SPORTS MEDICINE

INTEGRATED ACADEMIC MEDICAL STUDIES

THIRD YEAR OF STUDIES

school year 2023/2024.

Subject:

SPORTS MEDICINE

The course is evaluated with 4 ECTS. There are 3 active classes per week (2 classes of lectures and 1 class of small group activities).

TEACHERS AND ASSOCIATES:

No	Name and surname	E-mail address	Title
1.	Vladimir Jakovljević	drvladakgbg@yahoo.com	Full professor
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9.	Maja Murić	majanikolickg90@gmail.com	Assistant

COURSE STRUCTURE:

	Name of the subject	**Week**	**Lectures**	**Work in a small group**	**Teacher-head of the course**
1	Sports medicine	15	2	1	Prof. Dr. Ivan Srejović
					Σ 30+15=45

ASSESSMENT:

The grade is equivalent to the number of points won (see tables). Points are earned in two ways:

1. ACTIVITY DURING THE LESSON: In this way, a student can earn up to 50 points:

A. WEEKLY EXAMINATION: In a special part of the work in a small group, the student answers the exam questions from the previous week of classes and receives 0-1 points according to the demonstrated knowledge. In this way, he can gain a maximum of 15 points.

B. MODULE TEST: The module test is conducted after the 11th week of classes and includes material from the first 10 weeks of classes. The test has 35 questions. In this way, a student can obtain a maximum of 35 points.
A student must achieve more than half of the points in both forms of activity during class (8 for the weekly test, 18 for the module test) in order to pass this part of the exam and gain the right to take the final exam.

2. FINAL EXAM:
The final exam is organized as a final test. The test consists of 50 questions. Each correct answer is worth 1 point. In this way, the student can obtain a maximum of 50 points. If the student achieves 26 or more points on the test, the final exam has been passed.
A student has the right to take the final test if he has achieved more than 50% of the points provided for the weekly exam and the module test for the activity during the lesson.
Postponed passing of the final test (in subsequent exam periods) does not reduce the number of points used to define the final grade.

The final grade is formed as follows:

In order to pass the course, the student must obtain a minimum of 51 points.
To pass the student must:
1. acquires more than 50% of the points for the activity during the teaching
2. obtains more than 50% points on the module test
3. pass the final exam, i.e. have more than 50% correct answers on the final test.

number of points won	rating
0 - 50	5
51-60	6
61-70	7
71-80	8
81-90	9
91 – 100	10

LITERATURE:

SUBJECT	TITLE OF THE TEXTBOOK	THE AUTHORS	PUBLISHER	THE LIBRARY
SPORTS MEDICINE	Medical Physiology (Tenth or Eleventh Edition Translation)	Guyton AC, Hall JE	Contemporary administration, Belgrade, 2003.	Has
	Ganong's Review of Medical Physiology, first edition in Serbian.	Ganong William. Vladimir Jakovljević editor-in-chief	Faculty of Medical Sciences, Kragujevac 2015.	Has

All lectures and material for small group work are available on the website of the Faculty of Medical Sciences:www.medf.kg.ac.rs

THE PROGRAM:

TEACHING UNIT 1 (FIRST WEEK):

INTRODUCTION TO SPORTS MEDICINE	
lectures - 2 classes	small groups activities - 1 class
Historical aspects of sports medicine. Physical activity. Physical ability.	Body composition analysis - basic anthropometric measurements.

TEACHING UNIT 2 (SECOND WEEK):

PHYSIOLOGICAL BASIS OF MUSCLE CONTRACTION	
lectures - 2 classes	small groups activities - 1 class
Neuromuscular junction. Morpho-physiological characteristics of striated muscles. Contraction of striated muscles. Types of contractions and motor unit. Types of muscle fibers and sports. Work, strength and muscle fatigue.	Dynamometry.

TEACHING UNIT 3 (THIRD WEEK):

HOMEOSTATIC MECHANISMS AND PHYSICAL ACTIVITY	
lectures - 2 classes	small groups activities - 1 class
Regulation of acid-base balance: chemical and physiological buffers. Regulation of glycemia. Regulation of calcium levels in the body. Regulation of protein metabolism.	Influence of homeostatic mechanism disorders.

UNIT 4 (FOURTH WEEK):

ADAPTATION OF THE BODY TO PHYSICAL ACTIVITY	
lectures - 2 classes	small groups activities - 1 class
Definition and basic principles of training. Effects of body adaptation to aerobic training. Effects of body adaptation to anaerobic training. Neuromuscular adaptation to training. Metabolic adaptation to training. Neuroendocrine adaptation to training. Cardiovascular adaptation to training.	Assessment of the degree of adaptation of the organism to physical activity.

UNIT 5 (FIFTH WEEK):

BIOENERGETIC DETERMINANTS OF PHYSICAL ABILITY	
lectures - 2 classes	small groups activities - 1 class
Building and energetic role of nutrients. Sources of energy in the human body. Anabolism and catabolism. Anaerobic energy resources and anaerobic capacity. Energy provision of muscle work of different duration.	Determination of aerobic and anaerobic capacity.

UNIT 6 (SIXTH WEEK):

FUNCTIONAL DETERMINANTS OF PHYSICAL ABILITY	
lectures - 2 classes	small groups activities - 1 class
Functional ability of the cardiovascular system. Functional ability of the respiratory system. Functional ability of the musculoskeletal system.	Ergospirometry

UNIT 7 (SEVENTH WEEK):

BASIC PRINCIPLES OF HYDRATION IN SPORTS	
lectures - 2 classes	small groups activities - 1 class
Changes in water-salt balance during physical exertion. Ionic homeostasis during prolonged physical activity. Effects of dehydration on the body. Principles of proper and timely hydration in sports.	Assessment of the degree of hydration and timely hydration.

UNIT 8 (EIGHTH WEEK):

BASIC PRINCIPLES OF NUTRITION IN SPORTS	
lectures - 2 classes	small groups activities - 1 class
Nutritional needs of athletes. Basic principles of correct and timely nutrition for athletes. The influence of nutritional correction on the metabolic status of the organism.	Assessment of nutrition and body composition correction mechanisms.

UNIT 9 (NINTH WEEK):

VITAMINS, MINERALS AND AMINO ACIDS AS SUPPLEMENTS IN SPORTS	
lectures - 2 classes	small groups activities - 1 class
exercises 1 hourBasic characteristics of vitamins and minerals as nutritional supplements. The influence of the most important vitamins and minerals on metabolic processes and the function of organic systems. Amino acids and proteins as dietary supplements. The influence of the use of amino acids and proteins on metabolic processes and the function of organic systems.	The most common practical questions related to the use of supplements.

UNIT 10 (TENTH WEEK):

INJURIES AND DISEASES OF THE LOCOMOTIVE APPARATUS	
lectures - 2 classes	small groups activities - 1 class
Acute injuries in sports. Deformations of the spinal column and back pain. Flat feet.	Basic principles of care for sports injuries.

UNIT 11 (ELEVENTH WEEK):

SPORTS CARDIOLOGY	
lectures - 2 classes	small groups activities - 1 class
Methodology of cardiological examination of athletes. Sports heart. The most common cardiological conditions and diseases in athletes. The most important cardiac diseases that can lead to sudden cardiac death.	Electrocardiography in sports medicine.

UNIT 12 (Twelfth Week):

DOPING IN SPORTS AND DOPING CONTROL	
lectures - 2 classes	small groups activities - 1 class
Doping control. Prohibited substances. Exemption for therapeutic use.	Doping control.

UNIT 13 (THIRTEENTH WEEK):

THE CONCEPT OF STRESS AND THE RELATIONSHIP BETWEEN STRESS AND PHYSICAL ACTIVITY	
lectures - 2 classes	small groups activities - 1 class
Stress theory, stages of stress, stressor. The role of sports and recreation according to the modern theory of functional systems in the adaptation of the organism to the harmful effects of stress. The occurrence of overtraining, its implication on the functional abilities of athletes. Chronobiology and its importance in sport. Circadian rhythms.	Assessment of the response and adaptation of the organism to stress.

UNIT 14 (FOURTEENTH WEEK):

PSYCHOLOGY OF SPORTS AND EXERCISE	
lectures - 2 classes	small groups activities - 1 class
Exercise and mental health. Psychological characteristics of athletes. Eating disorders in sports.	Analysis of cognitive abilities in sports.

UNIT 15 (FIFTEENTH WEEK):

FUNCTIONAL CHARACTERISTICS AND PHYSICAL ACTIVITY OF SPECIAL GROUPS	
lectures - 2 classes	small groups activities - 1 class
Functional characteristics and physical activity of children. Functional characteristics and physical activity of women. Functional characteristics and physical activity of old people.	Assessment of physical ability of special groups.

WEEKLY COURSE SCHEDULE

COURSE	THURSDAY	FRIDAY
SPORTS MEDICINE (2+1)	**LECTURES** **12:15 - 13:45** (Institute for Emergency Medical Assistance)	**PRACTICE** **13:15 - 16:15** (R33, R9-2)

	Type	Method unit name	A teacher
1	**L**	Introduction to sports medicine.	Prof. Ivan Srejović
1	**SGA**	Body composition analysis - basic anthropometric measurements.	Doc. Marina Nikolić Asst. Maja Murić
2	**L**	Physiological basis of muscle contraction.	Prof. Gvozden Rosić
2	**SGA**	Dynamometry.	Doc. Marina Nikolić Asst. Maja Murić
3	**L**	Homeostatic mechanisms and physical activity.	Prof. Gvozden Rosić
3	**SGA**	Influence of homeostatic mechanism disorders.	Doc. Marina Nikolić Asst. Maja Murić
4	**L**	Adaptation of the organism to physical activity.	Doc. Marina Nikolić
4	**SGA**	Assessment of the degree of adaptation of the organism to physical activity.	Doc. Marina Nikolić Asst. Maja Murić
5	**L**	Bioenergetic determinants of physical ability.	Prof. Jovana Joksimović Jović
5	**SGA**	Determination of aerobic and anaerobic capacity.	Doc. Marina Nikolić Asst. Maja Murić
6	**L**	Functional determinants of physical ability.	Prof. Jovana Joksimović Jović
6	**SGA**	Examination of functional abilities.	Doc. Marina Nikolić Asst. Maja Murić
7	**L**	Basic principles of hydration in sports.	Prof. Vladimir Jakovljević
7	**SGA**	Assessment of the degree of hydration and timely hydration.	Doc. Marina Nikolić Asst. Maja Murić
8	**L**	Basic principles of nutrition in sports.	Doc. Marina Nikolić

	Type	Method unit name	A teacher
8	**SGA**	Assessment of nutrition and body composition correction mechanisms.	Doc. Marina Nikolić Asst. Maja Murić
9	**L**	Vitamins, minerals and amino acids as supplements in sports.	Doc. Jasmina Sretenović
9	**SGA**	The most common practical questions related to the use of supplements.	Doc. Marina Nikolić Asst. Maja Murić
10	**L**	Injuries and diseases of the locomotive apparatus.	Prof. Ivan Srejović
10	**SGA**	Basic principles of care for sports injuries.	Doc. Marina Nikolić Asst. Maja Murić
11	**L**	Sports cardiology.	Prof. Vladimir Živković
11	**SGA**	Electrocardiography in sports medicine.	Doc. Marina Nikolić Asst. Maja Murić
MODULE TEST			
12	**L**	Doping in sports and doping control.	Doc. Jasmina Sretenović
12	**SGA**	Doping control.	Doc. Marina Nikolić Asst. Maja Murić
13	**L**	The concept of stress and the connection between stress and physical activity.	Prof. Dragica Selaković
13	**SGA**	Assessment of the response and adaptation of the organism to stress.	Doc. Marina Nikolić Asst. Maja Murić
14	**L**	Psychology of sport and exercise.	Prof. Dragica Selaković
14	**SGA**	Analysis of cognitive abilities in sports.	Doc. Marina Nikolić Asst. Maja Murić
15	**L**	Functional characteristics and physical activity of special groups.	Doc. Marina Nikolić

	Type	Method unit name	A teacher
15	**SGA**	Assessment of physical ability of special groups.	Doc. Marina Nikolić Asst. Maja Murić
	E	**FINAL EXAM** (June deadline)	