem examination on laboratory animals

**THEORETICAL CLASSES**

1. Microscopes, history, types
2. Classification of toxins according to WHO and prevention of poisoning and other accidents in the histology laboratory
3. Methods of tissue fixation, selection of fixative for light and electron microscopy
4. Blood and tissue smears and impressions, cytological features of particular samples, basophilia and eosinophilia as representatives of cytological structure
5. Microtomes and their application and usage (history since Purkinjea, manual, rotary, sliding, cryotome)
6. Classification of histological staining methods, simple staining
7. Complex staining
8. Selective staining, major cytochemical reactions
9. Methods of bacterial staining, simple and complex
10. Preparation of microscopic specimens: helminths and arthropods
11. Tissue cultures
12. Biology and working conditions with laboratory animals
13. Pathology of laboratory animals and prevention of anthropozoonoses
14. Consultation hours for preparation of the essay and exam

**PRACTICAL CLASSES**

1. Native and vital microscopic preparations
2. Measuring procedure using a scale; pipetting and solution preparation, first aid in poisoning
3. Preparation of fixative, obtaining tissue sections, rinsing after fixation, dehydration
4. Staining by the method of Giemsa and Papanicolaou, leucocyte formula in laboratory animals
5. Paraffin embedding, cutting the sections using microtomes
6. Toluidine staining, carmine staining, determining the stage of oestrus cycle in rodents
7. Hematoxylin-eosin staining, van Gieson staining protocol
8. Peroxidase, iron etc.
9. Gram- and Ziehl-Neelsen staining
10. Illumination of metazoa using lactophenol, etc.
11. Explantation, primary and continuous culture
12. Experimental animal disease models
13. Methods of post-mortem diagnostics in laboratory animals
14. Writing an essay;
15. Pre-exam practical work

**RECOMMENDED LITERATURE**


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<th>Student’s activity assessment (points)</th>
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1. Prof. Dr. Dušan Lalošević
2. Assist. Ivan Čapo

Head of the Department
Prof. Dr. Dušan Lalošević
5. **VARIATIONS IN ANATOMY (M2-ELI/II)**

<table>
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### AIM

The aim of introducing this course is to provide students knowledge about the most common variations in human anatomy important for clinical practice.

### GOAL

**Knowledge**

In the frame of the course of Anatomy, first year medical students had the opportunity to meet with the shape, appearance, position and relations of the basic anatomical structures of the body that are common to most people. However, anatomical features are subject to numerous variations that may occur in greater or lesser degree, depending on the population. Unlike congenital anomalies, anatomical variations are considered normal findings, which usually do not disturb physiological processes of the body. Some variations may be physical structures that influence or increase the predisposition to the development of certain diseases, as well as to change certain symptomatology of painful conditions or diseases. Many medical journals have some chapters or even issues devoted to anatomic variations, but recently there was a need for a magazine that deals exclusively with variations such as the International Journal of Anatomical Variations (IJava). Given the existence of a large number of variations of organs, muscles, their vascularization and innervation, knowledge about them is essential for physicians in practice, which justifies the introduction of this course to basic medical studies. These findings will particularly benefit future surgeons, radiologists, physiatrists and dentists.

**Skills**

Through lectures and practical work students will be trained to recognize and analyze the anatomical variations of certain areas of the human body as well as their impact on the painful symptoms of conditions or diseases in order to properly lead a clinical trial of patients with anatomical variations.

### COURSE DESCRIPTION

#### Theoretical classes
- Anatomical variations of the head
- Anatomical variations of the neck
- Anatomical variations of the chest and mediastinum
- Anatomical variations of the abdomen
- Anatomical variations of the urogenital tract
- Anatomical variations of the locomotor system
- Anatomic variations of the central nervous system
- Anatomical variations of the sense organs

#### Practical classes
- Morphological characteristics of cranial variations
- The clinical significance of maxillofacial variations
- Anatomical basis of anesthesia in head and neck variations
- Subclavian and carotid arteries: variations and clinical significance
- Anatomical variation of the nasal cavity
- Anatomic variations of the paranasal sinuses
- Anatomical variations of the oral cavity
- Anatomical and functional variations of the organs of head
- Variations of deep interfacial neck spaces
- Anatomical variations of the chest wall and mediastinum
- Anatomical variations of the lungs and heart
- Anatomical variations of the walls of the abdomen and certain organs
- Anatomical variations of the digestive tract relevant for the development of intestinal obstruction
- Anatomical variations of the urogenital tract
- Anatomic variations of the upper and lower extremities: the understanding of clinical cases and the interpretation of certain clinical pictures
- Variations in the shape and structure of the central nervous system
- Variations in the shape and function of the sense organs
- Forensic significance of morphological and topographical variation of organs and blood vessels

Students will be informed about necessary literature for each unit.

### Student’s activity assessment (points)

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<th>Assoc.Prof.</th>
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Prof. Dr. Ljilja Mijatov Ukropina
Prof. Dr. Marija Mihalj
Prof. Dr. Nada Mihić
Prof. Dr. Ljubica Stojišić Džunjć
Doc. Dr. Dušica Marić
Doc. Dr. Sinisa Babović
Doc. Dr. Biljana Srdić Galić
Doc. Dr. Mirela Erić

Assist. Dr. Bojana Krstonašić
Assist. Dr. Mirjana Milišević Udicki
Assist. Dr. Nikola Vučinić

Head of the Department
Doc. Dr. Biljana Srdić Galić
15. ELECTIVE II
16. PATHOLOGICAL ANATOMY (M3 – PANT)

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**Teaching methods**

The aim of the course is to inform the student about the mechanisms of cell damage, damage of tissues and organs and about morphological changes underlying the disease. Our goal is to train students to identify morphological changes in cells, tissues and organs through lectures and seminars. Students will obtain necessary skills through individual practical work, performing microscopy and histological analysis, macroscopic diagnostics using biopsy-, surgical or autopsy specimens or museum prosections.

Practical sessions are adapted to the basic aims of the subject and deal with developed educational entities in order to form a general practitioner.

**AIM**

The aim of the course is to inform the student about the mechanisms of cell damage, damage of tissues and organs and about morphological changes underlying the disease. Our goal is to train students to identify morphological changes in cells, tissues and organs through lectures and seminars. Students will obtain necessary skills through individual practical work, performing microscopy and histological analysis, macroscopic diagnostics using biopsy-, surgical or autopsy specimens or museum prosections.

**Knowledge**

Within the scope of general pathology students will learn about the etiology and macroscopic and microscopic structural changes of basic pathological processes, such as reversible and irreversible cell damage, impairment of water-, fat- and protein metabolism, blood and lymph circulation changes, inflammation, neoplasms.

**GOAL**

Getting acquainted with interpretation of histopathological preparation will enable student to:
1. Identify changes that diverge normal cell and tissues, i.e. to distinguish normal tissues and organs from that manifesting pathological processes and states using light microscopy.
2. Describe normal tissue and organ composition.
3. Describe morphological substrates of the disease.
4. To diagnose the disease and to note it in Latin.
5. To suggest the differential diagnosis.

Student will be able to macroscopically describe the organs and pathological changes in the body by identifying and describing the organ and the change, establishing diagnosis or differential diagnosis.

**Course description**

1. Subcellular pathology with up-to-date knowledge in this extremely dynamic field of pathology and general medicine as a biologic discipline generally speaking;
2. Morphology and basics of degenerative diseases and processes;
3. Circulatory disorders especially morphologic changes with horizontal connection with subject of Physiopathology;
4. Pathology of inflammatory processes;
5. Pathology of metabolism and nutritional disorders;
6. Basis of immunopathology;
7. Origin and development of malignant tumors;
8. Pathology of the gastrointestinal tract;
9. Pathology of male and female gynecological system;
10. Pathology of the endocrine system;
11. Pathology of the lymphocytic and hematopoietic system;
12. Pathology of the skin, bones, joints and muscles;
13. Pathology of peripheral nerves, central nervous system and sense organs.

**Practical classes**

1. Histopathology analysis and interpretation of preparations illustrating the aforementioned theoretical topics.
2. Seminars and practical work including autopsy, cadaveric histology, macroscopic analysis of biopsies, museum prosections and autopsy specimens illustrating theoretical microscopy knowledge.

**Recommended literature**

**Compulsory**

1. Damjanov, I. Patologija, Medicinska naklada, Zagreb, 2009
2. Eri Ž: Praktikum patohistološke histologije za studente medicine sa CD, Medicinski fakultet Novi Sad, 2012

**Optional**

### Student’s activity assessment (points)

<table>
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<tr>
<th>Pre-exam activities</th>
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### Teaching staff

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<tr>
<th>Technical demonstrator</th>
<th>Teaching Ass.</th>
<th>Lecturer</th>
<th>Assist. Prof.</th>
<th>Assoc. Prof.</th>
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</table>

1. **Prof. Dr. Živka Eri**
2. **Prof. Dr. Nada Vučković**
3. **Prof. Dr. Zdravko Kosjerina**
4. **Prof. Dr. Dejan Vučković**
5. **Prof. Dr. Slavica Knežević Ušaj**
6. **Doc. Dr. Milana Panković**
7. Doc. Dr. Tatjana Ivković Kapicel
8. Assist. Dr. SanDr.a Trivunčić
9. Assist. Dr. Zoran Nikin
10. Assist. Dr. Mirjana Živojinov
11. Assist. Dr. AleksanDr.a Lovrenski
12. Assist. Dr. Tegeltija
13. Assist. Dr. Snežana Božanić
14. Assist. Dr. Nenad Šolajić
15. Assist. Dr. Miljan Milić
16. Assist. Dr. Golub Samardija

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Head of the Department  
Prof. Dr. Slavica Knežević Ušaj
17. PATHOPHYSIOLOGY (M3-PPHS)

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<th>STUDY PROGRAM</th>
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Condition: Physiology; Medical biochemistry and chemistry

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Teaching methods: Lecture, practical work in the laboratory, Colloquium

AIM

To provide medical students general understanding of the etiology and pathogenesis of diseases and dysfunctions of specific organs or organ systems and enable them successful transition from pre-clinical to clinical courses.

GOAL

Knowledge

After the completion of the course students should have a good understanding of the etiology and pathogenesis in human diseases, and of general principles behind functional changes in human diseases and in specific disorders of individual organs and organ systems.

Skills

After the completion of the course students should be familiar with the principles and methods of conducting and interpreting common biochemical, hematological and immunological laboratory tests and other analyses and functional studies that are necessary for diagnosis in general practice.

COURSE DESCRIPTION

Theoretical classes

1. Introduction to pathophysiology; Etiological factors of diseases;
2. Inflammation;
3. Non-specific defense and fever;
4. Specific defence;
5. Disorders of protein metabolism I;
6. Disorders of protein metabolism II;
7. Disorders of protein metabolism III;
8. Disorders of carbohydrate metabolism I;
9. Disorders of carbohydrate metabolism II;
10. Disorders of carbohydrate metabolism III;
11. Disorders of lipid metabolism I;
12. Disorders of lipid metabolism II and atherosclerosis;
13. Disorders of water and electrolyte metabolism I;
14. Disorders of water and electrolyte metabolism II;
15. Disorders of water and electrolyte metabolism III;
16. Disorders of water and electrolyte metabolism IV;
17. Disorders of acid-base balance I;
18. Disorders of acid-base balance II;
19. Calcium metabolism and parathyroid disorders;
20. Disorders of nervous and humoral regulation I;
21. Disorders of nervous and humoral regulation II;
22. Hypophyseal disorders and general adaptation syndrome
23. Disorders of the hypothalamic-pituitary-gonadal axis;
24. Disorders of the hypothalamic-pituitary-adrenal (HPA) axis;
25. Disorders of the hypothalamic-pituitary-thyroid axis;
26. Disorders of the hypothalamic-pituitary-thyroid axis;
27. Mechanisms of autoimmune diseases
28. Immunodeficiencies;
29. Hypersensitivity I;
30. Hypersensitivity II;
31. Red blood cell disorders;
32. Red blood cell disorders;
33. Disorders of protein metabolism IV; Porphyria and hemmoglobinopathy;
34. White blood cell disorders I;
35. White blood cell disorders II;
36. Effects of ionizing radiation on the human body;
37. Nutritional disorders - undernurishment;
38. Chemical etiological factors of diseases;
39. Effects of electricity and electromagnetic waves;
40. Local effects of heat on the human body;
41. Nutritional disorders – obesity;
42. Disorders of vitamin and enzyme metabolism;
43. Pathophysiology of growth, development and ageing;
44. Effects of cold on the human body;
45. Mechanisms of cardiac insufficiency;
46. Classification and types of cardiac insufficiency;
47. Congenital heart diseases;
48. Acquired heart diseases;
49. Arrhythmias;
50. Coronary insufficiency;
51. Hemostatic disorders I;
52. Hemostatic disorders II;
53. Pericardial and myocardial disorders, pulmonary hypertension;
54. Arterial hypertension;
55. Arterial hypotension, disorders of peripheral circulation;
56. Pathophysiology of the respiratory system I;
57. Pathophysiology of the respiratory system II;
58. Pathophysiology of the respiratory system III;
59. Pathophysiology of the respiratory system IV;
60. Pathophysiology of the respiratory system V;
61. Pathophysiology of the digestive tract I;
62. Pathophysiology of the digestive tract II;
63. Pathophysiology of the digestive tract III;
64. Pathophysiology of the digestive tract IV;
65. Pathophysiology of the digestive tract V;
66. Pathophysiology of the digestive tract VI;
67. Pathophysiology of disordered hepatic function I;
68. Pathophysiology of disordered hepatic function II;
69. Pathophysiology of disordered hepatic function III;
70. Pathophysiology of disordered hepatic function IV;
71. Pathophysiology of disordered hepatic function V;
72. Pathophysiology of the uropoetic system I;
73. Pathophysiology of the uropoetic system II;
74. Pathophysiology of the uropoetic system III;
75. Pathophysiology of the uropoetic system IV;
76. Pathophysiology of the uropoetic system V;
77. Pathophysiology of the nervous system – sensibility disorders;
78. Pathophysiology of the nervous system – motor function disorders and epilepsy;
79. Pathophysiology of the nervous system – disorders of consciousness, sleep and cerebral circulation;
80. Pathophysiology of the nervous system – pain, headache, and neurotransmission disorders;
81. Effects of mechanical agents on the human body;
82. General effects of heat on the human body;
83. Effects of changes in air pressure on the human body;
84. Hereditary factors and disease I;
85. Hereditary factors and disease II;
86. Malignant neoplasms as etiological factors of diseases I;
87. Malignant neoplasms as etiological factors of diseases II
88. Pathophysiology of the locomotor system I;
89. Pathophysiology of the locomotor system II;
90. Pathophysiology of the locomotor system III;

Practical classes

1. General rules of conduct in laboratories, visits to laboratories;
2. Functional studies in medicine;
3. Functional studies in inflammation
4. Functional studies of protein metabolism;
5. Disorders of carbohydrate metabolism;
6. Disorders of lipid metabolism;
7. Functional studies of fluid metabolism disorders;
8. Functional studies of bone metabolism disorders;
9. Functional studies of the pituitary and gonad gland;
10. Functional studies of adrenal glands;
11. Functional studies of the thyroid gland;
12. Functional studies of red blood cells I;
13. Functional studies of red blood cells II;
14. Basic functional studies of white blood cells I;
15. Functional studies of white blood cells II;
16. Functional studies of hemorrhagic syndromes I;
17. Functional studies of hemostasis in thrombosis II;
18. Functional studies of the respiratory system I;
19. Functional studies of the respiratory system II;
20. Functional studies of the cardiovascular system I;
21. Functional studies of the cardiovascular system II
22. Functional studies of the digestive system;
23. Functional studies of exocrine pancreatic cells;
24. Functional studies of the liver;
25. Functional studies of the liver and biliary duct;
26. Functional studies of the nervous system;
27. Laboratory analysis of malignant neoplasms;
28. Functional studies of the uropoetic system I;
Recommended Literature

Compulsory

Optional

Student activity assessment (points)

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Teaching staff

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<td>3. Prof. Dr. Mirjana Đerić</td>
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Head of the Department
Prof. Dr. Zoran Stošić
18. MEDICAL PSYCHOLOGY (M3-MPSY)

STUDY PROGRAM INTEGRATED STUDIES IN MEDICINE

DEPARTMENT DEPARTMENT OF PSYCHIATRY AND MEDICAL PSYCHOLOGY

COURSE TITLE / CODE MEDICAL PSYCHOLOGY

COURSE STATUS COMPULSORY

Condition: MEDICAL ETHICS AND SOCIOLOGY

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Teaching methods LECTURES, PRACTICAL WORK

Goal

Knowledge

Students will learn about biopsychosocial uniqueness of humans; personality development and structure; mental and defence mechanisms; reaction of the sick to the disease; psychological aspects of treatment of various diseases; the role of physician / health professionals; desirable relation of physician / health professionals with patients and their nearest relatives and environment.

Skills

Through active participation of students in workshops and practical classes, students will be able to communicate with different patient categories (regarding age, disease condition, etc.); manage various psychological situations during their professional career and cope with them.

COURSE DESCRIPTION

Theoretical classes

1. The role of medical psychology in medicine – definition and aims.
2. Definition of the disease; the sick and the society.
4. Psychological functions.
5. Individuals and his environment – man as a biopsychological being.
7. Defense mechanisms.
8. Mental mechanisms and their role – aggression and anxiety
9. Stress and somatic diseases; behavioural diseases.
11. Children and adolescents as patients.
12. Adulthood and disease; psychological aspects of pregnancy and delivery; job.
13. The aged and diseases.
15. Persons with special needs – relation with other physical or mental diseases.
17. About death and dying; terminal states, psychosocial aspects of loss.

Practical classes

1. Communication of physicians/ health professionals with patients – workshop
2. Health and disease – workshop
3. Communication, empathy, professional attitude – workshop
4. Approach to anxious and aggressive patients
5. Informing patients and their families on diseases
6. Communication of the family physicians with members of the family
7. Preparation of patients for diagnostic and therapeutic procedures
8. Relationships and communication within the team - workshop

RECOMMENDED LITERATURE

Compulsory

Optional

Student’s activity assessment (points)

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<th>Lectures</th>
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Teaching staff

Techn. Teaching Lecturer Assist.Prof. Assoc.Prof. Full-time Prof. Scient. Res.
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<td>Assis. Dr. Vesna Vasić</td>
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<td>Prof. Dr. Gordana Mišić-Pavkov</td>
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<td>Assist. Dr. Slađana Martinović Mitrović</td>
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<td>Prof. Dr. Olga Živanović</td>
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<td>Assist. Dr. Boris Golubović</td>
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<td>Prof. Dr. Aleksandra Nedić</td>
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<td>Assist. Dr. Sanja Pleštić</td>
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</table>

Head of the Department

Prof Dr. Olga Živanović
19. GENERAL PHARMACOLOGY (M3-GPH)

STUDY PROGRAM INTEGRATED STUDIES IN MEDICINE

DEPARTMENT DEPARTMENT OF PHARMACOLOGY, TOXICOLOGY AND CLINICAL PHARMACOLOGY

COURSE TITLE/ CODE GENERAL PHARMACOLOGY

COURSE STATUS COMPULSORY

Condition: MEDICAL BIOCHEMISTRY AND CHEMISTRY; PHYSIOLOGY

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</table>

Teaching methods Lectures, Practical work

AIM

Medical students are acquainted with basic biologic mechanisms of drugs and their effects on organ systems

GOAL

Knowledge

Student should know why, how and when to apply particular drugs, general information on drug metabolism in the body, site and mechanism of their actions, interactions and side effects of drugs. Student must be able to describe effects, therapeutic indications and application of drugs used in the treatment of microbial diseases.

Skills

Practical classes deal with practical pharmacotherapeutical problems. Student must know how:
- to properly fill a prescription (magistral drugs, officinal drugs, ready-made drugs) and to explain it;
- to use drugs registry books;
- to fill out forms to report side effects of drugs.

COURSE DESCRIPTION

Theoretical classes

5. Pharmacokinetic models. Pharmacokinetic parameters.
8. Pharmacogenetics.
11. Disinfection and antisepsis.
13. Antimycotic, antiviral and antiparasitic drugs.

Practical classes

3. Solid drugs.
4. Liquid drugs.
5. Semi-solid drugs.
6. Inhalation.
8. Antimicrobial drug prescription.

RECOMMENDED LITERATURE

3. LEKOVI U PROMETU, OrtoMediks, Novi Sad, 2012 (i starija izdanja)

<table>
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<tr>
<th>Student’s activity assessment (points)</th>
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<td>3. Prof. Dr. Jovan Popović</td>
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<td>11. Assist. Dr. Vesna Mijatović</td>
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Head of the Department
Prof. Dr. Momir Mikov
20. CLINICAL PROPEDEUTICS (M3-CLPR)

STUDY PROGRAM: INTEGRATED STUDIES IN MEDICINE
DEPARTMENT: DEPARTMENT OF INTERNAL MEDICINE
COURSE TITLE/ CODE: CLINICAL PROPEDEUTICS
COURSE STATUS: COMPULSORY

Condition: INTRODUCTION TO CLINICAL PRACTICE II

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Teaching methods: LECTURES, CLINICAL PRACTICAL WORK

**AIM**
Acquiring theoretical and practical knowledge in the field of clinical propedeutics and competence of applying this knowledge in professional and scientific work. Developing critical thinking and teamwork.

**GOAL**

Knowledge
Acquiring theoretical and practical knowledge on disorders in breathing, circulation and cardiac rhythm; characteristics of hematological, gastroenterological, endocrine and nephrology diseases. Students will be able to identify the disease and to apply procedures for immediate treatment of vitally endangered patients, to establish diagnosis and design and implement the appropriate therapeutic procedures.

Skills
Skills necessary for everyday clinical practice, clinical examination and obtaining medical history.

**Theoretical classes**

2. Obtaining patient history.
3. Physical examination.
5. General examination.
6. Skin examination.
7. History taking and physical examination of the head and neck.
8. Special medical history of respiratory diseases.
10. Percussion
11. Auscultation.
12. Special diagnostics of respiratory diseases.
14. Physical examination of the cardiovascular system – pericardium and pulse
15. Physical examination of the cardiovascular system – auscultation, heart rhythm
16. Physical examination of the heart – auscultation
17. ECG - normal finding
18. Examination of arteries and veins of lower limbs
19. Anamnesis og gastrointestinal tract diseases
20. Examination of the abdomen – topography(normal and pathological finding)
21. Examination of the abdomen – palpitation, digitorectalexamination (normal and pathological finding)
22. Examination of the abdomen – percussion and auscultation (normal and pathological finding)
23. Examination of the abdomen – liver (normal and pathological finding)
24. Examination of kidneys and urinary tract – anamnesis, palpitation, sucussion (normal and pathological finding)
25. Examination of the spleen (normal and pathological finding)
26. Examination of the lyphatic system (normal and pathological finding)
27. Examination of extremities and musculoskeletal system
28. Propedeutics of the genital tract – secondary sexual characteristics, examination of genitalia (normal and pathological finding)
29. Examination of breasts
30. General neurological examination – anamnesis, reflexes, cranial nerves (normal and pathological finding)

**Practical classes**
1. History taking
2. Vital signs examination (temperature and pulse taking, blood pressure, respiration, pain assessment)
3. General examination
4. Examination of the head and neck (normal and pathological finding)
5. Examination of the thorax and lungs – anamnesis, topography, palpation, percussion and auscultation (normal and pathological finding)
6. Examination of heart and blood vessels – anamnesis, auscultation, pulse palpitation, ECG (normal and pathological finding)
7. Examination of the abdomen and abdominal organs – anamnesis, palpitation, percussion, liver examination, digitorectal examination (normal and pathological finding)
8. Examination of kidneys and urinary tract – anamnesis, palpitation, percussion, liver examination, digital examination (normal and pathological finding)
9. Examination of the spleen and lymph nodes – anamnesis, palpitation, percussion (normal and pathological finding)
10. Examination of genitalia and breasts – anamnesis and physical examination
11. Examination of extremities – anamnesis and physical examination

**RECOMMENDED LITERATURE**

2. Materijal sa predavanja.

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**Head of the Department**

Prof. Dr. Milica Medić Stojanoska
STUDY PROGRAM  INTEGRATED STUDIES IN MEDICINE
DEPARTMENT   DEPARTMENT OF RADIOLOGY
COURSE TITLE / CODE RADIOLOGY
COURSE STATUS  COMPULSORY
Condition: PHYSIOLOGY

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Teaching methods: Lectures, practical work

AIM
Students are acquainted with radiology physics, radiobiology, radiation protection, radio-diagnosis and radiotherapy. In practical classes students are instructed in the basics of radiation protection, indications for radio-diagnostics, problems of patients to be examined and X-Ray interpretation.

Teaching activities in Radiology are specific due to education in conventional radiology combined with novel diagnostic procedures: US, CT, DSA, MR

GOAL
Knowledge
Student will be able to establish the diagnosis based on obtained diagnostic data and understand radiological findings. Particular attention is paid to accurate indications and becoming accustomed with the diagnostic options of particular categories of radiological examination.

Skills
Student will accomplish necessary skills to perform X-ray, ultrasonographic examination, to analyze radiography images, computed tomography and MR images and to demonstrate particular techniques of interventional radiology.

COURSE DESCRIPTION

Theoretical classes
- Basics of medical application of ionizing radiation; physics of imaging methods (X-ray, ultrasound, computed tomography, magnetic resonance imaging); interventional radiology;
- Application and indications for radiological examinations (X-ray, computed tomography, ultrasound, magnetic resonance imaging);
- Basic principles and indications for invasive diagnostic and intervention-radiology methods;
- Radiological anatomy and symptomatology of pathological conditions (malformations, variations, trauma, inflammatory diseases, primary benign and malignant tumours, secondary tumours);
- Radiological symptomatology of common disorders of respiratory-, digestive- and urinary system, acute abdomen, reproductive system (breast, female pelvis and male reproductive organs: prostate and scrotum); musculoskeletal and nervous system, acute abdomen in adult patients;
- Radiological symptomatology of common disorders of circulation-, respiratory-, nervous-, musculoskeletal- and urinary system and acute abdomen in children.

Practical classes
- Demonstration of radiology-imaging equipment and instruments and their operations;
- Analysis of radiology images and scans (X-ray, CT, MR);
- Practical work with ultrasound; image analysis;
- Practical work with magnetic resonance; image analysis;
- Observing particular techniques in interventional radiology.

RECOMMENDED LITERATURE
Compulsory
1. Lukač I., Šuščević D. Radiologija; udžbenik za studente medicine i stomatologije, Stilos 2000
2. Radiologija (udžbenik za studente medicine u pripremi) - Katedra za radiologiju Medicinskog fakulteta Novi Sad

Optional
1. Bošnjaković P. Praktikum kliničke radiologije za studente medicine, Datastatus 2009
2. Lazić J. Radiologija, Medicinska knjiga 1997

Student’s activity assessment (points)

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Teaching staff

1. Prof. Dr. Mira Govorčin
9. Doc. dr Viktorija Vučaj-Ćirilović
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<td>Doc. dr Dragana Dikav-Ivanović</td>
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**Head of the Department**

Prof. Dr. Sanja Stojanović
### 6. CLINICAL SURFACE ANATOMY (M3- ELIII)

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**Teaching methods** Lecture, Practice

#### AIM
Gaining knowledge about the structure of the human body, the surface morphology of the body and the projections of the internal organs and structures of the body surface, which will form the basis for clinical propedeutics and radiology as well as the possibility of applying the acquired knowledge of the observed objects in all morphological branches of medicine, biomedicine, pharmacy, therapeutic and technological branches.

#### GOAL
- **Knowledge**
  *Introducing surface anatomy of individual body parts and projections related organs and structures. Gaining knowledge will be useful in the practical teaching of this subject, and then as the basis of all clinical disciplines, some of which are internal medicine, radiology and radiotherapy (nuclear medicine), all branches of surgery and forensics.*

- **Skills**
  *Gaining practical knowledge of topographical anatomy as a basis of surface anatomy: recognition and identification of relationships of individual anatomical structures of all organ systems, including vessel and neural structures, as well as morphological and functional support of each systematic and topographical part. Knowledge of the anatomical structures of X-ray, NMR and CT images as well as their projections on the surface of the body is the basis of autopsy and surgical techniques, radiology and radiation treatments, as well as understanding of biomedical and borderline disciplines.*

#### Theoretical classes

1. Essentials of general anatomy
2. Topographic and surface anatomy of the upper extremity
3. Projections of the upper extremity
4. Topographic and surface anatomy of the lower extremity
5. Projections of the lower extremity
6. Topographic, surface anatomy and projections of the spine and back
7. Topographic and surface anatomy of the thorax
8. Projections of the thoracic cavity (lungs, heart, esophagus, blood vessels, lymphatics, nerves)
9. Topographic, surface anatomy and projections of the walls of the abdominal cavity
10. Topographic anatomy and projections of the abdominal cavity (peritoneal cavity and retroperitoneal organs)
11. Topographic, surface anatomy and projections of the pelvic walls
12. Topographic anatomy and projections of the pelvic cavity
13. Topographic, surface anatomy and projections of the skull and facial bones
14. Topographic, surface anatomy and projections of the head and neck
15. Topographic, surface anatomy and projections of sense organs
16. Topographic, surface anatomy and projections of the nervous system (central and peripheral nervous systems, somatic and vegetative) and the central nervous system cavity (chambers and cerebrospinal fluid)

#### Practical classes
1. Topographic and surface anatomy of the upper extremity
2. Projections of the upper extremities
3. Topographic and surface anatomy of the lower extremity
4. Projections of the lower extremities
5. Topographic and surface anatomy and projections of the spine and back
6. Topographic and surface anatomy of the thorax
7. Projections of the thoracic cavity (lungs, heart, esophagus, blood vessels, lymphatics, nerves)
8. Topographic and surface anatomy and projections of the abdominal wall cavity
9. Topographic anatomy and projections of the abdominal cavity (peritoneal cavity and retroperitoneal organs)
10. Topographic and surface anatomy and projections of the pelvis and pelvic walls
11. Topographic and surface anatomy and projections of the skull and facial bones
12. Topographic and surface anatomy and projections of the head and neck
13. Topographic and surface anatomy of the sense organs
14. Topographic and surface anatomy of the nervous system (central and peripheral nervous systems, somatic and vegetative)
15. Topographic anatomy and projections of the central nervous system cavity (chambers and cerebrospinal fluid)

**RECOMMENDED LITERATURE**

| Optional | 1. Parts of lectures |

**Student’s activity assessment (points)**

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**Teacher staff**

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<tr>
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<th>Assoc.Prof.</th>
<th>Full-time Prof.</th>
<th>Scient. Res.</th>
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<td>Doc. Dr. Biljana Srđić Galić</td>
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<tr>
<td>Prof. Dr. Marija Mihalić</td>
<td>Doc. Dr. Mirela Erić</td>
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Head of the Department
Doc. Dr. Biljana Srđić Galić
7. EXPERIMENTAL ANIMALS AND EXPERIMENTAL PHARMACOLOGY IN MEDICAL RESEARCH (M3-ELIII)

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Teaching methods  Lecture, Practice

AIM

To familiarize students with the means, opportunities and working conditions when working with experimental animals in biomedical research.

GOAL

Knowledge

Students will learn about the conditions and possibilities of working with experimental animals and some experimental models of importance for in vivo biomedical research. They will also learn about the legal regulations concerning the welfare of laboratory animals, animal models and species used for experiments, housing and care of experimental animals, routine test substances, follow up of effects, euthanasia and safe disposal of residual-waste.

Skills

Students will be trained for experimental work with animals (handling experimental animals, application of substances, sampling of biological material, use of anesthesia, monitoring stress and pain) as well as necessary documents in order to obtain approval for experimental work with experimental animals.

Theoretical classes

1. Legislation and welfare of experimental animals in biomedical research
2. The principles of ethics of working with experimental animals
3. The rule of "3-R's" and "five freedoms" in working with experimental animals
4. Categories of invasiveness in animal experiments
5. Alternative methods for in vivo experiments
6. Laboratory (experimental) animals - classification and nomenclature, types
7. Maintenance of experimental animals - accommodation, food and drinking water, hygiene, monitoring health status (stress and pain)
8. Animal models - the model definition, requirements, selection
9. Basic rules of handling experimental animals - keeping, labeling, application of experimental substances, sampling material for analysis
10. Experimental models in nonanesthesized animals
11. Experimental models in anesthesized animals
12. Euthanasia and risks when working with experimental animals

Practical classes

1. Requests to the Ethics Committees for permission to work with experimental animals, in accordance with law
2. Practical introduction to the way of maintenance of experimental animals
3. Practical mastering the skills of handling experimental animals - keeping, labeling, application of experimental substances, sampling material for analysis
4. Development of an experimental model in accordance with the request to the Ethics Committee (research plan that includes work on experimental animals)
5. Practical mastering of handling animal products (samples, bodies of euthanized animals), substances and equipment used in the planned experiment

RECOMMENDED LITERATURE

<table>
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<tr>
<td>3. Zakon o dobrobiti životinja, Službeni glasnik RS br 41/09.</td>
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<td>4. Pravilnik o uslovima za upis u registar za oglede na životinjama (Službeni glasnik RS, br 39/10).</td>
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Head of the Department
Prof. Dr. Momir Mikov
8. CLINICAL GENETICS (M3-ELIII)

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**Teaching methods**

Lectures and practical work.

**AIM**

Students get acquainted with specific features of clinical genetics, clinical manifestations, differential-diagnostic procedures and treatment of hereditary diseases. Students will be able to work with specific populations as general practitioners.

**GOAL**

**Knowledge**

Students will acquire knowledge on etiology, pathogenesis, clinical picture and treatment of hereditary diseases, with emphasis on the specific populations with hereditary diseases. Particular attention is paid to the importance of preventive measures and procedures, as well as to differential diagnosis. Students will get acquainted with prenatal diagnostics and the possibilities of prevention.

**Skills**

Appropriate approach and communication with patients with hereditary diseases and their families. Specific methods of obtaining medical history, physical examination and specific therapy procedures in this patient population. Specific approach in primary care institutions when working with patients with hereditary diseases.

**COURSE DESCRIPTION**

**Theoretical classes**

- Clinical Genetics (Introduction)
- Ethics in clinical genetics
- DNA as the hereditary material
- Gene (gene structure)
- Human chromosomal material, karyotype, karyogram
- Hereditary disease: definition, classification, prevalence
- Congenital anomalies
- Monogenic diseases; autosomal dominant inheritance-AD; autosomal recessive inheritance AR
- Monogenic diseases XR inheritance, XD inheritance; characteristics of most prevalent diseases
- Mitochondrial diseases, inheritance, most prevalent diseases
- Autosomal chromosomes and related diseases
- Sex chromosomes and diseases
- Multifactorial diseases (inheritance, most prevalent diseases)
- Genetic counselling, genetic information
- Prenatal diagnostics - classification and importance
- Noninvasive prenatal diagnosis
- Invasive prenatal diagnosis
- Treatment of hereditary diseases

**Practical classes**

- Medical history (obtaining and importance)
- Genealogy (each student makes his DNA family tree)
- Physical examination
- Minor malformation score (MMS) (each student calculates his own MMS)
- Case reports: hereditary diseases; autosomal chromosome diseases; Down syndrome; Edwards syndrome; Pat syndrome; Wolf syndrome
- Case reports: hereditary diseases; sex chromosome diseases; Klinefelter syndrome, Turner syndrome, fragile X syndrome
- Case reports: monogenic diseases; neurofibromatosis; Marfan syndrome; spinal muscular atrophy; haemophilia; Achondroplasia; etc.)
- Case reports: genetic counselling
- Invasive prenatal diagnostics
- POOSUM (hereditary disease diagnostic software)
- Karyotype G analysis technique (microscopy)
- Syndromatology (film)

**RECOMMENDED LITERATURE**

Compulsory

Jovanović Privrodski J (ured.). Pedijatrija. Novi Sad: Medicinski fakultet 2012 – poglavlje Genetika
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</table>

1. Prof. Dr. Jadrarka Jovanović-Privrodska
2. Prof. Dr. Aleksandra Doronjski
3. Prof. Dr. Jovan Vlaški
4. Prof. Dr. Nada Konstantinidis
5. Prof. Dr. LJubica Georgijević
6. Prof. Dr. Dragan Katanić
7. Prof. Dr. Jovanka Kolarović
8. Doc. Dr. Ivana Kavečan
9. Assist. Dr. Vesna Pavlović
10. Assist. Dr. Tatjana Mudrinić Redžek
11. Assist. Dr. Ivana Vorgučin
12. Assist. Dr. Nenad Barišić
13. Assist. Borko Milanović

Head of the Department:
Prof. Dr. Dragan Katanić
9. TRANSFUSION MEDICINE (M3- ELIII)

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Teaching methods | LECTURES AND PRACTICAL WORK

**AIM**

The aim of this course is to acquaint students with: basic principles of modern transfusion medicine, place and role of health worker in the implementation of national blood program; national guidelines for clinical use of blood and blood products; transfusion laboratory diagnostics, modern methods in the field of transfusion medicine; ethical principles in transfusion medicine and place and the roles of transfusion medicine in the field of transplantation medicine.

**GOAL**

Knowledge

Students acquire knowledge about basic principles of transfusion medicine, blood donation motivational and educational activities, blood donor selection, criteria and guidelines for blood processing and testing. Transfusion laboratory diagnostics methods and its relationship with other fields of medicine. Ethical aspects of blood donation, tissue and organs, roles of transfusion medicine physician in the fields of transplantation medicine.

Skills

Students should master skills of blood donor selection, clinical examination of donor and venepuncture; blood group typing, processing donated units, labelling products and conditions for storage. Perform compatibility tests after selection of blood products for clinical use, recommendations for blood distribution and transportation; Basic laboratory testing in perinatal care and immunohematology; testing donors blood to markers of transfusion transmitted diseases: hepatitis B, hepatitis C, HIV and syphilis. HLA system: antigens, antibodies, methods for typing.

**COURSE DESCRIPTION**

**Theoretical classes**

1. History of transfusion medicine. Basic concepts and tasks of transfusion medicine and it relation to the other medicine disciplines. Transfusion medicine service organisation.
2. Ethical aspects of transfusion medicine. Legislation.
4. Selection of blood donors, laboratory and clinical examination, blood collection and adverse effects after blood donation.
5. Methods for blood preservation, blood collection bags, anticoagulants and optimal additive solutions, changes in preserved blood.
6. Special types of blood donation, adverse side effects during blood donation: autologous and apheresis procedures (plasmapheresis, cytapheresis).
7. Genetics and immunological basis in transfusion medicine: polymorphism of blood groups; erythrocyte membrane, blood group antigens and antibodies, antibody-antigen reaction, agglutination, hemolysis, immune response.
9. ABO Blood group system: antigens, antibodies, significance in transfusion medicine, anthropology and forensic medicine.
10. Rh blood group system: antigens, antibodies, significance in transfusion medicine and morbus hemolyticus neonatorum.
12. HLA system: genetics, biochemical structure, antigens, antibodies, significance in transfusion medicine, tissue and organ transplantation, anthropology and diseases.
13. Platelet antigens, anti platelet antibodies and their clinical significance.
15. Place, role and significance of transfusion medicine in transplantation medicine.
16. Basic laboratory testing in transfusiology (perinatal care, immunohematology).
17. Basic principles of selective/directed usage of blood products, storage, transport, labelling and standardisation of blood products.
18. Selection of blood for transfusion, cross matching.
21. Fresh frozen plasma and products from plasma: description, indications, contraindications, dosage and administration, different types of plasma, human coagulation factors, albumins, immunoglobulins.
22. Cryoconservation of blood cells, substitutes for blood.
23. Risks in blood transfusion.
24. Transfusion related adverse event and reactions.
25. Quality and safety in transfusion medicine. Good laboratory practice in transfusion medicine.
27. Transfusion therapy in pediatric patients.
28. Transfusion therapy in surgery patients.
30. Transfusion therapy in obstetrics and gynecology.

**Practical classes**

1. Introduction to blood donation principles, anamnesis/questionnaire, haemoglobin control, clinical examination, venepunctio, overcoming collapses, procedure of plasma and cytapheresis, autologous transfusion.
2. Immunology and serology of blood groups: methods for ABO blood group typing.
3. Rh blood group typing methods, variants of Rh D antigens (week and partial D), significance of Rh system antibodies, post
transfusion reactions and immunisation in pregnancy, immunological characteristics in morbus hemolyticus neonatorum.


5. HLA system: antigens, antibodies, methods for typing.

6. Medico legal aspects in transfusion medicine: paternity testing by means of blood group and HLA antigens.

7. Preparation of blood products: erythrocyte, platelet, leukocyte, fresh frozen plasma, cryoprecipitate, labelling, conservation, standardisation and quality control of blood products.

8. Pretransfusion testing and selection blood products for blood transfusion.

9. Genetics and immunological basis in transfusion medicine: direct and indirect antiglobulin Coomb's test, cold agglutinins, platelet and antileucocyte antibodies.


Recommended Literature

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Teaching staff

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1. Prof. Dr. Radmilija Jovanović
2. Prof. Dr. Svetlana Vojvodić
3. Assist. Dr. Jasmina Grujić
4. Assist. Dr. Zorana Budakov

Head of the Department
Prof. Dr. Milica Medić Stojanoska
## 23. SPECIAL PHARMACOLOGY (M4-SPH)

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### Teaching methods
Lectures and practical work

### AIM
Medical students are acquainted with basic biologic mechanisms of drugs and their effects on organ systems.

### Knowledge
Student should know why, how and when to apply particular drugs, general information on drugs, metabolism in the body, site and mechanism of action, interactions and side effects of drugs. Student must be able to describe the effects, therapeutic indications and application of drugs used in the treatment of microbial diseases.

### GOAL

#### Knowledge

### Skills

- Properly fill a prescription (magistral drugs, officinal drugs, ready-made drugs) and explain it;
- Use the drug registry;
- Fill the registration form/report on adverse effects of drugs.

### Theoretical classes

1. Transmitters and receptors in the nervous system.
2. Vegetative nervous system. Drugs acting via the VNC receptors.
3. Histamine and antihistamines.
5. Drugs in the treatment of respiratory disorders and diseases of the respiratory system.
7. Thrombolytics, anti aggregation agents, anticoagulants.
8. Hypolipidemic drugs.
12. Treatment of osteoporosis.
13. Total and local anaesthesia.
15. Nonsteroidal antiinflammatory drugs.
16. Treatment of epilepsy.
18. Sedatives and hypnotics.
19. Anxiolytics.

### Practical classes

1. Drug prescription according to pharmacotherapeutic classes
2. Research of drug effects on laboratory animals

### Recommended literature

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| 4. LEKOVIU PROMETU, OrtoMedics, Novi Sad, 2008 (i starija izdanja)
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### Teaching staff

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1. Prof. Dr. Ana Sabo
2. Prof. Dr. Momir Mikov
3. Prof. Dr. Jovan Popović
4. Prof. Dr. Zdenko Tomić
5. Prof. Dr. Velibor Vasović
6. Prof. Dr. Aleksandar Rašković
7. Doc. Dr. Isidora Samojlik
8. Doc. Dr. Olga Horvat
9. Assist. Dr. Saša Vukmirović
10. Assist. Dr. Boris Milićević
11. Assist. Dr. Vesna Mijatović
12. Assist. Dr. Nebojša Stilinović

Head of the Department
Prof. Dr. Momir Mikov
# 24. INTERNAL MEDICINE (M4-INTM)

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**Condition:** PATHOLOGIC ANATOMY, PATHOPHYSIOLOGY, CLINICAL PROPEDEUTICS, RADIOLOGY, GENERAL PHARMACOLOGY

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**Teaching methods:** Lectures and practical work

**AIM** Students of medicine are acquainted with etiopathogenesis, diagnostics and therapy of internal diseases with special emphasis on most common diseases and emergency situations. They will also develop critical thinking, and use their knowledge and skills to establish diagnosis and conduct appropriate therapy.

**GOAL**

**Knowledge** Students will acquire the necessary knowledge in: nephrology, immunology, endocrinology, gastroenterology, pulmonology, haematology, cardiology and oncology. They will be able to identify diseases, to apply appropriate therapy procedure and to treat severely ill patients. Students will be able to establish the diagnosis, to plan diagnostic procedures and to recommend appropriate therapy.

**Skills** Students are trained for individual and teamwork, to identify cardiovascular, pulmonary, nephrological, endocrine, gastroenterological, hematological and oncologic disorders, to implement diagnostic and therapeutic procedures.

**COURSE DESCRIPTION**


1. Medical history taking and physical examination of pulmonary patients, diagnostic and therapeutic procedures in pulmology. Role of general practitioners in diagnosis and therapy of pulmonary diseases, emergency states in pulmology.
2. Medical history taking and physical examination of patients with gastroenterology and hepatology diseases, diagnosis and therapy in gastroenterology and hepatology. Role of general practitioners in diagnosis and therapy of gastroenterology and hepatology diseases, emergency states in gastroenterology and hepatology.
3. Medical history taking and physical examination of cardiology patients, diagnostic and therapeutic procedures in cardiology. Role of general practitioners in diagnosis and therapy of cardiology diseases, emergency states in cardiology.
4. Medical history taking and physical examination of endocrine patients, patients with diabetes mellitus and other metabolic disorders, diagnostic and therapeutic procedures in endocrinology. Role of general practitioners in diagnosis and therapy of endocrine diseases, diabetes mellitus and metabolic disorders.
5. Medical history taking and physical examination of patients with immunologic and nephrologic diseases; diagnosis and therapy in clinical immunology and nephrology. Role of general practitioners in diagnosis and therapy of immunologic and nephrology diseases and emergency states in clinical immunology and nephrology.
6. Medical history taking and physical examination of patients with hematologic diseases; diagnosis and therapy in hematology. Role of general practitioners in diagnosis and therapy of hematologic diseases and emergency states in hematology.
7. Medical history taking and physical examination of patients with oncologic diseases in the scope of internal oncology; diagnosis and therapy in internal oncology. Role of general practitioners in diagnosis and therapy of oncologic diseases and emergency states in internal oncology.

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<td>1. Interna medicina, urednik Pejin D, Medicinski fakultet Novi Sad, 2006.</td>
<td>1. NMS Medicina 1 i 2, urednik Myers A.R., Lippincott Williams-Wilkins.(5ed), 2010 (prevedeno)</td>
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Head of the Department
Prof. Dr. Milica Medić Stojanoska
25. INFECTIOUS DISEASES (M4-INFD)

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Condition: MICROBIOLOGY AND IMMUNOLOGY, PATHOPHYSIOLOGY, CLINICAL PROPEDEUTICS (EXAM), RADIOLOGY (EXAM), GEN. PHARMACOLOGY (EXAM)

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Teaching methods: Lectures, practice

The aim of the course in Infectious diseases is to train students to identify and treat patients suffering from infectious diseases, obtain medical history, perform clinical examinations, identify acute and chronic infectious diseases. Student should be able to apply their knowledge and skills to further their research and write student scientific papers.

**AIM**

**Knowledge**

Students get acquainted with features of infectious diseases, etiology, epidemiology, pathogenesis, clinical picture, diagnostic approaches to well known as well as newly detected diseases in common and emergency situations. Through practice, students learn history taking, physical examination of patients with infectious diseases, especially to recognize meningeal symptoms. Good clinical practice and preventive measures are of utmost importance.

**Goal**

**Skills**

Students are trained for appropriate history taking, with special emphasis on the present disease with dates and systems in epidemiological questionnaire; respiratory tract examination, especially changes in the oral cavity, tonsil and lymph nodes; examination of meningeal and neurologic signs; observation of lumbal puncture and reading the cytochemical liquor finding, examination of patients with jaundice – liver and spleen palpitation; examination of patients with intestinal infections; assessment of the degree of dehydration; examination of patients with rash and fever; identification of skin efflorescences, clinical manifestations of hemorrhagic fever and initial signs of hemorrhagic diathesis; examination of patients with septic conditions, AIDS. Students learn how to read laboratory findings of blood analyses in certain infectious diseases, as well as results of microbiological and viral findings.

**COURSE DESCRIPTION**

Theoretical classes

1. Introduction to infectious diseases
2. Angina syndrome and diphtheria
3. Streptococcal diseases and Erysipelas
4. Scarlatina
5. Influenza syndrome, SARS
6. Atypical pneumonias
7. Pertussis
8. Epidemic parotitis
9. Anthropozoonoses (anthrax, brucellosis, tularemia, malleus, plague)
10. Toxoplasmosis
11. Hemorrhagic fevers
12. Rickettsiosis, Brill-Zinsser disease
13. Unclear febrile states
14. Malaria
15. Rash in infectious diseases
16. Morbilli-Rubella
17. Chickenpox, smallpox, Exanthema infectiosum, Megalerythema epidemicum
18. Herpes virus infections
19. Infectious mononucleosis
20. Infectious diseases and pregnancy
21. HIV infection
22. Septic shock, DIC, MODS, SIRS
23. Rational application of antibiotics
24. Meningitis and meningeal syndrome– general features
25. Bacterial meningitis
26. Meningococcal diseases
27. Clear-fluid meningitis
28. Prion-induced encephalitis and CNS diseases
29. Characteristics of certain types of encephalitis
30. Poliomyelitis and Rabies
31. Tetanus
32. Botulism
33. Lyme disease
34. General characteristics of intestinal infections
35. Food poisoning and cholera
36. Bacterial and amebic dysentery
37. Salmonellosis of animal origin
38. Abdominal typhus
39. Trichinosis
40. Viral hepatitis – introduction
41. Fulminant hepatitis
42. Hepatitis A, E, C, G, B
43. Hepatitis B, D and C – acute
44. Hepatitis B and C – chronic
45. Leptospirosis

Practical classes
1. Introduction to infectious diseases
2. Medical history taking in infectious diseases
3. Intestinal infections - medical history
4. Droplet infections - medical history
5. Unclear febrile states and rash - medical history
6. CNS infection - medical history
7. Hepatology - medical history
8. Medical history – conclusions
9. Complete physical examination – demonstration
10. Complete physical examination of the abdomen - demonstration
11. Complete physical examination – meningeal and neurologic - demonstration
12. Complete physical examination of the upper respiratory tract – demonstration
13. Complete physical examination of the lower respiratory tract – demonstration
14. Complete hepatologic physical examination – demonstration
15. Differential diagnosis of icterus
16. Differential diagnosis of intestinal infections
17. Differential diagnosis of CNS infections, especially neurologic and neurosurgical diseases
18. Differential diagnosis of unclear febrile states
19. Differential diagnosis of droplet infections
20. Lumbar puncture – demonstration

RECOMMENDED LITERATURE

Compulsory

Optional

Student’s activity assessment (points)

<table>
<thead>
<tr>
<th>Pre-exam activities</th>
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Teaching staff

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<tr>
<th>Techn.</th>
<th>Teaching Ass.</th>
<th>Lecturer</th>
<th>Assist.Prof.</th>
<th>Assoc.Prof.</th>
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<th>Scient. Res.</th>
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<tbody>
<tr>
<td>4</td>
<td>Prof. Dr. Vesna Turkulov</td>
<td>Prof. Dr. Grozdana Čanak</td>
<td>Prof. Dr. Milatka Fabri</td>
<td>Prof. Dr. Jovan Vukadinov</td>
<td>Prof. Dr. Snežana Brkić</td>
<td>Prof. Dr. Dejan Cvjetković</td>
</tr>
</tbody>
</table>

Head of the Department
Prof. Dr. Vesna Turkulov
The aim of this course is to provide students with knowledge to estimate the population health status and to recognize and implement measures of prevention and control of communicable and non-communicable diseases in common and emergency situation. Students get acquainted with epidemiological methods and their implementation in routine work with patients; they become familiar with the epidemiology of communicable and non-communicable diseases in population in order to recognize them and take measures of prevention and control. Students become familiar with legislation in context of surveillance. Students need to be able to conduct surveillance of communicable and non-communicable diseases, including reporting; apply immunization and chemoprophylaxis, recognize outbreaks, and conduct preventive and control measures in this field.

### COURSE DESCRIPTION

**Theoretical classes**

1. Definition, aim and objectives of epidemiology (historical development of epidemiology, differences between clinical medicine and epidemiology, epidemiological definitions)
2. Epidemiological surveillance (definitions, significance, classification, elements, evaluation, surveillance in our country)
3. Descriptive method (demographic, chronologic and topographic characteristics of negative health events)
4. Analytical method (case-control studies, cohorts, cross-section studies, estimation of risks for occurrence of disease, bias in analytical studies)
5. Experimental method (design of experimental studies, clinical trial, field experiment, community experiment)
6. Causality in epidemiology (types of interrelations and causality, sample size)
7. Diagnostic tests (validity, reliability, sensitivity, specificity, positive and negative prediction value). Meta analysis and systematic presentation. Evidence-based medicine
8. Screening (definition, goals, classification, screening programs, bias, ethical implications). Public health (definition and strategy, epidemiology and public health).
9. Epidemiological models (ecological trias, wheel model, network of causality)
10. Characteristics of agents (definition, types, characteristics depending on host)
11. Characteristics of host and environment
12. Chain of infection (reservoir and source of infection, place of entry, routes of transmission, dose and virulence of agents, disposition)
13. Epidemiology questionnaires (design, structure, samples)
14. Investigation of epidemiology (preparations for field work, epidemics, confirmation of diagnosis, identification of the sick, descriptive-epidemiological analysis, setting and testing a hypothesis, additional testing, fighting epidemics, public announcement)
15. Epidemiological process (natural history of disease, gradient of infection, iceberg phenomenon, characteristics according place and time)
16. Routes of transmission – detail characteristics of direct and indirect transmission
17. Infectious diseases prevention and control measures (definitions, measures linked to reservoir, agent, rout of transmission, host)
18. Epidemiology of infectious respiratory diseases (epidemiological indices, risk factors, prevention and control, characteristics)
19. Epidemiology of intestinal infectious diseases (epidemiological indices, risk factors, prevention and control, characteristics)
20. Epidemiology of sexually transmitted diseases (epidemiological indices, risk factors, prevention and control, characteristics)
21. Natural outbreaks, zoonoses and vector diseases (epidemiological indices, risk factors, prevention and control, characteristics)
22. Levels of prevention (primordial, primary, secondary and tertiary)
23. Epidemiology of gastrointestinal, endocrine and metabolic diseases (epidemiological indices, risk factors, prevention and control, characteristics)
24. Epidemiology of mental and neural diseases (epidemiological indices, risk factors, prevention and control, characteristics)
25. Epidemiology of chronic respiratory diseases (epidemiological indices, risk factors, prevention and control, characteristics)
26. Epidemiology of cardiovascular and cerebrovascular diseases (epidemiological indices, risk factors, prevention and control, characteristics)
27. Epidemiology of malignant diseases (epidemiological indices, risk factors, prevention and control, characteristics)
28. Epidemiology of injuries and poisoning (epidemiological indices, risk factors, prevention and control, characteristics)
29. Epidemiology in emergency situations
30. Biological weapons (classification, application and prevention)

**Practical classes**
1. Data bases on population morbidity and mortality – importance, legislation, reports, types of reports, internet data gathering
2. Basic indicators of epidemiology – morbidity, mortality, general, specific and standard rates
3. Epidemiologic methods – descriptive method, principles, significance, practical application
4. Epidemiologic methods – anamnestic studies, principles, significance, practical application
5. Epidemiologic methods – anamnestic studies, practical application
6. Epidemiologic methods – cohort studies, principles, significance, practical application
7. Epidemiologic methods – experiment, principles, significance, examples, practive application
8. Measurement errors – bias, association, practical significance and examples
9. Epidemiologic examination – definition, importance, types of communities, practical application
10. Epidemiologic surveillance
11. Immunization - types of vaccines and their use, contraindications, organization of vaccination, documentation, reports of unwanted reactions
12. Immunization – systemic immunization, epidemiologic and clinical indications, vaccination of international travellers, vaccination schedule, examples
13. Epidemiologies in emergency situations
14. Epidemiologies in emergency situations - plannig
15. Epidemiologic questionnaire – importance, parts, creation
17. Respiratory epidemics – characteristics, respiratory diseases, examples, research
18. Contact epidemics – characteristics, contact borne diseases, examples, research
19. Water borne epidemics – characteristics, diseases, examples, research
20. Food-borne epidemics - characteristics, diseases, examples, research
21. Nosocomial infections – definitions, criteria, importance, types of surveillance
22. Nosocomial infections – prevention and measures of prevention, protocols of aseptic procedures, practical work
23. Levels of prevention
24. Prevention of epidemic diseases – programs of prevention
25. HIV infections – epidemiologic characteristics, transmission, importance for health professionals
26. Voluntary confidential counseling and testing - principles, purpose and implementation
27. Voluntary confidential counseling and testing - practical work, work with vulnerable population
28. Voluntary confidential counseling and testing – practical work, work with vulnerable population
30. Voluntary confidential counseling and testing – ethical principles

**Recommended Literature**

**Compulsory**

**Optional**

**Student activity assessment** (points)

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<tr>
<th>Lectures</th>
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**Teaching staff**

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<tbody>
<tr>
<td>1. Prof. Dr. Zorica Šeguljev</td>
</tr>
<tr>
<td>2. Prof. Dr. Marica Miladinov</td>
</tr>
<tr>
<td>3. Doc. Dr. Predrag Đurić</td>
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<tr>
<td>4. Doc. Dr. Vladimir Petrović</td>
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<tr>
<td>5. Doc. Dr. Gorana Ćosić</td>
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<tr>
<td>6. Doc. Tihomir Dugandžić</td>
</tr>
<tr>
<td>7. Assist. Dr. Mioljub Ristić</td>
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<td>8. Assist. Dr. Smiljana Rajčević</td>
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<td>9. Assist. Dr. Jelena Đekić</td>
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Head of the Department
Doc. Dr. Predrag Đurić
# NEUROLOGY (M4 - NEUR)

<table>
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<th>INTEGRATED STUDIES IN MEDICINE</th>
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**Condition:** CLINICAL PROPEDEUTICS (EXAM), GENERAL PHARMACOLOGY (EXAM)

## Year of study

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## Teaching methods

Lectures, practice

## AIM

The aim of this course is to provide medical students with knowledge on pathogenetic basis and clinical symptoms of common neurological disorders and their current neurological diagnostic procedures, treatment, and prognosis.

## GOAL

### Knowledge

The course provides students with a general understanding of symptoms and signs of disorders of different structures of the central nervous system, evaluation of the patient with neurological symptoms, how and when to suspect a neurological entity, perform an adequate diagnostic procedure and if necessary initiate a treatment.

### Skills

After completing the course the student should:

- be able to carry out history-taking and a complete neurological examination of the patient and based on it
- formulate a working (probable) diagnosis and indicate basic laboratory investigations;
- be familiar with basic principles of the management of urgent neurological conditions;
- have an understanding of conditions that require referral to a neurology specialist (i.e. whether a condition requires in-patient investigation and treatment)

## COURSE DESCRIPTION

### Theoretical classes

1. Episodic disturbance of consciousness, coma, delirium. Sleep disorders
2. Epilepsy and epileptic syndromes
3. Headache, neuralgia, vertigo
4. Ischemic cerebrovascular disease
5. Hemorrhagic cerebrovascular disease and brain edema
6. Infectious disease of the CNS and neurological complications of systemic disorders
7. Dementias
8. Leucodystrophies and metabolic disorders
9. Neurological aspects of CNS trauma and CNS tumors
10. Demyelinating diseases
11. Movement disorders and cerebellar disorders
12. Developmental neurology
13. Motor neuron disorders and polyneuropathies
14. Brainstem and spinal cord disorders
15. Neuromuscular junction disorders and muscular disease

### Practical classes

1. Neurological history taking
2. Examination of cranial nerves I-VI
3. Examination of cranial nerves VII-XII
4. Examination of the neck, upper and lower limbs (nutrition, tonus, movement, muscular reflexes, strength, stretching tests)
5. Examination of sensibility
6. Extrapyramidal symptoms and signs
7. Examination of cerebellar functions
8. Examination of higher cerebral functions
9. Diagnostic procedures in neurology (EEG, video EEG, EMNG, EP, LP, CSF isoelectric focusing, ultrasonography, CT, MRI, PET, SPECT)
10. Examination of a comatose patient
11. Examination of a patient with myasthenia gravis
12. Neurological examination of a pediatric patient
13. Gait disorders (differential diagnosis)
14. Headaches
15. Complete neurological examination of different neurological diseases, differential diagnosis
**Recommended Literature**

**Compulsory**

**Optional**

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**Student activity assessment (points)**

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**Teaching staff**

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<thead>
<tr>
<th>Teaching staff</th>
<th>Lecturer</th>
<th>Ass. Prof.</th>
<th>Assoc. Prof.</th>
<th>Full Prof.</th>
<th>Scientific Researcher</th>
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<tbody>
<tr>
<td>1. Prof. Dr. Milorad Žikić</td>
<td>1. Prof. Dr. Čongor Nađ</td>
<td>1. Prof. Dr. Petar Slankamenac</td>
<td>1. Prof. Dr. Ksenija Božić</td>
<td>1. Prof. Dr. Ivan Divojak</td>
<td>1. Prof. Dr. Marija Žarkov</td>
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**28. PSYCHIATRY (M4-PSYC)**

**STUDY PROGRAM** | INTEGRATED STUDIES IN MEDICINE
---|---
**DEPARTMENT** | DEPARTMENT OF PSYCHIATRY AND MEDICAL PSYCHOLOGY
**COURSE TITLE / CODE** | PSYCHIATRY
**COURSE STATUS** | COMPULSORY

Condition: MEDICAL PSYCHOLOGY, CLINICAL PROPEDEUTICS (EXAM), GENERAL PHARMACOLOGY

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Teaching methods: Lectures and practical work

**AIM**

The aim of this course is to train students, as future family physicians, to identify, diagnose and manage patients with mental disorders. Students also learn about scientific research.

**GOAL**

**Knowledge**

Students acquire knowledge on psychiatry as a medical field, characteristics of particular mental disorders according to WHO classification ICD-10, identification/diagnostics of mental disorders and their treatment.

**Skills**

Students learn about conducting psychiatric interviews, evaluation of psychical functions and behavior of individuals with different mental disorders. They study how to establish diagnosis (working and differential diagnosis), and manage patients. Students are included in the treatment of mental disorders as general practitioners.

**COURSE DESCRIPTION**

**Theoretical classes**

1. Psychiatric disorders through history; development of psychiatry as a medical branch; psychiatry in contemporary medicine
2. Classification and diagnosis of mental disorder - ICD-10
3. General psychopathology (disorders: consciousness, perception, thinking, emotion, attention, intelligence, will, memory)
4. Etiology of mental disorders – biopsychosocial approach
5. Treatment of mental disorders - pharmacotherapy, electro-convulsive therapy, light therapy, other "somatic" forms of treatment, different types of psychotherapy
6. Organic mental disorders - acute and chronic brain syndrome
7. Diseases induced by misuse of psychoactive substances: Drug addiction, alcoholism
8. Schizophrenia, schizotypal and schizoaffective disorders
9. Disorders associated with insanity
10. Mental disorders associated with generative phases in women
11. Mood disorders - depressive disorders, bipolar disorders
12. Anxiety Disorders
13. Suicidology
14. Consultation psychiatry and psychosomatic medicine
15. Personality and behavior disorders in adults
16. Mental disorders in children
17. Mental disorders in adolescence
18. Emergency situations in psychiatry
19. Forensic psychiatry
20. Behavioral syndromes associated with physiological disturbances and somatic factors - inorganic sleep disorders, sexual dysfunctions

**Practical classes**

1. Mental disorders, psychiatric patients, specific patient-physician relationship; rights of psychiatric patients
2. Psychiatric interview: psychiatric interview techniques
3. Psychiatric Interview: important information for personal, family and medical history of the disease
4. Psych status: evaluation of psychological functions (consciousness, orientation, thinking, perception, emotion, memory, intelligence, volitive and instinctive dynamism, attention) and behaviour evaluation
5. Organic mental disorders - history, mental status, diagnosis, care
6. Diseases induced by misuse of psychoactive substances – drugs: medical history, mental status, diagnosis, care
7. Diseases induced by misuse of psychoactive substances - alcohol: medical history, mental status, diagnosis, care
8. Schizophrenia – medical history, mental status, diagnosis, care
9. Schizotypal and shizoaffective disorders – medical history, mental status, diagnosis, care
10. Insanity Disorders – medical history, mental status, diagnosis, care
11. Mood disorders – medical history, mental status, diagnosis, care
12. Neurotic and stress-induced disorders – medical history, mental status, diagnosis, care
13. Emergency states in psychiatry
14. Mental disorders in children – medical history, mental status, diagnosis, care
15. Mental disorders in adolescents - medical history, mental status, diagnosis, care
16. Consultation psychiatry and psychosomatic medicine. Psychiatrist in a team. Physically ill patients, medical history, mental status, diagnosis and care in a view of consultation psychiatry and psychosomatic medicine

17. Forensic psychiatry

<table>
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<tr>
<th>RECOMMENDED LITERATURE</th>
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### Teaching staff

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<tr>
<th>Techn.</th>
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1. Prof. Dr. Nikola Vučković
2. Prof. Dr. Svetlana Drezgić-Vukić
3. Prof. Dr. Dragan Mitrović
4. Prof. Dr. Gordana Mišić-Pavkov
5. Prof. Dr. Olga Živanović
6. Prof. Dr. Aleksandra Nedić
7. Prof. Dr. Branislava Soldatović Stajić
8. Prof. Dr. Mina Cvjetković Bošnjak
9. Prof. Dr. Aleksandra Dickov
10. Doc. Dr. Svetlana Kovačević Ivanović
11. Doc. Dr. Zoran Gajić
12. Doc. Dr. Đendži Siladić Mladenović
13. Doc. Dr. Jasminka Marković
14. Assist. Dr. Vesna Yasić
15. Assist. Dr. Vladimir Knežević
16. Assist. Dr. Boris Golubović
17. Assist. Dr. Josip Dadasović
18. Assist. Dr. Milana Poznić Ješić
19. Assist. Dr. Sanja Pleštić

Head of the Department
Prof. Dr. Olga Živanović
29. DERMATOVENEREOLOGY (M4-DRV)

STUDY PROGRAM INTEGRATED STUDIES IN MEDICINE
DEPARTMENT DEPARTMENT OF DERMATOVENEREOLOGY
COURSE TITLE/ CODE DERMATOVENEREOLOGY
COURSE STATUS COMPULSORY

Condition: CLINICAL PROPEDEUTICS (EXAM), GENERAL PHARMACOLOGY (EXAM)

<table>
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<th>Year of study</th>
<th>Winter semester (hours/week)</th>
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<th>Colloquia</th>
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Teaching methods Lectures and practical work

AIM
The aim of this course is to introduce students with all kinds of dermatoses, as well as diagnostic and therapeutic procedures relevant in dermatovenereology.

GOAL
1. Knowledge Clinical presentation, diagnostic procedures, therapy, course and prognosis in dermatovenereology diseases relevant for medical students.
2. Skills Students are provided with skills and diagnostic and therapeutic methods in dermatovenereology.

COURSE DESCRIPTION

Theoretical classes

1. Allergic skin diseases
2. Parasitic dermatoses
3. Pyodermas
4. Skin tuberculosis
5. Viral skin infections
6. Skin tumors
7. Erythematous dermatoses
8. Bullous dermatoses
9. Papular dermatoses
10. Pruritic dermatoses (Prurigo, pruritus, erythroderma)
11. Keratitis disorders
12. Autoimmune skin diseases
13. Circular skin diseases (purpura, vasculitis)
14. Adnexal skin diseases
15. Mucosal diseases
16. Sexually transmitted diseases

Practical classes

1. General propedeutics in dermatovenereology
2. History taking in dermatology
3. Clinical examination
4. Efflorescences
5. Anatomy and histology of the skin
6. Physiology of the skin
7. Pathohistology of the skin
8. Additional diagnostic procedures
9. Laboratory diagnosis of syphilis
10. Sexually transmitted diseases - diagnostic procedures
11. Sexually transmitted diseases - therapy
12. Therapy in the dermatovenereology
13. Visiting specialized units at the clinic
14. Visiting specialized units at the polyclinic
15. Work with patients
16. Local surgical procedures

Recommended Literature

Compulsory

Optional

Student activity assessment (points)

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<tr>
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Head of the Department
Doc. Dr. Milan Matić
10. EXPERIMENTAL PHARMACODYNAMIC METHODS IN EXPERIMENTAL ANIMALS (M4-ELIV)

**Course Title / Code:** EXPERIMENTAL PHARMACODYNAMIC METHODS IN EXPERIMENTAL ANIMALS

**Course Status:** ELECTIVE

**Department:** DEPARTMENT OF PHARMACOLOGY, TOXICOLOGY AND CLINICAL PHARMACOLOGY

**Course Description**

**Theoretical classes**

1. Basic characteristics of preclinical testing.
2. Experimental methods examining potential sites of action of test substances in experimental animals.
3. Experimental methods examining the safety of substances in experimental animals.
4. Analysis of information relevant for planning and conducting pharmacodynamic studies in experimental animals.
5. Pharmacodynamic methods examining the impact of ancillary medications and dietary supplements on glucose metabolism.
6. Pharmacodynamic properties of medicinal mushrooms.
7. Experiments on laboratory animals examining the antioxidant and hepatoprotective properties of ancillary medications and dietary supplements.
8. Pharmacodynamic studies examining the impact of ancillary medications and dietary supplements on the function of the central nervous system.
9. Pharmacodynamic studies examining the impact of ancillary medications and dietary supplements on the function of the cardiovascular system.
10. Pharmacodynamic studies examining the impact of ancillary medications and dietary supplements on the function of the digestive system.
11. Examination of interactions between ancillary medications and dietary supplements and traditional medicines in experimental animals.
12. Safety of ancillary medications and dietary supplements during pregnancy and lactation.
15. Adverse effects of ancillary medications and dietary supplements.

**Practical classes**

1. Data sources for ancillary medications and dietary supplements.
2. Research results important for safety assessment of ancillary medications and dietary supplements.
3. Results of experimental investigations on the impact of ancillary medications and dietary supplements on the function of the endocrine system and metabolism.
4. Results of experimental investigations on the impact of ancillary medications and dietary supplements on the function of the cardiovascular system.
5. Results of experimental investigations on the impact of ancillary medications and dietary supplements on the functions of the central nervous system.
6. Results of experimental studies on interactions between ancillary medications and dietary supplements and traditional medications.
7. Test results of antioxidant and hepatoprotective properties of ancillary medications and dietary supplements.
8. Students’ essays.
## Recommended Literature

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<tr>
<th>Level</th>
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<td>Compulsory</td>
<td>Eksperimentalna farmakologija u naučno-istraživačkom radu</td>
<td>Jakovljević V.</td>
<td>ALFAGRAF, 2006</td>
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<td>Uvod u naučno-istraživački rad</td>
<td>Đurić P.</td>
<td>Medicinski fakultet, 2012</td>
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<td>Farmakologija</td>
<td>Varagić V., Milošević M.</td>
<td>Elit Medica, 2007</td>
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<td>Antibakterijski lekovi (sa ostalim antiinfektivnim lekovima)</td>
<td>Sabo A, Tomić Z, Rašković A, Stanulović M.</td>
<td>Edicija Savremena Farmakoterapija, 2010</td>
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### Student’s Activity Assessment (Points)

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### Teaching Staff

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<th>Assoc.Prof.</th>
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1. Prof. Dr. Ana Sabo
2. Prof. Dr. Jovan Popović
3. Prof. Dr. Momir Mikov
4. Prof. Dr. Zdenko Tomić
5. Prof. Dr. Aleksandar Rašković (head of the course)
6. Doc. Dr. Isidora Samojlik
7. Doc. Dr. Olga Horvat
8. Assist. Dr. Saša Vukmirović
9. Assist. Dr. Boris Milijašević
10. Assist. Dr. Nebojša Stilinović
11. Assist. Dr. Vesna Mijatović

Head of the Department
Prof. Dr. Momir Mikov
11. CLINICAL IMMUNOLOGY (M4-ELIV)

STUDY PROGRAM  INTEGRATED STUDIES IN MEDICINE
DEPARTMENT  DEPARTMENT OF INTERNAL MEDICINE
COURSE TITLE / CODE  CLINICAL IMMUNOLOGY
COURSE STATUS  ELECTIVE
Condition: PATHOLOGICAL ANATOMY, PATHOPHYSIOLOGY, PHARMACOLOGY

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Teaching methods  Lectures, practical work, clinical work, laboratory work

The aim of this course is to provide students with knowledge on principles of clinical immunology, development of immune diseases, diagnostic methods and theoretical and practical aspects of the therapy of immune diseases. The practical goal of education is to provide students with skills for practical work, and to prepare students for future research-scientific work.

KNOWLEDGE

Students learn about the mechanisms and features of immune system disorders, as well as primary genetic factors underlying immune diseases, diagnostic and therapeutic approach to immune diseases and basic therapeutic methods. Complications of immunomodulatory and immunosuppressive therapies.

SKILLS


COURSE DESCRIPTION

**Theoretical classes**

1. Introduction to clinical immunology. Immunological diagnosis.
2. Autoimmunity. Systemic lupus erythematosus
3. Vasculitis, Rheumatoid arthritis
4. Rheumatology in childhood
5. Glomerulonephritis
7. Endocrine diseases associated with immune processes
8. Hematologic diseases associated with immune processes
9. Principles of personalized and transplantation medicine in demylinized diseases in neurology
10. Allergic dermatoses
11. Transplantation medicine in practice
12. Asthma – immunologic and clinical aspects
13. Immunologic manifestations during nonspecific pulmonary infections
14. Immunologic characteristics of granulomatous diseases
15. Allergic diseases in the ORL region

**Practical classes**

1. Immunological laboratory: protein electrophoresis, radial immunodiffusion, agglutination technique for detecting rheumatoid factor and C reactive protein
2. Immunological laboratory: indirect immunofluorescence (heterologous biological substrates, tissue culture, cell smear), diagnostic methods: immunofluorescent immune complexes deposit in tissues, ELISA techniques
3. Clinical examination of immunological and rheumatic patients.
4. Clinical examination and treatment of organ recipient patients
5. Hypersensitivity skin test, clinical examination of patients with skin manifestations of immune diseases; diagnosis and treatment.
6. Functional lung tests in respiratory atopic diseases; clinical examinations and treatment of pulmonary immune diseases
7. Diagnosing and treating systemic atopic reactions (seminar)

RECOMMENDED LITERATURE

Compulsory  Pejin Dušan and saradnici. Interna medicina. Medicinski fakultet Novi Sad, 2007
Optional  Abas Abul, Lihtman Endru: Osnovna imunologija (funkcionisanje and poremećaji imunskog sistema). Data status, Beograd, 2007
Jasmina Ljaljević and saadnici. Klinička imunologija

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### Teaching staff

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1. Prof. Dr. Igor Mitić
2. Prof. Dr. Tatjana Ilić
3. Prof. Dr. Marina Jovanović
4. Prof. Dr. Congor Nađ
5. Doc. Dr. Biljana Zvezdin
6. Doc. Dr. Dejan Čelić
7. Doc. Dr. Gordana Vujatov
8. Doc. Dr. Dušan Božić
9. Prof. Dr. Milica Medić Stojanoska
10. Doc. Dr. Ivana Urošević
11. Dr. Dr. Lada Petrović
12. Prof. Dr. Slobodan Pavlović
13. Doc. Dr. Svetlana Kašiković
14. Prof. Dr. Mirna Đurić
15. Doc. Dr. Slobodan Savović

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Head of the Department

Prof. Dr. Milica Medić Stojanoska
12. NUCLEAR MEDICINE (M4-ELIV)

STUDY PROGRAM  INTEGRATED STUDIES IN MEDICINE
DEPARTMENT  DEPARTMENT OF PATHOPHYSIOLOGY
COURSE TITLE / CODE  NUCLEAR MEDICINE
COURSE STATUS  ELECTIVE

Condition:

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Teaching methods  LECTURES AND PRACTICE

AIM
The aim of this course is to provide students with knowledge on basic rules for application of open sources of ionizing radiation and diagnostic and therapeutic options of radioactive isotopes.

GOAL
Knowledge  Student learn about basic nuclear diagnostic and therapy methods in particular fields of medicine, basic principles of radiation detection, nuclear-medicine imaging, equipment and instruments and preparing patients for nuclear-medicine examination.

Skills  Student learn to interpret scintigraphy images, their diagnostic value and limitations.

COURSE DESCRIPTION

Theoretical classes

1. Radioactive isotopes and radiation
2. Physical principles of radiation detection and equipment: scintillation detector, gamma cam, PET
3. Basic principles of radiobiology
4. Basic principles of radiopharmacology
5. Basic principles of radiation protection
6. Clinical application of nuclear-medicine methods in endocrinology
7. Clinical application of nuclear-medicine methods in urology and nephrology
8. Clinical application of nuclear-medicine methods in cardiology
9. Clinical application of nuclear-medicine methods in gastroenterology
10. Clinical application of nuclear-medicine methods in pulmonology and hematology
11. Clinical application of nuclear-medicine methods in oncology

Practical classes

1. Safety rules in nuclear-medicine institutions
2. Radioisotopes in nuclear-medicine laboratory: features and application
3. Radioisotopes in nuclear-medicine laboratory: technetium generator and iodine 131
4. Basic principles of radiopharmaceutical preparations in nuclear-medicine institutions
5. Dosimetry in nuclear-medicine institutions
6. Scintigraphy in endocrinology
7. External measuring using integral radiation detectors, except gamma camera
8. Operation mode of gamma camera
9. Static and dynamic kidney scintigraphy
10. Static and dynamic skeletal scintigraphy
11. Static and dynamic scintigraphy in gastroenterology
12. Scintigraphy in examination of cardiovascular system
13. Static and dynamic scintigraphy in pulmonology
14. Static and dynamic scintigraphy in hematology
15. Determination of blood volume, erythrocytes and plasma
16. Application of radioisotopes in pediatrics
17. Repetition and consultations

RECOMMENDED LITERATURE

Compulsory

Optional
### Student’s activity assessment (points)

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1. Prof. Dr. Ferenc Dujmović
2. Prof. Dr. Mladen Prvulović
3. Doc. Dr. Silvija Lučić
4. Assist. Dr. Radmila Žeravica
5. Assist. Dr. Branislava Ilinčić

Head of the Department
Prof. Dr. Zoran Stošić
13. RATIONAL DRUG USE IN PREGNANCY AND LACTATION (M4-ELIV)

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**Condition:**

**STUDY PROGRAM**

**DEPARTMENT**

**COURSE TITLE / CODE**

**COURSE STATUS**

**LITERATURE**

**STUDENT’S ACTIVITY ASSESSMENT (POINTS)**

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**The aim of this course is to provide students with knowledge on basic principles of pharmacotherapy during pregnancy and lactation.**

**Knowledge**

Students learn about basic characteristics of drugs used in pregnancy and lactation, with particular reference to the safety of pharmacotherapy; students learn about drugs which proved reasonable for use during pregnancy and breastfeeding based on the principles of evidence based medicine.

**Skills**

At the end of the course students are expected to master basic skills and principles of rational pharmacotherapy in pregnant women and nursing mothers.

**COURSE DESCRIPTION**

**Theoretical classes**

1. Selection of drugs in relation to the sex of patient.
2. Physiological characteristics of a pregnant woman and fetus affecting pharmacokinetic and pharmacodynamic properties of drugs.
3. Physiological characteristics of nursing mothers and newborns/infants affecting properties of drugs during lactation.
4. Criteria used to assess the risks and safety of drugs during pregnancy and breastfeeding.
5. Classification of drugs in regard to their safety during pregnancy and breastfeeding.
6. Impact of drugs on organogenesis, fetus and course of pregnancy. Impact of gestational age of the fetus on characteristics of drugs. Biological markers that indicate the exposure to drugs during pregnancy.
7. Clinical studies in pregnant women.
8. Safety of antihypertensive drugs in pregnancy and lactation.
10. Safety of antimicrobial agents during pregnancy and lactation.
11. Safety of drugs used in the treatment of neuropsychiatric disorders (anxiolytics, antidepressants, antipsychotics and antiepileptics) during pregnancy and lactation.
12. Prophylactic use of drugs in pregnancy.
15. Impact of tobacco smoke, alcohol and drug abuse on the fetus and pregnancy.

**Practical classes**

1. Data sources on the safety of medications used in pregnancy and lactation.
2. Analysis of preclinical study results relevant for drug safety assessment during pregnancy and breastfeeding.
3. Analysis of clinical study results important for drug safety assessment during pregnancy and breastfeeding.
4. Case reports – on application of medications during pregnancy and breastfeeding.
5. Students’ essays.

**RECOMMENDED LITERATURE**

**Compulsory**


**Optional**

## Teaching staff

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1. **Prof. Dr. Ana Sabo (head of the course)**
2. **Prof. Dr. Jovan Popović**
3. **Prof. Dr. Momir Mikov**
4. **Prof. Dr. Zdenko Tomic**
5. **Prof. Dr. Aleksandar Rašković**
6. **Doc. Dr. Isidora Samojlik**
7. **Doc. Dr. Olga Horvat**
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9. **Assist. Dr. Boris Milijašević**
10. **Assist. Dr. Nebojša Stilinović**
11. **Assist. Dr. Vesna Mijatović**

Head of the Department
Prof. Dr. Momir Mikov
12. RATIONAL

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**Condition:** SPECIAL PHARMACOLOGY

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**Teaching methods:** Lecture, interactive classes, experiments, essays

### AIM

The aim of the course is to provide students with basic information on contemporary phytotherapy, as a form of traditional medicine, and its importance in medicine.

### GOAL

**Knowledge**

Students learn about the most important phytotherapeutics used in our country and in the world, their active constituents, therapeutic doses, mechanisms of action and potential interactions and side effects.

**Skills**

Students are expected to master skills of rational selection of appropriate phytotherapeutics (registered as such or dietary supplements) and their place in modern therapeutic methods, as well as to acquire the skills of preparation and application of phytotherapeutics. Students will also learn about methods in identification and determination of active components of phytotherapeutics.

### COURSE DESCRIPTION

#### Theoretical classes

1. Rational phytotherapy, definition and its role in contemporary medicine
2. Standardization, registration, regulations and guidelines for implementation of phytotherapeutics
3. Biological, pharmacological and clinical studies of phytotherapeutics
4. Pharmacological characteristics of certain groups of phytotherapeutics
5. Phytotherapeutics in the treatment and prevention of diseases of major organ systems (CNS, gastrointestinal, respiratory, genitourinary tract, and metabolic disorders of the immune and reproductive systems, liver and biliary tract)
6. Specific dosing of phytotherapeutics
7. Health benefits and precautions when using phytotherapeutics
8. Adverse effects and interactions of phytotherapeutics with certain groups of medications
9. Phytonutrients
10.Adaptogens

#### Practical classes

1. Dosage forms of phytotherapeutics - preparation and implementation, storage and disposal
2. Registration of phytotherapeutics (phytotherapeutics or dietary supplement)
3. Analysis and guidelines for phytotherapeutics
4. Sources of information on phytotherapeutics
5. Identification and determination of active components of phytotherapeutics
6. Compliance with the instructions for use of the commercial phytotherapeutics
7. Selection of appropriate phytotherapeutics in the prevention and treatment of diseases

### RECOMMENDED LITERATURE

**Compulsory**


**Optional**


### Student’s activity assessment (points)

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### Teaching staff

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Head of the Department
Doc. Dr. Biljana Božin
13. HISTORY OF SEXUALITY (M4-ELIV)

**STUDY**
INTEGRATED STUDIES IN MEDICINE

**DEPARTMENT**
DEPARTMENT OF GENERAL EDUCATION SUBJECTS

**COURSE TITLE / CODE**
HISTORY OF SEXUALITY

**COURSE STATUS**
ELECTIVE

Condition: Enrolled 4th year

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Teaching methods
Power point presentation

**AIM**
The aim of this course is to extended knowledge of future health care workers on human sexuality.

**Knowledge**
Students are trained to understand and help patients with problems in this area.

**Skills**
Improve communication with patients with problems in this area.

**Theoretical classes**
1. Human development - Paleolithic and Neolithic sexuality
2. Ancient Egypt : Predynasty period, old, middle and new kingdom. Turin papyrus 5 5 0 0 1
3. Eneolithic period: Transition from matriarchate to patriarchate - cradle of civilization in Mesopotamia (Sumer, Akkad, Assyria, Ancient Babylon, New Assyria, New Banylon, Persia)
4. Arabian Nights – its role in history of sexuality
6. Etruscan and Roman Empires with special reference to Pompei.
8. Impact of religion on sexuality (Codex, written and unwritten laws, permissible and prohibited)
9. "We, Victorians " - modern western civilization is founded on the Greek Roman tradition and the Christian religion
10. Sexually transmitted diseases
11. STD and infants,Torch syndrome, AIDS
12. Psychology and psychopathology of human sexuality
13. Erectile dysfunction - epidemicology, diagnosis and therapy
14. Hormonal activity at differen ages: puberty, reproductive period, climacterium and menopause

**Practical classes**

**RECOMMENDED LITERATURE**

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**Student’s activity assessment (points)**

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**Teaching staff**

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Head of the Department
Doc. Dr. Dušica Rakić
32. SURGERY (M5 - SUR)

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Condition: INTERNAL MEDICINE; INFECTIOUS DISEASES (EXAM); DERMATOVENEROLOGY (EXAM)

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**Teaching methods**

**AIM**
The aim of this course is to provide students with knowledge how to estimate health status of population and to recognize and implement measures of prevention and control of surgical diseases.

**GOAL**

**Knowledge**
Students acquire knowledge about surgery techniques which they need to implement in routine work with patients. They need to become familiar with legislation in the context of surveillance.

**Skills**
Students need to acquire skills to manage surgery patients, including reporting and CPR.

**COURSE DESCRIPTION**

**Theoretical classes**

1. Diagnostic surgical procedures; war surgery
2. Organization and management of the injured in peace time and wars
3. Asepsis in war surgery
4. Wounds, war wounds, surgery infections
5. Surgery terminology and classification of surgical interventions
6. Postoperative complications, alentheses in surgery
7. Surgical principles in oncology
8. Neck and breast surgery
9. Abdominal surgery
10. Specific characteristics of pediatric surgery; emergencies in neonatal surgery
11. Thoracic surgery: pleura, lungs, mediastinum, thoracic injuries
12. Cardiosurgery and vascular surgery
13. Surgical management of burns, basic principles of esthetic surgery, skin and soft tissue tumors, general principles and methods in skin defect reconstruction, hand injuries and diseases
14. Neurosurgery
15. Urology
16. Orthopedic surgery

**Practical classes**

1. Principles, methods, sterilization and disinfection in surgery, asepsis in surgery and in war surgery
2. Physical examination of surgical patients, diagnostic surgical procedures
3. Types of immobilization
4. Initial hospitalization and management of the injured
5. Surgical wound care
6. Surgical infection treatment
7. Initial treatment of patients with burns
8. Small surgical intervention
9. Operating rooms
10. Postoperative care

**Recommended Literature**

**Compulsory**

**Optional**

**Student activity assessment (points)**

<table>
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**Teaching staff**

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Head of the Department
Doc. Dr. Janko Pasternak
### COURSE DESCRIPTION


### Practical classes

- Endocrine and metabolic diseases in pediatrics. Disorders of water and electrolytes and principals of correction of hydro-mineral disorder, Diabetes, hypothyroidism, hyperthyroidism, congenital adrenal hyperplasia, obesity and hyperlipoproteinemina
- Cardiovascular diseases in children. Inborn heart failure, rhythm disturbances, myocarditis and pericarditis, bacterial endocarditis
- Respiratory tract diseases in children. Acute and chronic inflammation of upper and lower respiratory tract in children, asthma cystic fibrosis
- Nutrition, breastfeeding and formulas, nutritional workshop, principles of nutrition of healthy and sick child
- Diseases of urogenital system, congenital malformations of urinary tract, the most common renal diseases, urinary tract infection, acute and chronic renal failure, parenteral and peritoneal dialysis
- Hepatology and oncology - anemia, leukemia, malignant diseases of childhood, disorders of hemostasis
- Immunology, immunodeficiency, anaphylactic shock, allergic diseases, neurodermatitis, arthritis in children.
- Neonatology, estimation of gestational age, hyperbilirubinaemia, Hypoxic-ischemic encephalopathy, hemorrhagic disease of the newborn, prematurity, nutrition of newborn and premature infant, Respiratory distress syndrome.
- Neurological and psychiatric diseases in childhood, seizures, epilepsy, lumbar puncture, neurocutaneous diseases.
- Diseases in adolescence. Anorexia, risky behavior, bulimia, prevention of risky behavior.
- Diseases of gastrointestinal tract and liver: infective and chronic diseases of upper and lower gastrointestinal tract, liver diseases.
- Healthcare of children and adolescents.
- Healthcare and social pediatrics.
- Intoxication in childhood and prevention.
- Emergency and resuscitation in pediatrics.

**RECOMMENDED LITERATURE**

**Compulsory**
2. Rončević N, Vukavić T and sar. Propedeutika, 2005

**Optional**

**Student’s activity assessment (points)**

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<th>Lectures</th>
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1. Prof. Dr. Aleksandar Doronjski
2. Prof. Dr. Janda Jovanović-Privrodska
3. Prof. Dr. Jovan Vlaški
4. Prof. Dr. Marija Knežević Pogančev
5. Prof. Dr. Nada Konstantinidis
6. Prof. Dr. Ljubica Georgijević
7. Prof. Dr. Andelka Ristivojević
8. Prof. Dr. Slobodanka Petrović
9. Prof. Dr. Georgios Konstantinidis
10. Prof. Dr. Dragan Katanić
11. Prof. Dr. Svetlana Saravelac Stefanović
12. Prof. Dr. Olgica Milankov
13. Prof. Dr. Aleksandar Stojadinović
14. Prof. Dr. Jovanka Kolarević
15. Doc. Dr. Gordana Višnjević
16. Doc. Vesna Stojanović
17. Doc. Dr., Ivana Kavečan
18. Doc. Dr. Biljana Miletić
19. Doc. Dr. Danijela Jojčić Pavković
20. Doc. Dr. Gordana Vojnović
21. Assist. Dr. Slobodan Spasojević
22. Assist. Dr. Vesna Pavlović
23. Assist. Dr. Tatjana Mudrinić Redžek
24. Assist. Dr. Ivana Vorgučin
25. Assist. Dr. Nenad Baratić
26. Assist. Dr. Borko Milanović
27. Assist. Dr. Radojica Savić

Head of the Department
Prof. Dr. Dragan Katanić
33. GYNECOLOGY WITH OBSTETRICS (M5-GYOB)

**STUDY PROGRAM**
INTEGRATED STUDIES IN MEDICINE

**DEPARTMENT**
DEPARTMENT OF GYNECOLOGY WITH OBSTETRICS

**COURSE TITLE/ CODE**
GYNECOLOGY WITH OBSTETRICS

**COURSE STATUS**
COMPULSORY

**Condition:** INTERNAL MEDICINE; DERMATOVENEROLOGY (EXAM), SPECIAL PHARMACOLOGY (EXAM)

| Year of study | Winter semester (hours/week) | Summer semester (hours/week) | Colloquia | Seminars | ECTS
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**Teaching methods**
Lectures and practical work at the clinic

**AIM**
The aim of this course is to familiarize medical students with all aspects of reproductive health of women. Students study about standard and new therapeutic and diagnostic methods. Members of this Department have presented their professional and scientific results at national and international meetings and published them in prestigious journals.

**GOAL**

- **Knowledge**
  In the scope of theoretical education, medical students learn about all aspects of normal pregnancy and labor with special reference to pathological conditions which may complicate the course and outcome of pregnancy. Also, they study diagnostics, essentials of therapy and prevention of gynecological diseases (tumors, inflammatory diseases) as well as contraception methods of family planning.

- **Skills**
  After acquiring theoretical knowledge, medical students get essential of practical training in obstetrics and gynecology examination and most common interventions. They should be able to diagnose pregnancy, pathological pregnancy, conduct normal delivery, gynecological examination and bimanual examination.

**COURSE DESCRIPTION**

**Theoretical classes**

- OBSTETRICS
  - Physiology of stages of woman’s life
  - Physiology of pregnancy
  - Normal delivery and puerperium
  - High risk pregnancies
  - Pathological presentations
  - Pathology of the 3rd and 4th delivery stage and puerperium

- GYNECOLOGY
  - Anomalies of female reproductive system
  - Inflammatory diseases of female genital organs
  - Disorders of female urogenital system (gynecologic urology)
  - Benign and malignant tumors of female genitalia
  - Female fertility
  - Family planning

**Practical classes**

- History taking in obstetrics and gynecology
- Examination of pregnant women (external and internal)
- Gynecologic examination

**Recommended Literature**

**Compulsory**

**Optional**

**Student activity assessment (points)**

<table>
<thead>
<tr>
<th></th>
<th>Pre-exam activities</th>
<th>Final exam</th>
<th>Total</th>
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**Teaching staff**

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<tr>
<td>Prof. Dr. Tihomir Vejnović</td>
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<tr>
<td>Prof. Dr. Vule Višnjevac</td>
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<td>Prof. Dr. Zoran Belopavlović</td>
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<td>Prof. Dr. Ljubomir Milašinović</td>
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<td>Prof. Dr. Siniša Stojić</td>
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<td>Prof. Dr. Vesna Kopitović</td>
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<td>Prof. Dr. Aleksandar Ćurčić</td>
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<td>Prof. Dr. Tihomir Vejnović</td>
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<td>Doc. Dr. Ljiljana Mladenović Segedi</td>
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<td>Doc. Dr. Artur Bjelic</td>
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<td>Assist. Dr. Dejan Ninčić</td>
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<td>Assist. Dr. Dunja Lončar</td>
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<tr>
<td>Head of the Department</td>
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### 34. ANESTHESIOLOGY AND PERIOPERATIVE MEDICINE (M5-APM)

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<tr>
<td><strong>Teaching methods</strong></td>
<td>Lectures, practice, multimedial presentations.</td>
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</table>

**Aim**

The aim of this course is to train future general practitioners to prepare and assess surgical patients; inform them about techniques of general and regional anesthesia, general measures of intensive care, as well as about intensive care in special pathological conditions. Therapy of acute and chronic pain and cardiopulmonary resuscitation.

**Goal**

**Knowledge**

Preoperative assessment and preparation of surgical patients. Specific features of general and regional anesthesia. Identification, diagnosis, monitoring and treatment of emergency patients with special review of pathological conditions (injuries, burns, sepsis, shock, pancreatitis etc.).

Acute and chronic pain assessment.

**Skills**


**Course Description**

**Theoretical classes**

1. Preoperative patient preparation
2. General anesthesia – classification
3. General anesthesia – anesthetics and other medications used during general anesthesia
4. General anesthesia – complications and postoperative monitoring
5. Sedation and analgesedation
6. Acute bol therapy
7. Chronic pain therapy
8. Regional anesthesia (techniques, drugs, complications)
9. Critically ill patients
10. Shock (definition, classification, stages, therapy)
11. Sepsis (definition, classification, stages, therapy)
12. Intravenous sedation (classification, techniques, equipment and complications)
13. Acid-base status, intravenous infusions
14. Acute pulmonary conditions
15. Mechanical ventilation
16. Pancreatitis – intensive care and therapy
17. Acute kidney failure in critically ill
18. Nutrition of the critically ill (enteric and parenteral)
19. Trauma and polytrauma
20. Burns – intensive care and therapy
21. Basic and complex resuscitation
22. Airway (intubation techniques, complications)
23. Preoperative blood and blood derivatives transfusion
24. Brain death, donors, cadaveric transplantation
**Practical classes**

Phantom resuscitation takes place in outpatient facilities for preoperative preparation and in operating rooms, as well as emergency units.

1. Preoperative patient preparation algorithms.
2. Infusion (classification, techniques, equipment, complications).
3. Intramuscular drug application and other manners.
4. Regional anesthesia techniques
5. Assessment of patients' hydration and acid base status
6. Correction of electrolyte and acid-base disorders
7. Intubation – practice
8. Monitoring and therapy of the critically ill
9. Postoperative pain assessment and therapy
10. CPRC - Cardiopulmonary cerebral resuscitation in adults
11. CPRC - Cardiopulmonary cerebral resuscitation in children

**Recommended Literature**

<table>
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<th>Optional</th>
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**Student’s activity assessment (points)**

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</table>

**Teaching staff**

- 1. Prof. Dr. Ljiljana Gvozdenović
- 2. Prpf. Dr. Biljana Drasković
- 3. Doc. Dr. Biljana Daničić
- 4. Doc. Dr. Milanka Tatić
- 5. Doc. Dr. Dragana Radovanović
- 6. Assist. Dr. Gordana Jovanović
- 7. Assist. Dr. Sanja Vicković
- 8. Assist. Dr. Ana Uram Benka
- 9. Assist. Dr. Arsen Uvelin
- 10. Assist. Dr. Isabela Favri
- 11. Assist. Dr. Teodora Božić
- 12. Assist. Dr. Radmila Kosanović

Head of the Department
Doc. Dr. Janko Pasternak
35. HYGIENE (M5-HYG)

<table>
<thead>
<tr>
<th>STUDY PROGRAM</th>
<th>INTEGRATED STUDIES IN MEDICINE</th>
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**Teaching methods**  
Lecture, Practical work, Essays

**AIM**  
To train general physicians (family physicians) for preventive and prophylactic work.

**GOAL**  
Knowledge  

Skills  
Design and application of prevention programs in the field of environment protection and human health.

**THEORETICAL CLASSES**

- Health effects of air pollution.
- Types of water origin and characteristics. Objects of water supply. Safety and importance of water.
- Purification and treatment of drinking water.
- Hygiene of the school environment. School environment and health.
- Planning and construction of health facilities. Risk management in health care facilities.
- Personal hygiene. Personal hygiene of health care workers.
- Physiological and daily requirements and sources of vitamins. Physiological and daily requirements of minerals.
- Food safety. Foodborne diseases. Safety of items for general use.
- Medical nutrition therapy and prevention of disease caused by overeating. Medical nutrition therapy and prevention of malnutrition and specific nutritional deficits. Medical nutritional prevention and therapy of malignant diseases.
- Improving the nutrition of the population.
- Mental hygiene and mental health.

**PRACTICAL CLASSES**
Ecological interpretation of health and disease.
Influence of climate and microclimate on human health.
Sampling drinking water. Disinfection of drinking water.
Assessment of the nourishment status. Calculating energy requirements.
Calculation of daily nutrients.
Calculation of daily needs for hydrosoluble and liposoluble vitamins.
Calculation of daily needs for minerals: macroelements and microelements.
Designing a nutrition plan and a questionnaire. Essay preparation.
Seminar on nutrition. Seminar on nutrition planning.
Planning supplementary meals at school.
Activity of general practitioners in cases of food-borne epidemics – student presentation.
Promotion of healthy nutrition policies. Students’ suggestions - presentations.
Visit to the National Seed Laboratory.
Medical nutrition therapy in cases of undernutrition and obesity.
Basic principles of medical nutrition therapy.
Medical nutrition therapy of malignant diseases.

RECOMMENDED LITERATURE

Compulsory
3. HIGIJENA, MEDICINSKA EKOLOGIJA I JAVNO ZDRAVLJE Miroslave Kristoforović-Ilić i saradnika, Ortomedics, Novi Sad, 2010.
4. KOMUNALNA HIGIJENA, autora Miroslave Kristoforović-Ilić i saradnika, Prometej, Novi Sad, drugo dopunjeno izdanje 2002.

Optional
http://www.cdc.gov

Student’s activity assessment (points)

<table>
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<tr>
<th>Pre-exam activities</th>
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</table>

**Head of the Department**
Prof. Dr. Marija Jevtić
36. SOCIAL MEDICINE (M5 - SCM)

<table>
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<th>STUDY PROGRAM</th>
<th>INTEGRATED ACADEMIC STUDIES IN MEDICINE</th>
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Condition: INTRODUCTION TO SCIENTIFIC RESEARCH

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<th>Seminars</th>
<th>ECTS Credits</th>
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Teaching methods: Lecture, Practice and Essay

AIM

To educate students about measures, levels and organisation of health care. To enable students to accept and to apply sociomedical approach in future medical practice.

GOAL

Knowledge

Indicators important for evaluation of population health status and health care, type and management of medical documentation, health education and health promotion methods and techniques, as well as the functioning of the health care system.

Skills

To understand and evaluate the condition (status) of population health care, proper management of medical documentation, master methods and techniques of health education and communication in health care.

COURSE DESCRIPTION

Theoretical classes

1. Development, definition and subject of social medicine
2. Health, quality of life and factors influencing them
3. Health education
4. Health promotion
5. Communication in health care
6. Health care and main factors in its realization
7. Social inequalities in realization of health care
8. Health for all in XXI century
9. Primary health care
10. Criteria in assessment of health problems and determination of priorities
11. Social medical aspects concerning communicable, parasitic diseases and tuberculosis
12. Social medical aspects concerning cardiovascular diseases and malignant neoplasms
13. Social medical aspects concerning mental health, subnormality and alcohol and drug abuse
14. Social medical aspects concerning injuries
15. Social medical aspects concerning oral health
16. Prevention and control of non communicable diseases
17. Family health care, women health care and family planning
18. Vulnerable categories of the population (children and adolescents)
19. Vulnerable categories of the population (elderly)
20. Health care systems in the world. Role of health care professionals and their education and improvement.
21. Role of health care institutions in health care system
22. Health care financing, organization and implementation of health insurance
23. Health care programming
24. Health technology
25. Health care quality and patient satisfaction
26. Reformes of helth care systems in the world
27. Classification systems and standards in health care
28. Health care management
29. Economic analyses
30. Health care needs and requirements

Practical classes

1. Patient record keeping in health care
2. International classification of diseases (ICD)-Xth revision
3. Application of recommendations for official record keeping. Filling out medical records according to Xth revision of ICD
4. Education for health
5. Communication
6. Health care organization
7. Patient satisfaction
8. Management of health care quality
9. Assessment of needs and requirements in health care
10. Health care programs creation
Recommended Literature

Compulsory


Optional


Student activity assessment (points)

<table>
<thead>
<tr>
<th>Pre-exam activities</th>
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Teaching staff

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<tr>
<th>Lect. demonstrator</th>
<th>Teaching Ass.</th>
<th>Lecturer</th>
<th>Ass. Prof.</th>
<th>Assoc. Prof.</th>
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</table>

1. Prof. Dr. Vera Grujić
2. Prof. Dr. Mirjana Martinov Cvejin
3. Prof. Dr. Eržebet Ač Nikolić
4. Doc. Dr. Svetlana Kvrgić
5. Doc. Dr. Vesna Mijatović Jovanović
6. Assist. Dr. Snežana Ukropina
7. Assist. Dr. Olja Nićiforović Šurković
8. Assist. Dr. Sonja Sušnjević
9. Assist. Dr. Dušan Čanković
10. Assist. Dr. Sanja Hrhaji
11. Assist. Dr. Sonja Canković
12. Assist. Dr. Ivana Radić

Head of the Department
Prof. Dr. Eržebet Ač Nikolić
### 16. DIAGNOSTIC AND MOLECULAR IMAGING (M5-ELI)

#### STUDY PROGRAM
INTEGRATED STUDIES IN MEDICINE

#### DEPARTMENT
DEPARTMENT OF RADIOLOGY

#### COURSE TITLE / CODE
DIAGNOSTIC AND MOLECULAR IMAGING

#### COURSE STATUS
ELECTIVE

**Condition:** None

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<th>Year of study</th>
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**Teaching methods:** Lectures, practice

**Training students for:**
1. systematic identification and differentiation of pathological anatomical structures and functions by using various diagnostic and functional/molecular imaging methods;
2. recognition of indications and decision making on the use of different methods within diagnostic algorithms;
3. mastering advanced diagnostic and functional/molecular imaging techniques (computerized tomography, magnetic resonance imaging, radionuclide imaging, single photon emission tomography, positron emission tomography, hybrid imaging methods etc.), including dynamic, spectroscopic, diffusion, perfusion and function imaging;

**AIM**

Lectures should provide students with basic and advanced knowledge of diagnostic and functional/molecular imaging methods, use of contrast and radionuclide agents in medical visualization, and use of different techniques in order to obtain optimal diagnostic morphoanatomical and/or molecular/functional information, as well as basic knowledge on diagnostic and therapeutic interventional procedures.

**GOAL**

**Knowledge**

Determination of indicator areas for using various imaging and functional/molecular methods and interventional procedures, learning different diagnostic and functional/molecular imaging techniques, recognition of pathology, describing and interpretation of findings.

**Skills**


**Theoretical classes**

**Practical classes**

Practical training corresponds to aforementioned theoretical topics.

**Recommended Literature**

**Compulsory**

2. Dijagnostički i molekularni imidžing (udžbenik za studente medicine u pripremi) - Katedra za radiologiju medicinskog fakulteta Novi Sad

**Optional**

Students will be informed about necessary literature for each unit.

#### Student’s activity assessment (points)

<table>
<thead>
<tr>
<th>Pre-exam activities</th>
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#### Teaching staff

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<td>1.</td>
<td>Prof. Dr. Miloš Lučić</td>
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<tr>
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<td>Prof. Dr. Dušan Hadnadev</td>
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</table>
Head of the Department
Prof. Dr. Sanja Stojanović
17. PHARMACOECONOMICS (M5-ELI)

STUDY PROGRAM | INTEGRATED STUDIES IN MEDICINE
DEPARTMENT | DEPARTMENT OF PHARMACOLOGY, TOXICOLOGY AND CLINICAL PHARMACOLOGY
COURSE TITLE/CODE | PHARMACOECONOMICS
COURSE STATUS | ELECTIVE
Condition: None

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<th>Year of study</th>
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Teaching methods: Lecture, practical work, essays

AIM
To provide students with knowledge on basic principles and importance of pharmacoeconomics.

GOAL
Knowledge
Students should acquire knowledge on basic principles of conducting pharmacoepidemiological research, to be able to analyze data obtained in pharmacoepidemiological research.

Skills
Students should be able to perform pharmacoepidemiological analysis for particular geographic area or healthcare institution.

Theoretical classes
1. Pharmacoeconomical principles in creating lists of drugs.
2. Information systems for monitoring drug use at national level - importance and possibilities.
4. The importance and possibilities of analyzing pharmacoepidemiological data with special emphasis on pharmaceutical evaluations.
5. The concept of ATC/DDD classification and drug labelling.
6. Definition of adverse drug effects.
7. Post-marketing drug monitoring.
8. The impact of adverse effects on pharmacoeconomic analysis.
9. Basic principles of pharmacoeconomics.
11. Effects of pharmacological properties of drugs on therapy expenses.
13. QUALY- importance, calculation principles.

Practical classes
1. Drug registration, licensing, procedures.
2. Evidence based medicine. Principles of controlled clinical studies.
4. Drug prices – international comparison.
5. Specific characteristics of pharmacoepidemiology in outpatient and hospital practice.
6. Specific characteristics of pharmacoeconomic calculations of particular pharmaceutical forms - combinations, drops, dermatological preparations, etc.
7. Adverse effects risk assessment.
8. Costs of adverse effects.
10. Treatment cost assessment.
15. Assessing the impact of therapy on the quality of life.

RECOMMENDED LITERATURE

Compulsory

Optional
### Student’s activity assessment (points)

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<th>Pre-exam activities</th>
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### Teaching staff

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<th>Techn.</th>
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<th>Assoc.Prof.</th>
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<th>Scient. Res.</th>
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</table>

1. Prof. Dr. Ana Sabo
2. Prof. Dr. Momir Mikov
3. Prof. Dr. Jovan Popović
4. Prof. Dr. Zdenko Tomić
5. Prof. Dr. Velibor Vasović
6. Doc. Dr. Aleksandar Rašković
7. Doc. Dr. Isidora Samojlik
8. Doc. Dr. Olga Horvat
9. Assist. Dr. Saša Vukmirović
10. Assist. Dr. Boris Milićašević
11. Assist. Dr. Vesna Mijatović
12. Assist. Dr. Nebojša Stilinović

Head of the Department
Prof. Dr. Momir Mikov
18. TISSUE AND ORGAN TRANSPLANTATION (M5-ELI)

<table>
<thead>
<tr>
<th>STUDY PROGRAM</th>
<th>INTEGRATED STUDIES IN MEDICINE</th>
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| Condition: None |

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| Teaching methods | Lectures and practical work |

**AIM**

The aim of this course is to provide students with knowledge in the field of transplant medicine.

**GOAL**

Knowledge

Students acquire basic knowledge on legal, ethical and medico-legal issues, as well as general medical knowledge related to organ and tissue transplantation.

Skills

Students acquire basic surgical skills and procedures related with tissue and organ transplantation.

**COURSE DESCRIPTION**

Theoretical classes

1. Introduction to organ and tissue transplantation. Terminology.
2. Tissues and organs for transplantation; basics of immunology and transfusion medicine.
3. Legislation and ethical norms in transplant surgery.
5. Defining brain death, donor evaluation, organ and tissue harvesting and selection of the recipient.
6. Application of drugs and medical equipment in transplantation.
8. Tissue transplantation: bone and vascular graft, skin, cornea, penis.
10. Liver transplantation.
13. Heart and lung transplantation.
15. Long term monitoring of transplant patients.

Practical classes

1. Basic terminolog in organ and tissue transplantation. Models of transplant networks in the world;
2. The role of media in the development of transplantation programs, interviews with donor’s family, preparing the donor for living donor transplantation, preparation of the recipient;
3. Donor - recipient registries, collecting and processing data. Evaluation and placing patients on waiting lists;
4. Organization of transplant teams and permanent transplant services;
5. Anatomy, immunology, histopathology of organs and tissues for transplantation;
6. Harvesting and preparation of organs and tissues for transplantation; transportation;
7. Principles and administration of immunosuppressive therapy;
8. Technical aspects of stem cell transplantation;
9. Surgical techniques in multiorgan exlantation;
10. Surgical techniques in liver transplantation, whole and split cadaveric liver transplant, interposition of inferior vena cava and Piggy back technique, living donor transplantation, monitoring, complications;
11. Surgical techniques in renal transplantation, harvesting organs from living donors or cadaveric organs, implanting techniques, monitoring, complications;
12. Surgical techniques in pancreas transplantation; explanting; derivation of pancreatic juice, monitoring, complications; Indications and techniques of intestine transplantation;
13. Surgical techniques in heart and lung transplantation;
14. Technical aspects of bone and vascular grafts, skin, cornea and penis transplantation;
15. Anaesthesia, postoperative monitoring, the organization of long-term monitoring of transplant patients.

**RECOMMENDED LITERATURE**

<table>
<thead>
<tr>
<th>Compulsory</th>
<th>Optional</th>
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<tbody>
<tr>
<td>2. D. Price: Legal and Ethical Aspects of Organ Transplantation</td>
<td>2. David Petechuk: Organ Transplantation (Health and Medical Issues Today)</td>
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### Student’s activity assessment (points)

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### Teaching staff

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1. Prof. Dr. Milan Breberina
2. Prof. Dr. Tomislav Cigić
3. Prof. Dr. Radovan Cvijanović
4. Prof. Dr. Jasenko Dozić
5. Prof. Dr. Biljana Drašković
6. Prof. Dr. Goran Erceqan
7. Prof. Dr. Slobodan Grešelj
8. Prof. Dr. Ljiljana Gvozdenović
9. Prof. Dr. Zoltan Horvat
10. Prof. Dr. Zlata Janjić
11. Prof. Dr. Pavle Jeremić
12. Prof. Dr. Radoica Jokić
13. Prof. Dr. Pavle Kovačević
14. Prof. Dr. Siniša Marinković
15. Prof. Dr. Goran Marušić
16. Prof. Dr. Bogoljub Mihašlović
17. Prof. Dr. Miroslav Milankov
18. Prof. Dr. Pavle Milošević
19. Prof. Dr. Zoran Milošević
20. Prof. Dr. Dragana Savić
21. Prof. Dr. Svetozar Sečen
22. Prof. Dr. Tibor Somer
23. Prof. Dr. Jan Varga
24. Prof. Dr. Petar Vuleković
25. Prof. Dr. Dušanka Dobanovački
26. Prof. Dr. Đorđe Gajdobrański
27. Prof. Dr. Miroslav Ilić
28. Prof. Dr. Dejan Ivanov
29. Prof. Dr. Aleksandar Milošević
30. Prof. Dr. Milana Obadović Tomašev
31. Prof. Dr. Lazar Petrović
32. Prof. Dr. Tomislav Petrović
33. Prof. Dr. Katarina Šarčev
34. Prof. Dr. Vuk Sekulić
35. Prof. Dr. Milan Stanković
36. Prof. Dr. Stamenko Šušak
37. Doc. Dr. Jovo Bogdanović
38. Doc. Dr. Svetlana Bukarica
39. Doc. Dr. Biljana Daničić
40. Doc. Dr. Dejan Đurić
41. Doc. Dr. Vladimir Harhaji
42. Doc. Dr. Mladen Jovanović
43. Doc. Dr. Miloš Koledin
44. Doc. Dr. Alekndar Komarčević
45. Doc. Dr. Milan Koric
46. Doc. Dr. Ivan Levakov
47. Doc. Dr. Dušan Marić
48. Doc. Dr. Srdan Ninković
49. Doc. Dr. Janko Pasternak
50. Doc. Dr. Dragana Radovanović
51. Doc. Dr. Aleksandar Redžek
52. Doc. Dr. Milanka Tatić
53. Doc. Dr. Radovan Veljković
54. Doc. Dr. Ferenc Vicko
55. Doc. Dr. Sanja Vicković
56. Doc. Dr. Saša Vojnov
57. Assist. Dr. Jelena Antić
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59. Assist. Dr. Teodora Božić
60. Assist. Dr. Đula Dilvesi
61. Assist. Dr. Izabela Fabri
62. Assist. Dr. Aleksandar Gluhović
63. Assist. Dr. Zoran Gojković
64. Assist. Dr. Nataša Janjić
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66. Assist. Dr. Gordana Jovanović
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68. Assist. Dr. Ivan Kuhajda
69. Assist. Dr. Duško Manić
70. Assist. Dr. Aleksandar Marcikić
71. Assist. Dr. Vukadin Milankov
72. Assist. Dr. Đorđe Milošević
73. Assist. Dr. Dragana Momčilović
74. Assist. Dr. Dragana Nikolić
75. Assist. Dr. Jelena Nikolić
76. Assist. Dr. Vladimir Papić
77. Assist. Dr. Goran Petaković
78. Assist. Dr. Radmila Popović
79. Assist. Dr. Mladen Protić
80. Assist. Dr. Predrag Rašović
81. Assist. Dr. Milenko Ristić
82. Assist. Dr. Ana Uram Benka
83. Assist. Dr. Arsen Uvelin
84. Assist. Dr. Lazar Velicki
85. Assist. Dr. Srdan Živovin

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Head of the Department
Doc. Dr. Janko Pasternak
19. PAIN MEDICINE (M5-PAME)

COURSE TITLE / CODE: PAIN MEDICINE
COURSE DESCRIPTION:

The basic goal of this course is to recognize pain as a global health problem, as well as psychosocial pain dimensions and consequences of pain, pain assessment and therapy and implementation of acquired knowledge into practice. Development of critical opinion and scientific research work.

GOAL:
Providing students with knowledge about the complexity of pain phenomena. Pain classification by pain mechanisms and time duration. Recognition of pain relief as a basic human right and ethical imperative. Pharmacological and nonpharmacological methods and technology in pain therapy. Obstacles in efficacy of pain treatment. Use of opioid analgesics. Opiophobia and opioignorance.

SKILLS:

LECTURES:
1. Definition of pain. Pain as a global health problem. Pain as a symptom and pain as a disease by itself. Multidimensionality of pain. Concept of “total” pain. Epidemiology. Psychosocial and economical consequences. Pain relief as a basic human right. Medicolegal aspects. The role of WHO (World Health Organization), IASP (The International Association for the Study of Pain), EFIC (European Federation of Chapters of the International Association for the Study of Pain) and Serbian Association for Pain Management) in the improvement of knowledge, treatment, dissemination and exchange of knowledge and information in the field of pain medicine.
2. Components of peripheral and central pain mechanisms. Classification of pain: acute and chronic pain. Types of pain in regard to their mechanisms of development: nociceptive, nonnociceptive, psychogenic.
3. Cancer-related pain (incidental or spontaneous).
4. End-of-life pain (palliative care).
5. Specialized pain clinics. Barriers to successful treatment. (health personnel, patient, health services and pharmacies)
7. Choice of medication and pain scales – three stage analgesic ladder
11. Strong opioids (third step): morphine (short action with immediate release, IR with long action and slow release, SR), fentanyl, methadone, hyDr. omorphine, oxycodone. Mechanisms of action, indications, dosage, efficacy and adverse effects.
14. Multimodal analgesia – optimal pain treatment with minimal side effects.
15. Education of patients and their families.

PRACTICE:
3. Choice of drugs in regard to pain intensity (quality and quantity). Case reports.
6. Opioid analgesics – basic principles of WHO.
7. Opioid analgesics. Case reports (cancer-related pain and chronic non-cancer-related pain).

LITERATURE:

Optional

number of points for activity
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### List of teachers and assistants

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1. Prof. Dr. Čongor Näd
2. Prof. Dr. Danka Filipović
3. Prof. Dr. Darjana Jovanović
4. Prof. Dr. Petar Slankamenac
5. Doc. Dr. Biljana Dantić
6. Doc. Dr. Milan Cvijanović
7. Assist. Dr. Snežana Stanisavljević
8. Assist. Dr. Sanja Vinković

Head of the Department
Doc. Dr. Janko Pasternak
20. RATIONAL PHARMACOTHERAPY I (M5-ELII)

STUDY PROGRAM
INTEGRATED STUDIES IN MEDICINE

DEPARTMENT
DEPARTMENT OF PHARMACOLOGY, TOXICOLOGY AND CLINICAL PHARMACOLOGY

COURSE TITLE / CODE
RATIONAL PHARMACOTHERAPY I

COURSE STATUS
ELECTIVE

Condition: -

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Teaching methods
Lectures, practice, presentations, case reports, discussions, interactive classes

AIM
The aim of this course is to provide students with knowledge on principles and importance of rational use of medications and rational therapy.

GOAL
Knowledge
Students learn about intensive research on the development of new drugs and development of pharmaceutical industry which have contributed to the introduction of different drugs. This requires appropriate choice based on individualization of therapy and implementation of rational therapy.

Skills
Students are expected to have skills and knowledge on pharmacological properties of drugs, on the risk-benefit ratio, adverse effects of drugs and to follow evidence-based principles in treatment in order to implement rational pharmacotherapy.

COURSE DESCRIPTION
Theoretical classes
1. Over the counter (OTC) drugs.
2. Drugs for unregistered indications.
3. The importance of compliance in rational pharmacotherapy.
4. Rational pharmacotherapy in geriatrics.
5. Rational pharmacotherapy in pediatrics.
7. Republic Health Care Fund - the list of drugs (ways putting drugs on the list ,list types , constraints).
8. Summary of product characteristics (SPC ) and Patient information leaflet (PIL).
9. ALIMS - Agency for Medicines and Medical Devices Agency of Serbia - the importance and role.
10. Hospital lists of drugs and their tender procurement.
11. The importance of drug consumption monitoring.
12. Information systems - the importance for pharmacotherapy.
13. Student essays.

Practical classes
Evidence-based medicine - the databases, registered phytotherapeutics and traditional medicines. Phytotherapeutics and clinical studies. Safety of OTC drugs. Guidelines for the treatment of emergency cases in medicine. Basic principles of drug use in specific population groups (pregnant women, nursing mothers, children, the elderly).

RECOMMENDED LITERATURE
Compulsory

Optional

Student’s activity assessment (points)

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<tr>
<td>1.</td>
<td>Prof. Dr. Ana Sabo</td>
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Head of the Department
Prof. Dr. Momir Mikov
38. DENTISTRY WITH MAXILLOFACIAL SURGERY (M5 -D/MFS)

<table>
<thead>
<tr>
<th>STUDY PROGRAM</th>
<th>INTEGRATED STUDIES IN MEDICINE</th>
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<tr>
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**Year of study**

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<th>Seminars</th>
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**Teaching methods**

Lecture and Practice

**Aim**

The aim of this course is to provide students with knowledge and skills for examination and diagnosis of the oral, and head and neck diseases.

**Goal**

Knowledge

- Identification of common diseases of the oral cavity, head and neck.

Skills

- Examination of the oral cavity, dental and supportive apparatus. Examination of the neck.
- First aid in patients with head and neck trauma.
- Postoperative treatment of patients in outpatient conditions.

**Course description**

**Theoretical classes**

- Introduction to dentistry (anatomy and development stomatognathic system, occlusion and malocclusion, diseases of soft and solid tissues in oral cavity, prophylaxis, emergency conditions, x-ray diagnostic)
- Injuries in the maxillofacial regions (soft tissue, frontoethmoidal, mandible, maxilla, zygomatic bone) - diagnosis, clinical features and treatment
- Cysts of bones and soft tissues of the oral cavity, head and neck and extensive processes of the jaws - diagnosis, clinical features and treatment
- Infections of bones and soft tissue of the jaws, head and neck - odontogenic and non-odontogenic - diagnosis, clinical features and treatment
- Temporomandibular joint diseases
- Trigeminal neuralgia and other painful conditions in the maxillofacial region
- Tumors (benign tumors of the oral cavity, head and neck; premalignant lesions and facial carcinomas, melanoma, malignant tumors of the oral region and lips, malignant tumors of maxillary sinuses, regional metastases and malignant tumor "staging") - diagnosis, clinical features and treatment
- Salivary gland diseases (acute and chronic inflammation, sialolithiasis, salivary fistula, benign proliferative processes, benign and malignant tumors) - diagnosis, clinical features and treatment
- Facial and jaw deformities (diagnosis, classification, mandibular deformities -progenia, microgenia, laterogenia); Deformities of the maxilla (prognathism, micrognathism) apertognathia, other deformities, pre-prosthetic surgery) - diagnosis, clinical features and treatment
- Basics of reconstructive and esthetic surgery

**Practical classes**

- Examination of the oral cavity and dental apparatus
- Examination and first aid in patients with maxillofacial traumas
- Diagnosis of benign and malignant tumors
- Diagnosis and treatment of patients with head and neck infections
- Diagnosis and treatment of patients with salivary gland diseases
- Diagnosis and treatment of painful conditions in dentistry and maxillofacial surgery
- Postoperative treatment

**Recommended literature**

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<tr>
<td>1. Maksišofacialna kirurgija – Gavrić, Sijerobabini, Piščević, Beograd 1995</td>
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<td>2. Maksišofacialna kirurgija sa osnovama stomatologije – grupa autora – u pripremi</td>
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<td>3. Stomatologija za studente medicine – grupa autora, Novi Sad 1982</td>
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<td>1. Maksišofacialna kirurgija – Bačatina, Virag, i sar-Zagreb 1991</td>
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**Student’s activity assessment (points)**

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**Final exam**

**Teaching staff**

Techn. Teaching Ass. Lecturer Assist.Prof. Assoc.Prof. Full-time Prof. Scient. Res.

<p>| 2 | 1 | | | | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Prof. Dr. Miroslav P. Ilić</td>
</tr>
<tr>
<td>2.</td>
<td>Prof. Dr. Aleksandar Kiralj</td>
</tr>
<tr>
<td>3.</td>
<td>Assist. Dr. Bojan Pejaković</td>
</tr>
<tr>
<td>4.</td>
<td>Dr. Ivana Mijatov</td>
</tr>
<tr>
<td>5.</td>
<td>Dr. Saša Mijatov</td>
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**Head of the Department**  
Prof. Dr. Miroslav P. Ilić
21. EXPERIMENTAL SURGERY (M5-ELII)

<table>
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<th>Course Title / Code</th>
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**Teaching methods:** Lectures, practical work, seminars, colloquia, video presentation.

**Aim:** The aim of this course is to provide students with theoretical and practical basis of experimental surgery. Assist. Dr.

**Goal:**

**Knowledge:** Acquiring theoretical knowledge in experimental surgery, essential for active participation in surgical procedures.

**Skills:** Acquiring skills and procedures required for daily practice in all surgical disciplines.

**Course description:**

**Theoretical classes**

1. Introduction to experimental surgery - operation room, instruments.
2. Introduction to experimental surgery - preparation, scrubbing, operation field
3. Suture materials, instruments and other surgical accessories
4. Wounds - types, treatment. Surgical knots, tying surgical knots
5. Methods of experimental work
6. Experimental abdominal surgery
7. Experimental anesthesiology
8. Experimental neurosurgery
9. Experimental orthopedics
10. Experimental urology
11. Experimental vascular surgery
12. Experimental maxillofacial and plastic surgery
13. Experimental thoracic and cardiac surgery

**Practical classes**

1. Introduction to experimental surgery - operation room, instruments. Assist. Dr.
2. Introduction to experimental surgery - preparation, scrubbing, operation field
3. Suture materials, instruments and other surgical accessories
4. Wounds - types, treatment. Surgical knots, tying surgical knots
5. Methods of experimental work
6. Experimental abdominal surgery
7. Experimental anesthesiology
8. Experimental neurosurgery
9. Experimental orthopedics
10. Experimental urology
11. Experimental vascular surgery
12. Experimental maxillofacial and plastic surgery
13. Experimental thoracic and cardiac surgery

**Recommended literature:**

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**Student’s activity assessment (points)**

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Teaching staff

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1. Prof. Dr. Milan Breberina
2. Prof. Dr. Tomislav Cigić
3. Prof. Dr. Radovan Cvijanović
4. Prof. Dr. Jasenko Dožić
5. Prof. Dr. Biljana Dr asković
6. Prof. Dr. Goran Ercegan
7. Prof. Dr. Slobodan Grebeldinger
8. Prof. Dr. Liljana Gvozdenović
9. Prof. Dr. Zoltan Horvat
10. Prof. Dr. Zlata Janjić
11. Prof. Dr. Pavle Jeremić
12. Prof. Dr. Radoica Jokić
13. Prof. Dr. Pavle Kovačević
14. Prof. Dr. Smiljana Marinković
15. Prof. Dr. Goran Marušić
16. Prof. Dr. Bogoljub Mihajlović
17. Prof. Dr. Miroslav Milankov
18. Prof. Dr. Pavle Milošević
19. Prof. Dr. Zoran Milošević
20. Prof. Dr. Dr agan Savić
21. Prof. Dr. Svetozar Sečen
22. Prof. Dr. Tibor Somer
23. Prof. Dr. Jan Varga
24. Prof. Dr. Petar Vuleković
25. Prof. Dr. Dušanka Dobanovac
26. Prof. Dr. Đorde Gajdobrašnik
27. Prof. Dr. Miroslav Ilić
28. Prof. Dr. Dejan Ivanov
29. Prof. Dr. Alekndar Milovančev
30. Prof. Dr. Milana Obradović Tomašev
31. Prof. Dr. Lazar Petković
32. Prof. Dr. Tomislav Petrović
33. Prof. Dr. Katarina Šarčev
34. Prof. Dr. Vuk Sekulić
35. Prof. Dr. Milan Stanković
36. Prof. Dr. Stamenko Šušak
37. Doc. Dr. Jovo Bogdanović
38. Doc. Dr. Svetlana Bukarica
39. Doc. Dr. Biljana Daničić
40. Doc. Dr. Dejan Đurić
41. Doc. Dr. Vladimir Harhaji
42. Doc. Dr. Mladen Jovanović
43. Doc. Dr. Miloš Kolodin
44. Doc. Dr. Aleksandar Komarpjević
45. Doc. Dr. Milan Korić
46. Doc. Dr. Ivan Levakov
47. Doc. Dr. Dušan Marić
48. Doc. Dr. Srdan Ninković
49. Doc. Dr. Janko Pasternak
50. Doc. Dr. Dr agan Radovanović
51. Doc. Dr. Alekndar Redžek
52. Doc. Dr. Milanka Tatić
53. Doc. Dr. Radovan Veljković
54. Doc. Dr. Ferenc Vicko
55. Doc. Dr. Sana Viknović
56. Doc. Dr. Saša Vojnović
57. Assist. Dr. Jelena Antić
58. Assist. Dr. Milan Bajković
59. Assist. Dr. Teodora Božić
60. Assist. Dr. Đuro Dilvesi
61. Assist. Dr. Izabela Fabri
62. Assist. Dr. Alekndar Gluhović
63. Assist. Dr. Zoran Gojković
64. Assist. Dr. Nataša Janjić
65. Assist. Dr. Željko Jeremić
66. Assist. Dr. Gordana Jovanović
67. Assist. Dr. Nemanja Kovačević
68. Assist. Dr. Ivan Kuhajda
69. Assist. Dr. Duško Marčić
70. Assist. Dr. Alekndar M代表
71. Assist. Dr. Đorđe Miladić
72. Assist. Dr. Đorđe Milošević
73. Assist. Dr. Dr agan Momčilović
74. Assist. Dr. Dr agan Nikolić
75. Assist. Dr. Jelena Nikolić
76. Assist. Dr. Vladimir Papic
77. Assist. Dr. Goran Patački
78. Assist. Dr. Radmila Popović
79. Assist. Dr. Mladen Postić
80. Assist. Dr. Predrag Rašić
81. Assist. Dr. Milenko Rosić
82. Assist. Dr. Ana Urem Benkia
83. Assist. Dr. Arsen Uvelin
84. Assist. Dr. Lazar Velicki
85. Assist. Dr. Srdan Živojinov

Head of the Department
Doc. Dr. Janko Pasternak
### AIM
The aim of this course is to inform students about basic principles and importance of pharmacotherapy.

### GOAL
**Knowledge**
Students will learn about intensive research on the development of new drugs and development of pharmaceutical industry which have contributed to the introduction of different drugs. This requires appropriate drug choice based on individualization of therapy and implementation of rational therapy.

**Skills**
Students are expected to have skills and knowledge on pharmacological properties of drugs, on the risk-benefit ratio, adverse effects of drugs and to follow evidence-based principles in treatment in order to implement rational pharmacotherapy.

### COURSE DESCRIPTION
#### Theoretical classes
- Treatment of migraine.
- Pharmacotherapy of pain.
- Pharmacotherapy of diabetes and complications.
- Pharmacotherapy of ophthalmologic diseases.
- Pharmacotherapy of depression.
- Pharmacotherapy of coronary and cardiac insufficiency.
- Rational drug therapy - the importance of phytotherapy.
- Rational drug therapy - the importance of phytotherapy.
- Rational pharmacotherapy in emergency medicine - treatment of acute pulmonary edema.
- Rational pharmacotherapy in emergency medicine – treatment of excessive and prolonged attacks of bronchial asthma (status asthmaticus).
- Rational pharmacotherapy in emergency medicine – treatment of excessive and prolonged seizures (status epilepticus).
- Student essays.
- Student essays.
- Clinical significance of prebiotics and probiotics.
- Antibiotics and general practitioners.
- Benzodiazepines: Pros and Cons.
- Gastrointestinal disorders.
- Urogenital infections in pregnancy.
- Pharmacotherapy in neonatology.
- Pharmacotherapy in pediatrics.
- Antiviral agents in treatment of influenza/
- Medications and sports.

#### Practical classes
- Evidence-based pharmacy – databases; ATC / DDD classification, application of antihypertensive agents; application of antibiotics in patients with impaired renal and liver function; use of antibiotics in the treatment of asthma and COPD, application of drugs in athletes, use of antibiotics in infants and children; application of hormonal contraceptives; guidelines in the application of drugs in osteoporosis; guidelines for antimicrobial agents; relevant laboratory parameters in pharmacotherapy. ALIMS, RFZO, databases.

### RECOMMENDED LITERATURE
<table>
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**Student’s activity assessment (points)**

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**Teaching staff**

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<tr>
<th>Teaching Ass.</th>
<th>Lecturer</th>
<th>Assist.</th>
<th>Assoc. Ass.</th>
<th>Full-time Prof.</th>
<th>Scient. Ass.</th>
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<tr>
<td>Prof. Dr. Ana Sabo</td>
<td>Prof. Dr. Jovan Popović</td>
<td>Prof. Dr. Zdenko Tomić</td>
<td>Prof. Dr. Momir Mikov</td>
<td>Prof. Dr. Velibor Vasović</td>
<td>Prof. Dr. Aleksandar Rašković</td>
</tr>
<tr>
<td>Doc. Dr. Isidora Samojlik</td>
<td>Doc. Dr. Olga Horvat</td>
<td>Doc. Dr. Gorana Cosić</td>
<td>Assist. Dr. Saša Vukmirović</td>
<td>Assist. Dr. Boris Milijašević</td>
<td>Assist. Dr. Vesna Mijatović</td>
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Head of the Department
Prof. Dr. Momir Mikov
### 23. TROPICAL INFECTIOUS DISEASES (M5-ELII)

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**Condition:** Infectious Diseases

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**Teaching methods** Lectures, practice

**AIM**
The aim of this course is to provide knowledge for recognition, diagnosis and treatment of various tropical diseases. Through theoretical and practical training students learn to recognize patients with infectious diseases, take materials for the purpose of diagnosis and treat tropical diseases from the standpoint of general practitioners.

**GOAL**

**Knowledge**
Modern lifestyle, travel and migration require from students to learn about the most common tropical diseases (which patients get when travelling to the tropics, or after returning home). Students should acquire basic knowledge of the etiology, epidemiology, pathogenesis, clinical features and treatment of patients with tropical infectious diseases.

**Skills**
Students should, after completing this course, master skills for early detection, diagnosis, differential diagnosis, treatment and prevention of various infectious and tropical diseases using previous knowledge in infectious diseases, microbiology and pharmacology, as well as following the latest scientific achievements in these areas.

**Theoretical classes**

1. Introductory Lecture - historical overview and importance of tropical diseases, etiologic classification, geographical distribution and mechanisms of transmission, clinical syndromes, diagnostic tests and therapeutic protocols - 1
2. The significance and taxonomy of vectors of infectious tropical disease pathogens - 1
3. Malaria - 2
4. Leishmaniasis - 1
5. Taeniasis and cysticercosis - 1
6. Echinococcosis - 1
7. Nematode infections (ascariasis, enterobiasis, trichuriasis, ancylostomiasis, strongyloidiasis, filariasis) - 2
8. Strongyloidiasis, schistosomiasis - 1
9. Ehrlichiosis, anaplasmosis, Bartonellosis - 1
10. Trypanosomiasis - 1
11. Protozoal gastrointestinal infections - 1
12. HIV infection - 3
13. Traveller's diarrhea and cholera - 1
14. Viral hemorrhagic fever - 3
15. Rickettsioses - 1
16. Sexually transmitted diseases (other than HIV) - 1
17. Fungal infections (histoplasmosis, blastomycosis, coccidioidomycosis) - 1
18. Zoonosis - 2
19. Rabies - 1
20. Toxocariasis - 1
21. Respiratory tropical diseases - 1
22. Vector borne encephalitis - 1

**Practical classes**
1. Echinococcosis - clinical review, diagnostic methods (serological, radiological) and therapy
2. Malaria - clinical examination of patients, complications, microscopic blood examination, interpretation of results of other diagnostic methods, treatment
3. Toxoplasmosis - clinical forms, diagnostic tests, interpretation of laboratory and parasitological tests, therapeutic protocols
4. Leishmaniasis - clinical forms, bone marrow puncture, interpretation of results, therapy.
5. Taeniasis and cysticercosis - clinical presentation and complications, diagnostic protocols (X-ray, CT and MR images, lab tests), therapy
6. Trichinosis - diagnostic procedures, interpretation of diagnostic tests and therapy
7. Helminthiasis - diagnostic procedures, interpretation of results and therapeutic protocols
8. Amoebiasis and lambliasis - clinical presentation and complications, diagnostic procedures, interpretation of results and therapeutic protocols
9. Pneumocystis jiroveci infection - a case report, diagnosis, treatment
10. Traveler's diarrhea - diagnosis and therapy
11. Vector encephalitis - diagnosis and therapy
12. Fungal infections - diagnosis and therapy
13. Sexually transmitted diseases - diagnosis and therapy
14. Rickettiosis - diagnosis and therapy
15. Systemic bacterial disease - diagnosis and therapy

**Recommended Literature**


**Student’s activity assessment (points)**

<table>
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<th>Lectures</th>
<th>Practice</th>
<th>Colloquium</th>
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**Teaching staff**

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<tbody>
<tr>
<td>1. Prof. Dr. Jovana Jovanović</td>
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<td>11. Prof. Dr. Dušan Lalošević</td>
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<tr>
<td>2. Prof. Dr. Milotka Fabri</td>
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<td>12. Doc. Dr. Aleksandar Potkonjak (Depart. Vet. Med.; Faculty of Agriculture)</td>
</tr>
<tr>
<td>3. Prof. Dr. Grozdana Čanak</td>
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<td>14. Doc. Dr. Zoran Golušin</td>
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<td>5. Prof. Dr. Srežana Brkić</td>
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<td>15. Doc. Dr. Nadica Kovačević</td>
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<td>16. Assist. Dr. Slavica Tomic</td>
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<tr>
<td>7. Prof. Dr. Vesna Turkulov</td>
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<td>17. Assist. Dr. Maja Ružić</td>
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<td>8. Prof. Dr. Sanđra Stefan - Mikić</td>
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<td>9. Prof. Dr. Radoslava Doder</td>
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<td>10. Prof. Dr. Sima Sević</td>
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Head of the Department
Prof. Dr. Vesna Turkulov
24. CLINICAL TOXICOLOGY (M5-ELII)

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Teaching methods: Lectures, Practical work: methods of diagnosis, prevention and treatment of acute and chronic intoxications; work in a toxicological laboratory; principles of good laboratory practice; sample handling and analysis of xenobiotics from different samples.

**AIM**
The main objective of training in clinical toxicology is to introduce students with ways of intoxication, basic physical and chemical properties of venoms, toxicokinetics and toxicodynamics of poisons, prevention and treatment of acute and chronic poisoning. Development of critical thinking and scientific research.

**GOAL**

**Knowledge**
Students gain knowledge about the basic properties of venoms, methods of intoxication, interaction between the toxin and organism, basic measures aimed at prevention and treatment of poisoned patients.

**Skills**
Students gain skills in this field: resuscitation of patients with acute poisoning, preventing penetration of toxins into the body, natural and artificial methods of detoxification, symptomatic treatment and antidote therapy.

**Theoretical classes**
1. Toxicology - brief historical review, importance of toxicology today, definition of poison, chemical compounds and toxicity, exposure to toxins and routes of entry
2. Absorption, distribution, metabolism, excretion of toxins
3. Types of poisoning, toxic and lethal doses, accumulation of toxins, adoption to poisons, factors that influence toxicity
4. Toxicity mechanisms
5. Genotoxicity
6. Carcinogenesis
7. Acute poisoning with drugs used in the treatment of mental and nervous disorders and poisoning with neurotoxins
8. Acute poisoning with drugs used in the treatment of cardiovascular diseases and cardiotoxins
9. Acute poisoning with drugs used in the treatment of respiratory, gastrointestinal and endocrine diseases
10. Acute poisoning with drugs and toxins used in hematological diseases, diseases of blood-forming organs, metabolic diseases, immmunediseases, infectious and parasitic diseases
11. Effects of poisons and drugs on the reproductive system and skin
12. Acute poisoning by opiates and drugs, acute intoxication with drugs used in the treatment of musculoskeletal, connective tissue diseases
13. Pesticide poisoning - terminology, general characteristics of protection, classification of pesticides, biological experiments examining residue contamination of food through packaging
14. Ethanol, methanol, trichlorethylene, benzene, chloroform, phenol, aniline, carbon disulfide, cyanides
15. Carbon monoxide poisoning, carbon dioxide, hydrogen sulfide, sulfur dioxide, chlorine, nitrogen, oxides, ozone. Poisoning with acids and alkalis, heavy metal poisoning

**Practical classes**
1. CPR - cardiopulmonary resuscitation of patients with acute poisoning. Airway management (deflexion, triple grip, placement of the oropharyngeal tube, cleaning the airway manually or by aspiration, placing the patient in coma position, Heimlich maneuver, orotracheal intubation. (4 classes)
2. Mechanical ventilation (mouth-to-mouth, mouth-to- nose, mouth-to- mask, Ambu balloon, mobile respirator (4 classes)
3. Artificial circulation methods (cardiac massage, defibrillator in cardiac arrest, CPR techniques – one rescuer, two rescuers CPR, CPR in children with acute poisoning, practicing techniques of peripheral and central venous lines. Medications in resuscitation of patients with acute intoxication. (4 classes)
4. Prevention of toxin’s through the mouth - inducing vomiting, nasogastric suction, charcoal treatment, laxative treatment. (2classes)
5. Natural detoxification - forced diuresis, forced ventilation, hyperbaric oxygenation. (2classes)
6. Artificial detoxification - peritoneal dialysis, hemodialysis, hemoperfusion, plasmapheresis. (2 classes)
7. Prevention of toxin entry through breathing, skin, iatrogenic means, adequate detoxification methods. (2 classes)
8. Antidote therapy in acutely and chronic intoxication. (2 classes)
9. Symptomatic and infusion therapy in acute and chronic intoxication. (2 classes)
10. Diagnosis of poisoning - medical history, clinical and laboratory algorithms. (4 classes)
11. Toxicology databases and importance of forensic toxicology. (2 classes)

RECOMMENDED LITERATURE

**Compulsory**

1. V. Vasović, M. Mikov, K. Đaković-Švajcer: „Odabrana poglavlja iz toksikologije“, Medicinski fakultet Novi Sad
2. D. Joksović: „Akutna trovanja lekovima“, Beograd

**Optional**

1. Dreisbach: Trovanja priručnik- prevencija, dijagnostika i lečenje. Data status- 13 izdanje

**Student’s activity assessment (points)**

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1. Prof. Dr. Velibor Vasović (Head of the course)
2. Prof. Dr. Momir Mikov
3. Prof. Dr. Ana Sabo
4. Prof. Dr. Zdenko Tomić
5. Prof. Dr. Jovan Popović
6. Prof. Dr. Aleksandar Rašković
7. Doc. Dr. Isidora Samojlik
8. Doc. Dr. Olga Horvat
9. Assist. Dr. Saša Vukmirović
10. Assist. Dr. Boris Milijašević
11. Assist. Dr. Vesna Mijatović
12. Assist. Dr. Nebojša Stilinović

Head of the Department
Prof. Dr. Momir Mikov
Regenerative medicine is a new branch of medicine that uses stem cells for research and clinical purposes. Nowadays, the need for donated organs and tissues is far bigger than available, and this field of medicine uses the ability of stem cells to divide and differentiate into more than 200 different types of human cells. Stem cells play a significant role in regenerative medicine where the diseases such as diabetes, osteoporosis, cancer and heart disease are treated by creating new healthy cells, thereby reducing the need for organ transplant. This elective course will provide acquisition of knowledge and development of critical and scientific thinking that is essential for independent research and independent practice. Students will learn about the latest scientific discoveries in the field of regenerative medicine.

**Knowledge**
Basic studies of regenerative medicine will provide students knowledge and experience in this field. Through lectures and practical work, students learn to monitor and analyze the contemporary scientific literature, and lead original research, and to participate in the advancement of regenerative medicine and cell therapy.

**Skills**
Students will be able to identify and solve scientific problems, learn about new techniques and approaches to scientifically established facts in practical work. They will learn to monitor and analyze the contemporary scientific literature, participate in original research, present their results at scientific meetings and in scientific journals. Under the guidance of a mentor, students will go through the study of all phases of scientific research. The knowledge and the results obtained will be used for writing and defense of their graduation thesis.

**Theoretical classes**
- Embryonic stem cells
- Bone marrow stem cells
- Isolation of stem cells - technology
- Stem cell therapy – hematologic issues
- Regeneration of nervous tissue by stem cells
- Genetically modified stem cells in experimental gene therapy
- Intellectual property of human multi stem cells
- Regenerative possibilities of heart tissue using stem cells
- Stem cells in vascular surgery
- Stem cell therapy: possibilities for diabetes?
- Stem cells and autoimmune diseases: development of therapeutic procedures
- Stem cell therapy in ophthalmology
- Bone structure, function and formation of tissue stem cells in regenerative orthopedics
- Nanotechnology in regenerative medicine
- Regenerative medicine in maxillofacial and plastic surgery
- Stem cells and cosmetic surgery
- Regenerative medicine of the respiratory system
- Stem cells in gynecology
- Stem cells in the treatment of malignant conditions in childhood
- Regenerative medicine in general surgery and urology

**Practical classes**
- Use of polymers in bone regenerative procedures
- Basic principles of laboratory research
- Basic principles and techniques of stem cell isolation in experimental conditions
- Basic principles of stem cell application

**Recommended literature**
3. Wislet-Gendebien S. Advances in Regenerative medicine In Tech 2011.

*Students will be informed about necessary literature for each unit.*
# Teaching staff

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**Head of the Department**

Doc. Dr. Janko Pasternak
26. PALLIATIVE MEDICINE (M5-ELII)

STUDY PROGRAM INTEGRATED STUDIES IN MEDICINE
DEPARTMENT DEPARTMENT OF SURGERY
COURSE TITLE/ CODE PALLIATIVE MEDICINE
COURSE STATUS ELECTIVE
Condition: -

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Teaching methods Lectures, practice, essays

The goal of this course is to introduce philosophy and practice of palliative care, provide knowledge and skills necessary for effective and compassionate participation in palliative care.

AIM

Knowledge

Through theoretical classes students should master basic knowledge in the affirmation of life and conception of death as normal processes, basic characteristics of pain management, psychosocial and spiritual aspects of palliative care and support to patients families, during the period of disease, death, and mourning. Special attention is given to the ethical and legal issues related to helping people suffering from incurable diseases. Also, students acquire knowledge on communication, teamwork and develop self-awareness.

Skills

Through practice, students should master history taking in palliative medicine, as well as physical examination of patients, treatment, care and support to patients suffering from incurable diseases. Through essays and case studies, students will discuss different categories of patients (malignant patients, the elderly, children, patients with dementia, etc.) and design therapy programs for each patient individually.

GOAL

Knowledge

1. Philosophy and practice of palliative care (1 class)
2. Basic principles of symptom control and pulmonary symptoms (1 class)
3. Pain assessment and control (2 classes)
4. Neuropsychiatric symptoms (1 class)
5. Gastrointestinal symptoms (including nausea, vomiting, anorexia, constipation, and diarrhea (1 class)
6. Skin and oral cavity care and lymphedema control (1 class)
7. Care in the last hours of life (1 class)
8. Psychological problems and their management (1 class)
9. Loss of a loved ones, grief and mourning (1 class)
10. Spiritual care (1 class)
11. Ethical and legal issues (1 class)
12. Communication skills (1 class)
13. Communication in specific situations, for example breaking bad news (1 class)
14. Teamwork and self-awareness (1 class)

Skills

1. History taking in palliative medicine
2. Demonstration of a complete physical examination
3. Case presentations and discussions focused on specific issues related to children and the elderly
4. Case presentations and discussions focused on issues related to various groups of diseases
5. Case presentations and discussions focused on complex issues including emergencies in palliative care.

RECOMMENDED LITERATURE

Compulsory

Optional

Student’s activity assessment (points)

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Head of the Department
Doc. Dr. Janko Pasternak
40. OPHTHALMOLOGY (M6-OPHT)

**STUDY PROGRAM**: INTEGRATED STUDIES IN MEDICINE

**DEPARTMENT**: DEPARTMENT OF OPHTHALMOLOGY

**COURSE TITLE / CODE**: OPHTHALMOLOGY

**COURSE STATUS**: COMPULSORY

**Condition**: SURGERY

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**Teaching methods**: Lecture, practical work, multimedia presentations.

**AIM**: The aim of this course is to provide medical knowledge of anatomy, vision function and eye diseases; identify most important ophthalmology problems important for vision protection and blindness prevention.

**GOAL**

**Knowledge**: To acquire theoretical knowledge on the function of vision, optics and eye refraction, oculomotor balance and its disorders, diseases and injuries of the outer eye (eyelids, lacrimal apparatus, cornea), the inner eye (anterior eye chamber, uvea, retina, papilla, visual nerve), orbital and intracranial pupilomotor fibers and centers, diagnostics, prognosis and medication and surgical treatment of eye diseases and anomalies.

**Skills**: To acquire ability to identify the most important eye defects, diseases and injuries that endanger the eye function and vision; to be able to provide appropriate treatment and to refer the patient to the ophthalmologist or surgeon.

**COURSE DESCRIPTION**

**Theoretical classes**

1. Epidemiology of blindness and visual impairment and the importance and role of vision. Association between eye and general diseases.
2. Eyelids: structure, physiology, skin disorders, vascular disorders, bacterial and viral infections, inflammations and gland disorders, shape, position, mobility, and tumors of the eyelids. Treatment principles.
14. Optic nerve, visual pathway, diseases of the optic nerve and visual field disorders. Iris and pupilomotor reaction
15. Refraction of the eye - refractive errors, nearsightedness, farsightedness, astigmatism. Eyeglasses, contact lenses, refractive surgery.
17. Mechanical, physical and chemical eye and orbital injuries, emergency conditions and principles of diagnosis and treatment.
Practical classes

1. Eye bulb - macroscopic anatomy.
2. History taking in ophthalmologic patients. Principal problems, external examination, inspection.
3. Vision acuity measurement, near and distance measurement in each eye.
4. Eyelids - anatomy, fissures, inspection, palpation, (upper eyelid ectropion).
5. Lacrimal apparatus - lacrimal glands, drainage pathways (fluorescein test, Schirmer test, palpation - massage).
6. Examination of the conjunctiva, anatomy, types of hyperemia, conjunctival, ciliary.
7. Local therapy - drops,ointment, removal of foreign body from the conjunctiva, eye washing.
8. Examination of the cornea and sclera, focal illumination, fluorescein test sensitivity.
10. Biomicroscopy of the anterior eye chamber - demonstration and analysis of physiological properties of tissues, pathological changes, erosion, edema, corneal scars.
11. Digital measurement of the intraocular pressure (IOP), aplanatic tonometry, gonioscopy, visual field. Acute glaucoma - a case report.
13. White pupils - leukocoria, cataract - iris shadow, pupil illumination and parallax, aphakia, pseudophakia.
15. Iris dilation, direct ophthalmoscopy, red reflex, parallax.
18. Subjective and objective determination of refraction, vision, various glasses.
19. Eye mobility, the primary position, the visual axis. Detection of strabismus and amblyopia, Hisberg test, cover test, test for diplopia methods of penalizing (amblyopia).
21. Watching eye surgeries on the monitor.

RECOMMENDED LITERATURE


Student’s activity assessment (points)

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Teaching staff

1. Prof. Dr. Ana Oros
2. Doc. Dr. Desanka Grković
3. Doc. Dr. Vladimir Čanadanović
4. Doc. Dr. Nikola Babić
5. Assist. Dr. Sofija Davidović
6. Assist. Dr. Tatjana Bedov
7. Assist. Dr. Sandra Jovanović
8. Assist. Dr. Aleksandar Miliković
9. Assist. Dr. Zorka Grgić

Head of the Department
Doc. Dr. Nikola Babić
## 41. OTORHINOLARYNGOLOGY (M6 - ORL)

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<th>STUDY PROGRAM</th>
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### Condition:
SURGERY; STOMATOLOGY WITH MAXILLOFACIAL SURGERY (EXAM)

### Teaching methods
Teorija, Lecture, seminarji, pratične Practice

### Year of study
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### AIM
The aim of this course is to teach students to recognize the clinical picture, understand the etiology and pathogenesis of different pathological entities, understand and accept different diagnostic procedures and treatment of head and neck diseases.

### GOAL
- Medical students will know how to recognize and cure different cases of head and neck diseases.
- Students will master necessary skills for conservative and surgical treatment of head and neck diseases.

### COURSE DESCRIPTION

#### Theoretical classes
1. Anatomy and physiology of the ear. Diagnostic procedures in otology.
3. Acute inflammation of the external and middle ear. Chronic inflammation of the middle ear. Otogenic complications.
5. Benign and malignant tumors of the external, middle and inner ear.
11. Introduction to phoniatriy.

#### Practical classes
2. Examination of the nose, oral cavity and oropharynx, ear, larynx, neck.
3. Overview of ENT propedeutics.
4. Interventions in rhinology (nasal foreign body extraction, Protz for nasal drainage, inhalation therapy, nasal drops, application, radiological diagnosis).
5. Nasal bleeding management.
6. Rhinomanometry, allergological testing. Examination of patients after nasal and frontoethmoidal injuries, reposition of the nasal nose bones and patients with sinusogencic complications.
7. FESS and classical sinus surgery. Patients with benign and malignant nasal and sinus tumors.
8. Intervention in the oral cavity and oropharynx (foreign body extraction, peritonsillar abscess incision).
9. Patients with acute and chronic tonsillitis and with phlegmona and neck abscess.


16. Vestibular apparatus testing (orthostatic and dinamic testing probes, caloric testing – Dix Hallpike), electronistagmography.


19. Surgical treatment for laryngeal tumors (postoperative care of laryngectomized patients, nasogastric tubes, tracheostomy, swallowing rehabilitation).


21. Foreign bodies of the respiratory tract, diagnosis and therapy.

22. Tracheostomy (surgical intervention, postoperative care, tracheal cannula changing).

23. Esophageal foreign bodies (diagnosis and extraction). Corrosive injuries of oral cavity, pharynx and esophagus (first aid, diagnosis, therapy after corrosive substance ingestion, treatment of late corrosive substance ingestion complications).

RECOMMENDED LITERATURE

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<th>RECOMMENDED LITERATURE</th>
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Teaching staff

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<td>3. Prof. Dr. Dragan Dankuc</td>
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<td>4. Prof. Dr. Zoran Komazec</td>
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Head of the Department
Prof. Dr. Zoran Komazec
### 42. CLINICAL PHARMACOLOGY (M6-CLPH)

**STUDY PROGRAM**
INTEGRATED STUDIES IN MEDICINE

**DEPARTMENT**
DEPARTMENT OF PHARMACOLOGY, TOXICOLOGY AND CLINICAL PHARMACOLOGY

**COURSE TITLE / CODE**
CLINICAL PHARMACOLOGY

**COURSE STATUS**
ELECTIVE

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### AIM

To apply clinical knowledge in the field of pharmacology in clinical practice.

### GOAL

**Knowledge**

- Students should be able to analyze the existing data on drugs, analyze references for clinical trials, analyze data obtained in clinical trials, to get familiar with pharmacotherapy in target-groups of patients. Student must know the ethical rules of clinical research, basic principles of pharmacoepidemiology and pharmacoeconomics.

**Skills**

- Students should be trained to write and present information to patients - participants in clinical researches and to present, analyze and define the optimal pharmacotherapy for the most common diseases.

### Theoretical classes

1. Stages of clinical trials.
2. Pharmacoepidemiology
3. Pharmacoeconomy
4. Pharmacovigilance
5. Pharmacotherapy during pregnancy
6. Pharmacotherapy during breastfeeding
7. Pharmacotherapy in respiratory infections
8. Optimal use of antibacterial drugs
9. Pharmacotherapy in urinary infections
10. Pharmacotherapy in ophthalmology
11. Pharmacotherapy in dermatology

### Practical classes

1. Ethical aspects of clinical research; ethics of clinical pharmacologists
2. Interpretation of results of preclinical research - significance for clinical testing
3. Information for participants when conducting an academic and sponsored research – processing, presentation and discussion
4. Information on drugs - a comparison of information provided by pharmaceutical industry and independent information sources
5. Educational activity of clinical pharmacologists
6. Pharmacotherapy problems – processing a pharmacotherapy problem; presentation and discussion
7. Pharmacotherapy of depression
8. Pharmacotherapy of kidney failure
9. Pharmacotherapy of arterial hypertension
10. Pharmacotherapy of pain in the outpatient facilities
11. Pharmacotherapy of chronic bronchitis

### RECOMMENDED LITERATURE

**Compulsory**

1. T. Kažić: Klinička farmakologija, Beograd

**Optional**

1. Lawrens, Benett: Clinical Pharmacology

### Student’s activity assessment (points)

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1. Prof. Dr. Ana Sabo
2. Prof. Dr. Monira Mikov
3. Prof. Dr. Jovan Popović
4. Prof. Dr. Zdenko Tomić
5. Prof. Dr. Velibor Vasoš
6. Prof. Dr. Aleksandar Rašković
7. Doc. Dr. Isidora Samojlić
8. Doc. Dr. Olga Horvat
9. Assist. Dr. Saša Vukmirović
10. Assist. Dr. Boris Milijašević
11. Assist. Dr. Vesna Mijatović
12. Assist. Dr. Nebojša Stilinović
STUDY PROGRAM | INTEGRATED STUDIES IN MEDICINE
DEPARTMENT | DEPARTMENT OF OCCUPATIONAL MEDICINE
COURSE TITLE/CODE | OCCUPATIONAL MEDICINE
COURSE STATUS | COMPULSORY
Condition: INTERNAL MEDICINE, SOCIAL MEDICINE (EXAM)

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Teaching methods: Lectures, practice, seminars

Education in field of occupational medicine i.e. occupational health and safety measures at work.

**GOAL**

**Knowledge**

Students should adopt knowledge concerning organization of occupational medicine, occupational hazards, occupational diseases, preventive health surveillance at work, work physiology, occupational toxicology, workplace injuries and health protection of various occupational groups.

**Skills**

Students should adopt skills related to: evaluation of working environment, occupational diseases and intoxications, work ability assessments, prevention of injuries at work, prevention of work disability and application of work safety measures.

**COURSE DESCRIPTION**

**Theoretical classes**

1. Introduction to occupational medicine
2. Work physiology
3. Physical hazards in work environment
4. Radiation in work environment
5. Occupational respiratory diseases
6. Occupational toxicology – metals
7. Occupational toxicology – toxic gases
8. Occupational toxicology – organic solvents
9. Occupational toxicology – pesticides and fertilizers
10. Work conditions in some branches of industry

**Practical classes**

1. Microclimate of working environment
2. Heat indices and evaluation of microclimate conditions
3. Air pollution of working environment – dust
4. Air pollution of working environment – gases and vapors
5. Noise level evaluation
6. Workplace injuries
7. Pneumoconiosis – radiology classification
8. Work ability assessment in diseases due to organic dust
9. Work ability assessment in diseases due to vibrations
10. Work ability assessment in occupational skin and infectious diseases
11. Work ability assessment in intoxications due to organophosphorous pesticides
12. Work ability assessment in occupational liver and haematopoetic disorders
13. Work ability assessment in occupational musculoskeletal disorders
14. Work ability assessment in persons exposed to ionizing radiation
15. Characteristics of work conditions in some branches of industry

**Recommended Literature**


**Student activity assessment (points)**

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**Teaching staff**
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<th>Lecturer</th>
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<td>2. Prof. Dr. Nada Mačvanin</td>
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<td>4. Doc. Dr. Mirjana Glavaški-Kraljević</td>
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<td>5. Assist. Dr. Miolarad Španović</td>
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Head of Department
Prof. Dr. Ivan Mikov
44. MEDICAL REHABILITATION (M6-MRH)

**STUDY PROGRAM** INTEGRATED STUDIES IN MEDICINE

**DEPARTMENT** DEPARTMENT OF MEDICAL REHABILITATION

**COURSE TITLE/ CODE** MEDICAL REHABILITATION

**COURSE STATUS** COMPULSORY

**Condition:** SURGERY

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Teaching methods: Lectures, practical work, consultation hours

**AYM**
Adopting principles of theory and practice of modern rehabilitation.

**AIM**
Providing medical rehabilitation with the aim of preventing disability.

**GOAL**

**Skills**
Identification of anomalies - hereditary or consequences of diseases or injuries, in the form of temporary or permanent anatomical, functional or psychological loss, disorder, or reduced structure or function in children and adults. Adopting skills to provide help to different categories of disabled persons.

**COURSE DESCRIPTION**

**Theoretical classes**
1. Medical rehabilitation - role and importance in modern medicine and health care (with special reference to the disability and its prevention)
2. Introduction to physical medicine
3. Basic principles of kinesitherapy and work therapy
4. Basic principles of electrotherapy
5. Basic principles of photo-, thermo- and hydro therapy
6. Specific process of habitation and rehabilitation of children with disabilities
7. Therapeutic procedures in children with cerebral paralysis syndrome and thorax deformities
8. Basic principles of medical rehabilitation of patients after locomotor apparatus injuries
9. Basic principles of medical rehabilitation of patients with peripheral nerve lesions
10. Basic principles of medical rehabilitation of patients with vertebral syndrome
11. Basic principles of medical rehabilitation of patients with inflammatory and degenerative rheumatism
12. Basic principles of medical rehabilitation of patients after amputation (orthotic and prosthetic aid in medical rehabilitation)
13. Basics of medical rehabilitation of patients with hemiplegia
14. Basic principles of medical rehabilitation of patients with paraplegia and quadriplegia

**Practical classes**
1. Introduction of specialized institutions for medical rehabilitation
2. Evaluation of patients in medical rehabilitation program
3. Basic principles of practical application of physical therapy procedures in medical rehabilitation
4. Medical rehabilitation of patients after trauma and polytrauma
5. Medical rehabilitation of patients underwent amputation
6. Medical rehabilitation of patients with peripheral nerve lesions
7. Habilitation of chilDr.en with cerebral paralysis
8. The most common condition in children and adolescents on habilitation and rehabilitation
9. Medical rehabilitation of patients with chronic lumbar and cervical syndrome
10. Medical rehabilitation of patients with hemiplegia syndrome
11. Medical rehabilitation of patients with paraplegia and quadriplegia
12. Medical rehabilitation of patients with inflammatory rheumatic diseases
13. Medical rehabilitation of patients with degenerative rheumatic diseases

**RECOMMENDED LITERATURE**

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**Student’s activity assessment (points)**

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### Teaching staff

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<th>Techn.</th>
<th>Teaching Ass.</th>
<th>Lecturer</th>
<th>Assist.Prof.</th>
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1. Prof. Dr. Branislav Bobić
2. Prof. Dr. Gordana Devecerski
3. Prof. Dr. Aleksandra Mikov
4. Prof. Dr. Ksenija Boskovic
5. Doc. Dr. Laslo Hajdu
6. Doc. Dr. Mirjana Savic
7. Doc. Dr. Snezana Tomašević-Todorović
8. Assist. Dr. Karmela Filipović
9. Doc. Dr. Čila Demeši Drljan
10. Assist. Dr. Aleksandar Knežević
11. Assist. Dr. Rastislava Krasnik
12. Assist. Dr. Slobodan Pantelinac
13. Dr. Nataša Nnado
14. Dr. Dušica Simić
15. Assist. Dr. Nataša Milenović
16. Assist. Dr. Goran Galetić

Head of the Department
Prof. Dr. Branislav Bobić
**45. EMERGENCY MEDICINE (M6-EMM)**

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**Teaching methods**

- Lectures, practice

**AIMS**

Students are getting familiar with prehospital, initial hospital and hospital treatment of critically ill patients, principles of cardiopulmonary and cerebral resuscitation, organization of initial health care in emergency situations, management in different situations that involve victims and their families, including examination of vital signs and confirmation of death. Implementation of their knowledge in life and clinical praxis. Scientific work.

**GOAL**

**Knowledge**

- Basic principles of prehospital, initial hospital and hospital treatment of critically ill patients. The most common emergency situations in medicine. The most common errors. Management and obligations in situations that involve victims, including examination of vital signs and confirmation of death. Medications and sophisticated technologies used in practical and scientific work.

**Skills**

- Basic and advanced life support, trauma life support in adults and children. For this purpose we use dummies, as well as theoretical situations, with active involvement of students through questions, answers and discussion.

**Theoretical classes**

1. Principles of emergency medicine. Evaluation of vital signs. Pain as the fifth vital sign
2. Airway management
3. Acute chest pain
4. Acute coronary syndromes
5. Shock. Sincope.
6. Dissection and rupture of aorta.
7. Peryarrest arrhythmias
9. Cardiac arrest. CPR in adults and children
10. Fatal outcome. Estimation, communication with family. Medicolegal aspects
11. Acute limb ischemia
13. Anaphylactic shock
14. Acute asphyxia
15. Acute abdominal pain
16. Acute intracranial-spinal compression
17. Acute intestinal and urinary obstruction
18. Convulsions. Delirium. Acute confusion
19. Acute headache. Cerebrovascular insult. Transient ischemic attack
20. Subarachnoidal haemorrhage
21. Febrile status and dehydration in children
22. Types of trauma. BTLS. ATLS. ABCDE Prehospital treatment, transport, communication, initial hospital and hospital treatment
23. Acute intoxications

**Practical work**
1. Airway management. Recovery position. Exercises with a dummy
2. Mechanical devices for airway management. Bolus obstruction
3. Difficulties with airway management
4. Mechanical ventilation
5. Types of intravascular access (peripheral, central, intraosseal)
6. Intravenous solutions
7. Vasoactive, inotropic, antiarrhythmic drugs in critically ill patients
8. CPR algorithm in adults and children - exercises with a dummy
9. ECG presentation of cardiac arrest and periarrest arrhythmias
10. Defibrillation, cardioversion, pacing - exercises with a dummy
11. Extended criteria for CPR
12. Drugs in cardiac arrest
13. Treatment of asystole
14. Treatment of pulseless electrical activity (PEA)
15. Treatment of ventricular fibrillation and ventricular tachycardia
16. Simulation of cardiac arrest in adults and children
17. Simulations of periarrest arrhythmias
19. Simulation of polytrauma. Primary and secoundary ABCDE examination
20. Simulation of polytrauma. Scoring systems (GCS,TS, ISS)
21. Sedation and analgesia
22. Organization of emergency medical care in Novi Sad

RECOMMENDED LITERATURE

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Optional

Student’s activity assessment (points)

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</tbody>
</table>

Total: 100

Teaching staff

<table>
<thead>
<tr>
<th>Teaching staff</th>
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</thead>
<tbody>
<tr>
<td>Doc. Dr. Vladan Popović</td>
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</tr>
<tr>
<td>Prof. Dr. Gordana Panić</td>
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<tr>
<td>Prof. Dr. Petar Slankamenac</td>
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<tr>
<td>Prof. Dr. Ljiljana Gvozdenović</td>
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<tr>
<td>Prof. Dr. Radenko Vuković</td>
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<tr>
<td>Prof. Dr. Velibor Vasović</td>
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<tr>
<td>Doc. Dr. Radovan Veljković</td>
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<tr>
<td>Doc. Dr. Janko Pasternak</td>
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<tr>
<td>Assist. Dr. Nemaja Gvozdenović</td>
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</tbody>
</table>

Head of the Department
Doc. Dr. Vladan Popović
46. ONCOLOGY (M6-OH/HG)

STUDY PROGRAM INTEGRATED STUDIES IN MEDICINE

DEPARTMENT DEPARTMENT OF ONCOLOGY

COURSE TITLE ONCOLOGY AND PALLIATIVE CARE

COURSE STATUS COMPULSORY

Condition: SURGERY; DERMATO-VENEROLOGY(exam); NEUROLOGY(exam); GYNECOLOGY AND OBSTETRICS(exam); PAEDIATRICS (exam)

<table>
<thead>
<tr>
<th>Year of study</th>
<th>Winter semester (hours/week)</th>
<th>Summer semester (hours/week)</th>
<th>Colloquia</th>
<th>Seminars</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lectures Practice</td>
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<td>VI</td>
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</tbody>
</table>

Teaching methods LECTURES AND PRACTICE

AIM The aim of this course is to provide medical students with knowledge and skills for early screening, diagnosis, therapy and palliative care of oncology patients. Students learn about the etiology of malignant cells, their spread, epidemiology, prevention, early detection of precancerous lesions and malignant tumors, adequate diagnostic procedures, staging, clinical manifestations, signs and symptoms, complications during treatment, emergency situations, therapeutic modalities including surgery, radiotherapy, chemotherapy, immunotherapy, hormone therapy, target therapy, rehabilitation, palliative care, psychological attitude to patients and their families, better quality of life. Special attention is paid to diagnostic and therapeutic procedures of solitary localized tumors.

GOAL Knowledge This course provides medical students with knowledge about most important principles and specificities of treatment of oncology patients in order to be able to be a part of a multidisciplinary team as general practitioners. Physicians in primary care should be included in prevention and early detection of malignant diseases, recognition of signs and symptoms of malignant diseases, complications during treatment and contribute to better quality of life for oncology patients.

Skills To acquire practical skills required in diagnosis, treatment and palliative care of oncology patients.

COURSE DESCRIPTION

**Theoretical classes**

1. Origin and biology of malignant tumors, carcinogenesis
2. Genetic predisposition to malignant diseases
3. Epidemiology, etiology and early detection of malignant diseases
4. Diagnosis (laboratory, pathology)
5. Diagnostic imaging in oncology
6. Neoplasm staging and therapeutic principles
7. Principles of surgical oncology
8. Principles of radiotherapy
9. Principles of chemotherapy
10. Emergency conditions in oncology
11. Complications of cancer therapy
12. Paraneoplastic syndrome
13. Rehabilitation in oncology
14. Supportive, symptomatic and palliative therapy
15. Tumors of the CNS, head and neck
16. Lung tumors
17. Breast tumors
18. Hematologic malignancies
19. Tumors of the digestive system
20. Tumors of the female reproductive organs
21. Tumors of the urinary tract and kidneys
22. Tumors of the male reproductive organs
23. Tumors of the skin, bones and soft tissues
24. Tumors of unknown primary origin

**Practical classes**

History taking in oncology patients (examination of breasts, palpation of the lymph nodes, abdomen, digitorectal examination, gynecologic examination), performance status, diagnostic and therapeutic procedures in oncology (endoscopy, pleural and abdominal puncture), psychological approach to patients and their families.

Case reports of oncology patients with special overview of diagnosis and therapy of certain malignant tumors.

Recommended Literature

<table>
<thead>
<tr>
<th>Compulsory</th>
<th>Optional</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Pre-exam activities</td>
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<tr>
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<td>Essay</td>
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<td>Other</td>
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</table>

**Student activity assessment (points)**

**Teaching staff**

<table>
<thead>
<tr>
<th>Task demonstrator</th>
<th>Teaching Ass.</th>
<th>Lecturer</th>
<th>Ass. Prof.</th>
<th>Assoc. Prof.</th>
<th>Full Prof.</th>
<th>Scientific Researcher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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</tbody>
</table>

1. Prof. Dr. Marko Erak
2. Prof. Dr. Andrija Golubović
3. Prof. Dr. Darjana Jovanović
4. Doc. Dr. Svetlana Popović Petrović
5. Doc. Dr. Zoran Rudovanović
6. Doc. Dr. Milica Živaljević
7. Assist. Dr. Silvija Lučić
8. Assist. Dr. Branislav Đuran
9. Assist. Dr. Biljana Kukić
10. Assist. Dr. Gorana Matovina Brko
11. Assist. Dr. Lazar Popović

Head of the Department
Doc. Dr. Milica Živaljević
47. FORENSIC MEDICINE (M6 - FMED)

**STUDY PROGRAM**
INTEGRATED STUDIES IN MEDICINE

**DEPARTMENT**
DEPARTMENT OF FORENSIC MEDICINE

**COURSE TITLE / CODE**
FORENSIC MEDICINE

**COURSE STATUS**
COMPULSORY

**COURSE DESCRIPTION**
Lectures including PowerPoint presentations.
Practice: examination of injured persons; external examination of the deceased. Discussion of autopsy findings. Biological sampling. Court files analysis. Medical reports and death certificates.

<table>
<thead>
<tr>
<th>Year of study</th>
<th>Winter semester (hours/week)</th>
<th>Summer semester (hours/week)</th>
<th>Colloquia</th>
<th>Seminars</th>
<th>ECTS</th>
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</thead>
<tbody>
<tr>
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<td>Lectures</td>
<td>Practice</td>
<td>Lectures</td>
<td>Practice</td>
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<td>3</td>
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</table>

**AIM**
The aim of this course is to provide students with knowledge and skills to understand and correlate medicine and law in order to provide personal physical and psychological integrity. Legal status of medical practice, ethical and legal responsibility of a physician. Use of acquired knowledge in practice. Development of skills necessary for scientific research.

**GOAL**

**SKILLS**
Practical application of theoretical knowledge. Examination of the deceased, determination of cause, manner and time of death. Identification of the deceased. Examination of injured persons, classification and qualification of injuries. Issuance of medical documents - death certificates and medical reports of injuries. Taking biological samples for purpose of identification and toxicology screening. Use of medical knowledge in trial cases. Understanding the principles of causation - complex relations between primary cause (injury or disease), course of injury or disease along with all possible complications, and final consequences (complete or incomplete recovery vs. death).

**COURSE OBJECTIVES**
1. Brief history of forensic medicine. Basic tasks of forensic medicine. Forensic medicine in relation to other medical and academical branches, primarily law.
8. Physical injuries. Hyperthermia and hypothermia; the effect of heat and cold; electrocution; lightning injuries; radiation injuries.
15. Falls from a height. Crush and blast injuries.
16. Nutritional, biological and psychic injuries. Sudden death during and immediately after mental and/or physical stress.
17. Forensic problems of sexual assaults. Infanticide – definition, medicolegal expertise. Paternity testing. SIDS.
18. Domestic violence.
19. Accident, suicide, homicide. Suicide vs. homicide - injury patterns. Bodies recovered from water or fire, self-inflicted injuries.
20. Forensic expert, legal provisions and basics of medicolegal expertise.
21. Forensic qualification of injuries. Legal provisions and medical criteria. Forensic expertise in civil proceedings (pain, fear, etc.).
23. Forensic anthropology and identification in mass accidents.
24. Medical criminology, biological traces. DNA analysis.

### Practice

1. Institute of Forensic Medicine - introduction to basic fields of work.
2. Work in autopsy room.
4. Description of postmortem changes.
5. Evidence of injuries. Evidence of recent medical and/or surgical interventions.
6. Planning and proceedings of autopsy in accordance to specific cases. Demonstration of autopsy with discussion. Taking samples for pathohistology, toxicology screening, microbiological testing and DNA analysis. Presenting findings suitable for scientific research.
7. Issuing the death certificate in accordance to C30. Natural or violent death.
8. Chemical and toxicology laboratory: GC, GC/MSD, HPLC and UV spectrophotometrics use in forensic chemistry.
9. Medicolegal expertise (findings, discussion and conclusion) of court files. Elements of analysis and synthesis. Relevant findings in reports, forensic issues and reports.
10. Video presentation of postmortem changes, mechanical injuries, physical injuries, craniocerebral injuries, asphyxia and infanticide.

### Recommended Literature

**Mandatory**
1. M. Milovanović: "Sudska medicina" (svako izdanje)
2. Popović D. Šošljanski M. i Tasić M: "Odobrana poglavlja iz sudske medicine". Medicinski fakultet Novi Sad

**Optional**
2. Simić M: "Test pitanja iz Sudske medicine". Medicinski fakultet Novi Sad

### Assessment of student’s activity (points)

<table>
<thead>
<tr>
<th>Pre-exam activities</th>
<th>Final exam</th>
<th>Total</th>
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### Teaching staff

<table>
<thead>
<tr>
<th>Techn. demonstrator</th>
<th>Teaching Ass.</th>
<th>Lecturer</th>
<th>Ass. Prof.</th>
<th>Assoc. Prof.</th>
<th>Prof.</th>
<th>Scientific Researcher</th>
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</tbody>
</table>

1. Written essay is not mandatory.
2. If a student does not have a written essay.

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Head of the Department
Prof. Dr. Goran Stojiljković
48. GERIATRICS (M5- GER)

STUDY PROGRAM INTEGRATED ACADEMIC STUDIES IN MEDICINE

DEPARTMENT DEPARTMENT OF GERIATRICS

COURSE TITLE / CODE GERIATRICS

COURSE STATUS COMPULSORY

Condition: INTERNAL MEDICINE; INFECTIOUS DISEASES (EXAM); PSYCHIATRY (EXAM)

<table>
<thead>
<tr>
<th>Year of study</th>
<th>Winter semester (hours/week)</th>
<th>Summer semester (hours/week)</th>
<th>Colloquia</th>
<th>Seminars</th>
<th>ECTS Credits</th>
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<td>Lectures Practice</td>
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</table>

Teaching methods Lectures. Practice.

AIM The aim of this course is to provide medical students with knowledge and skills associated with current medical trends in care for elderly population. Students take part in clinical practice, history taking, examination and learn how to identify acute and chronic infectious diseases from the standpoint of general practitioners. Students also learn about basic methods of medical research.

GOAL Knowledge Students will acquire knowledge in the field of pathogenesis, clinical picture and therapy of common diseases and conditions in elderly population and specific features of this age group. Special attention is paid to the importance of preventive medical measures and procedures, such as depistage, to be implemented. Particular attention is also paid to care and treatment of the elderly who need long-term palliative care.

Skills Students will be trained to perform physical examination, set the diagnosis and design the treatment procedures for elderly patients, taking into consideration specific approach to elderly patients. Student will be able to triage hospitalized patients and patients requiring prolonged treatment at home or care homes.

COURSE DESCRIPTION

1. Biology of aging
2. Metabolic and endocrine diseases in the elderly
3. Heart and vascular diseases in the elderly
4. Lung diseases diseases in elderly population
5. Oncologic and pulmonary diseases in elderly population
6. Hematologic and nephrologic diseases in elderly population
7. Gastroenterology and hepatology diseases in elderly population
8. Neurological diseases in elderly population
9. Psychiatric diseases elderly population
10. Infectious diseases in elderly population
11. Intensive care in the elderly
12. Urologic diseases in elderly population
13. Traumatology in the elderly
14. Gynecologic diseases in elderly population
15. Rehabilitation and physical activity of the elderly
16. Health care of the elderly

Practical classes Practice incudes acquaintance with specific work of geriatric health services and has 3 segments:
- work in geriatric institutions
- ambulatory health care
- work of the Clinical Center of Vojvodina
  1. Introduction to geriatrics
  a. History taking in geriatrics
  b. General anamnesis conclusion
  c. Demonstration of a complete physical examination
  2. Specific treatment

RECOMMENDED LITERATURE


Student’s activity assessment (points)

<table>
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<tr>
<th>Lectures</th>
<th>Practice</th>
<th>Colloquium</th>
<th>Essay</th>
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Total 100

Teaching staff

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<tbody>
<tr>
<td>1.</td>
<td>Prof. Dr. Jovan Vukadinov</td>
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<tr>
<td>2.</td>
<td>Prof. Dr. Vesna Turkulov</td>
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<td>3.</td>
<td>Prof. Dr. Đorđe Považan</td>
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<td>4.</td>
<td>Prof. Dr. Stevan Popović</td>
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<td>5.</td>
<td>Prof. Dr. Ljiljana Hadnađev</td>
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<td>6.</td>
<td>Prof. Dr. Grozdana Čanak</td>
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<td>7.</td>
<td>Prof. Dr. Nevena Sečen</td>
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<td>Prof. Dr. Petar Slankamenac</td>
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<td>Prof. Dr. Ljiljana Boršić</td>
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<td>Prof. Dr. Gordana Devečerski</td>
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<td>Prof. Dr. Dejan Sakać</td>
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<td>Prof. Dr. Olga Živanović</td>
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<td>15.</td>
<td>Prof. Dr. Vuk Sekulić</td>
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<td>16.</td>
<td>Prof. Dr. Tatjana Ilić</td>
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<td>17.</td>
<td>Prof. Dr. Eržebet Ać Nikolić</td>
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<td>18.</td>
<td>Prof. Dr. Aleksandar Ćurčić</td>
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<td>19.</td>
<td>Prof. Dr. Tatjana Đurđević Mirković</td>
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<td>20.</td>
<td>Prof. Dr. Dejan Ivanov</td>
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<td>21.</td>
<td>Prof. Dr. Siniša Sević</td>
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<td>Prof. Dr. Radoslava Doder</td>
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<tr>
<td>23.</td>
<td>Doc. Dr. Đorde Petrović</td>
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<tr>
<td>24.</td>
<td>Assist. Dr. Borislađa Nikolin</td>
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<td>Assist. Dr. Oliver Stojanov</td>
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</tbody>
</table>

Head of the Department  
Prof. Dr. Jovan Vukadinov
49. CLINICAL PRACTICAL TRAINING (M6-CLPT)

<table>
<thead>
<tr>
<th>STUDY PROGRAM</th>
<th>INTEGRATED STUDIES IN MEDICINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPARTMENT</td>
<td></td>
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<tr>
<td>COURSE TITLE/ CODE</td>
<td>CLINICAL PRACTICAL TRAINING</td>
</tr>
<tr>
<td>COURSE STATUS</td>
<td>COMPULSORY</td>
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Condition: INTERNAL MEDICINE, SURGERY, PEDIATRICS, GYNECOLOGY AND OBSTETRICS.

<table>
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<tr>
<th>Year of study</th>
<th>Winter semester (hours/week)</th>
<th>Summer semester (hours/week)</th>
<th>Colloquia</th>
<th>Seminars</th>
<th>ECTS Credits</th>
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<tbody>
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<td>Practice</td>
<td>Lectures</td>
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<tr>
<td>VI</td>
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</tbody>
</table>

Teaching methods
Clinical practical training at clinics and health centers is carried out individually, under supervision of teachers and associates, including:
- Practical work with patients. Performing clinical skills (independent).
- Demonstration of clinical skills.
- Counseling

AIM
The aim of clinical practical training is to provide necessary clinical experience, under supervision of medical professionals and experts in health centres, to constantly update knowledge according to demands of modern medical science and practice, to apply the methodology of research-scientific work in practice.

GOAL
Knowledge
Students should be capable of performing health service in primary care institutions – prevention, diagnostics and therapy.

Skills
- To manage daily routine practice and keep records, to collect and manage information using information technology.
- To participate in team-work and diagnostics and treatment of ill and injured patients.
- To obtain medical history and to perform clinical examination of diseased and injured patients.
- To apply appropriate diagnostic procedures in order to set differential diagnosis.
- To properly interpret results of laboratory and clinical examination.
- To suggest appropriate therapeutic procedures.
- To become familiar with the principles of admittance and triage in emergency situations and provide assistance to ill or injured patients.
- To apply procedures of care in severely ill and injured patients, including pain relief and and to help patients in the terminal phase of illness.
- To know the principles of reproduction, including conception, pregnancy and childbirth.
- To evaluate mental status of patients and act in appropriate manner.
- To implement hygienic-sanitary and environmental protection measures.
- To apply basic deontological principles: physician-patient relationship, among medical professionals, colleagues and associates.
- To respect principles of professional secrecy and health practitioner codes.

COURSE DESCRIPTION

Theoretical classes

Practical work

Work in outpatient units: surgery, internal medicine, pediatrics, gynecology and obstetrics
Work in specialized outpatient units: surgery, internal medicine, pediatrics, gynecology and obstetrics
Work at clinical departments: surgery, internal medicine, pediatrics, gynecology and obstetrics
Work at obstetrics clinic

RECOMMENDED LITERATURE

Compulsory
- Same as references recommended for particular courses in surgery, internal medicine, pediatrics, gynecology and obstetrics

Optional
- Same as references recommended for particular courses in surgery, internal medicine, pediatrics, gynecology and obstetrics

Student’s activity assessment (points)

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Practice-SIR</th>
<th>Colloquium</th>
<th>Essay</th>
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</tbody>
</table>

The supervising teacher keeps records on students attendance and activities. Upon fulfilling the required tasks, students achieves the corresponding number of ECTS credits (without final grade).

Teaching staff

1. Department of Surgery
2. Department of Internal Medicine
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>3.</td>
<td>Department of Pediatrics</td>
</tr>
<tr>
<td>4.</td>
<td>Department of Obstetrics and Gynecology</td>
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</tbody>
</table>
### 50. GRADUATION PAPER (M6-3P)

**STUDY PROGRAM** | INTEGRATED STUDIES IN MEDICINE  
**DEPARTMENT**  
**COURSE TITLE / CODE** | GRADUATION PAPER  
**COURSE STATUS** | COMPULSORY  
**Condition:** PASSED ALL EXAMS

<table>
<thead>
<tr>
<th>Year of study</th>
<th>Winter semester (hours/week)</th>
<th>Summer semester (hours/week)</th>
<th>Colloquia</th>
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<td>Practice</td>
<td>Lectures</td>
<td>SRS</td>
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</tr>
</tbody>
</table>

| Teaching methods |

#### AIM

**The aim of the Graduation Paper**

Medical doctors should be able to:

- Apply their theoretical knowledge acquired during the course "Introduction to research scientific work" and experiences from previous studies in practice.
- Apply the methodology of scientific research in actual problems.
- Apply methods of statistical data processing and appropriate graphic presentations in their paper.
- Demonstrate methods of literature search using available information research systems of national and international biomedical databases.
- Demonstrate the ability of presenting research results in written and oral presentation.

#### GOAL

**Knowledge**

After successfully defending their Graduation Paper, medical doctors are competent for further scientific research and publishing or presenting their scientific results. Furthermore, they can participate, as educators, in continuing education of health professionals.

**Skills**

**COURSE DESCRIPTION**

**Theoretical classes**

Application of Graduation Paper, content, procedure of its presentation and defense are regulated by the Rules on Graduation Paper.

**Practical classes**

#### RECOMMENDED LITERATURE

| Compulsory | Optional |

#### Student’s activity assessment (points)

<table>
<thead>
<tr>
<th>Pre-exam activities</th>
<th>Final exam</th>
<th>Total</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>Practice</td>
<td>Colloquium</td>
</tr>
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</tbody>
</table>

The examination board assesses the Graduation Paper with a grade ranging 5 - 10.

#### Teaching staff

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**MENTOR - TEACHER**