	UČNI NAČRT PREDMETA/COURSE SYLLABUS
Predmet	**Anatomija, fiziologija in patologija**
Course title	**Anatomy, Physiology and Pathology**

Študijski program in stopnja **Study programme and level**	**Študijska smer** **Study field**	**Letnik** **Academic year**	**Semester** **Semester**
Fitoterapija	Ni smeri študija	1. letnik	1.
Phytotherapy	No study field	1st year	1st

Vrsta predmeta/Course type	obvezni/obligatory

Univerzitetna koda predmeta/University course code	FIT_1_UN1

Predavanja **Lectures**	**Sem. vaje** **Tutorial**	**Kab. vaje** **Cabinet tutorial**	**Lab. vaje** **Laboratory work**	**Teren. vaje** **Field work**	**Samost. delo** **Individ. work**	**ECTS**
60			30		135	9

Nosilec predmeta/Lecturer:	Marjeta Kladnik Jene, pred.

Jeziki/ **Languages:**	**Predavanja/Lectures:**	slovenski/Slovenian
	Vaje/Tutorial:	slovenski/Slovenian

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
• Vpis v prvi letnik študijskega programa. • Študent mora pred izpitom opraviti kolokvij iz laboratorijskih vaj.	• The prerequisite for inclusion is enrolment in the first year of study. • Students have to pass preliminary exam – laboratory work.

Vsebina:	**Content (Syllabus outline):**
Anatomija (20 P, 10 LV) • *Splošna anatomija*. Definicija anatomije in histologije. Strukturne ravni telesa. Organski sistemi. Anatomska terminologija. Orientacijske ravnine in smeri. Zgradba celice. Osnovne vrste tkiv. • *Skelet.* Oblike kosti. Specialna osteologija. Kosti glave, trupa, zgornjega in spodnjega uda. • *Zveze med kostmi*. Splošna artrologija. Vrste sklepov. Specialna artrologija. Sklepi glave, trupa, ramenskega obroča in zgornjega uda, medeničnega obroča in	***Anatomy*** (30 lectures, 15 hours of laboratory work) • *General Anatomy.* Definition of Anatomy and Histology. Structural levels of the body. Organ systems. Anatomical terminology. Orientation planes in the body. The cell structure. Basic tissue types. • *Skeleton.* Forms of the bones. Special osteology. Bones in the head, torso, the upper and lower limb. • *Bone ligaments.* General arthrology. Types of joints. Special arthrology. Head, torso, shoulder joints, upper and lower

spodnjega uda. Hrustančevina in kostnina.

- *Mišičje. Splošna miologija.* Delitev glede na zgradbo, mikroskopski videz, izvajanje giba, smer delovanja in vrsto gibov. *Specialna miologija*. Mišice glave in vratu. Mišice trupa. Mišice zgornjega in spodnjega uda. Mišičnina. Funkcionalna anatomija sklepov in mišičja.
- *Živčevje.* Živčno tkivo. Razdelitev živčevja glede na področje in način delovanja. Centralno živčevje (možgani, hrbtenjača). Periferno živčevje (možganski in hrbtenjačni živci).
- Čutila. Splošna čutila. Specialna čutila za okus, voh, ravnotežje in sluh, vid.
- *Prebavila.* Prebavna cev in prebavne žleze. Splošna zgradba prebavne cevi. Ustna votlina. Žrelo. Požiralnik. Želodec. Tanko in debelo črevo. Žleze slinavke. Jetra. Žolčnik. Trebušna slinavka. Potrebušnica.
- *Dihala.* Nosna in obnosne votline. Grlo. Sapnik in sapnice. Pljuča. Plevra.
- *Obtočila.* Veliki in mali krvni obtok. Srce. Krvne žile. Limfni obtok.
- *Limfni sistem.* Primarni in sekundarni limfni organi. Limfno tkivo v sluznicah. Tonzile.
- *Sečila.* Ledvice. Sečna izvodila. Sečni mehur.
- *Moška spolovila.* Modo. Modnik. Semenska izvodila in pomožne spolne žleze. Spolni ud.
- *Ženska spolovila.* Jajčnik. Jajcevod. Maternica. Nožnica. Zunanje spolovilo.
- *Endokrine žleze.* Možganski privesek. Češerika. Ščitnica. Obščitnica. Nadledvični žlezi.
- *Koža in njeni derivati.* Zgradba kože. Kožni produkti in kožne žleze.

Fiziologija (20 P, 10 LV)

- *Definicija fiziologije.* Fiziološki principi.
- *Fiziologija celice.* Organeli.
- *Fiziologija skeleta.*
- *Mišična kontrakcija.*
- *Fiziologija obtočil.* Kri. Srce. Stimulacija srca. EKG. Mehanska funkcija srca. Krvne

limb joints, pelvis joints. Cartilage and bones structure.

- *Muscles. General myology*. Division according to the structure, microscopic view, movement performance, direction of movements and types. *Special myology*. Muscles of the head and neck. Torso muscles. Upper and lower limb muscles. Muscle tissue. Functional anatomy of joints and muscles.
- *Nerves.* Nervous tissue. Division of the nervous system based on the way of functioning and its area. Central nervous system (brain, spinal cord). Peripheral nervous system (cranial nerves and spinal nerves).
- *Senses.* Basic senses. Special senses for taste, smell, touch, balance, hearing and sight.
- *Digestive system*. Gastrointestinal tract and glands. The basic structure of the gastrointestinal tract. Oral cavity. Pharynx. Oesophagus. Stomach. Small and large intestine (colon). Salivary gland. Liver. Gallbladder. Pancreas. Pancreatic duct. Peritoneum.
- *Respiratory system*. Nasal and paranasal cavities. Larynx. Trachea and bronchus. Lungs. Pleura.
- *Cardiovascular system*. Large and small blood circles. Heart. Blood vessels. Lymph circulation.
- *Lymphatic system*. Primary and secondary lymphoid organs. Mucosa- associated lymphoid tissue. Tonsils.
- *Urinary tract*. Kidneys. Ureter. Bladder. Urethra.
- *Male reproductive system*. Testicles. Scrotum. Epididymis and accessory glands. Penis.
- *Female reproductive system*. Ovary. Oviduct. Uterus. Vagina. The external organs.
- *Endocrine glands*. Pituitary gland (hypophysis). Pineal body (epiphysis). Thyroid gland. Parathyroid gland. Adrenal glands.
- *Skin and its derivatives*. Skin structure. Skin products and skin glands.

žile. Krvni obtok. Arterijski pritisk. Hemostaza. Krvne skupine.

- *Dihanje*. Delo pri dihanju. Pljučne prostornine in kapacitete. Prenos plinov. Nadzor dihanja.
- *Živčevje.* Centralno in periferno živčevje. Somatsko in vegetativno živčevje. Višje dejavnosti živčnega sistema.
- *Čutila.* Definicija receptorjev. Mišičje, oko, uho, okus, voh.
- *Delovanje ledvic.*
- *Presnova in telesna temperatura.* Presnova ogljikovih hidratov, beljakovin in maščob. Uravnavanje presnove. Termoregulacija.
- *Prebava.* Mehanska in kemična prebava. Absorbcija v prebavilih. Naloge debelega črevesa. Naloge jeter.
- *Endokrini sistem.*
- *Osnove imunologije.* Naravna in pridobljena imunost. Imunski sistem. Funkcija limfatičnih organov.

Patologija (20 P, 10 LV)

- *Splošna patologija*.
- *Osnovni pojmi*. Definicija zdravja in bolezni. Homeostaza. Lezija. Etiologija. Patogeneza.
- *Nomenklatura*. Bolezni srca, Bolezni krvi in krvotvornih tkiv, Bolezni dihal, Bolezni sečil, Bolezni prebavil, Bolezni jeter, žolčnika in eksokrinega dela trebušne slinavke, Bolezni endokrinega sistema, Bolezni spolovil in rodil, Bolezni lokomotornega sistema, Bolezni kože, Bolezni živčevja, Pigmenti in konkrementi.
- *Preiskave v klinični patologiji*. Histološka in citološka biopsija.
- *Obdukcija.*
- *Osnovne reakcije celic in tkiv*. Reakcije prilagoditve. Okvare celic. Smrt celic (tkiv). Adaptacijski mehanizmi.
- *Vnetje in obnova*. Delitev vnetij. Motnje obtoka telesne tekočine. Mehanizmi popravljanja poškodb,
- *Motnje krvnega obtoka*. Imunske bolezni.
- *Novotvorbe*. Benigne novotvorbe. Maligne novotvorbe. Klasifikacija benignih in

Physiology (30 lectures, 15 hours of laboratory work)

- *Definition of physiology*. The principles of physiology.
- *Physiology of the cell.* Organelles.
- *Physiology of the skeleton.*
- *Muscles contraction*.
- *Physiology of the cardiovascular system*. Blood. Heart. Stimulation of the heart. ECG. Mechanical heart function. Blood vessels. Cardiovascular system. Arterial pressure. Haemostasis. Blood types.
- *Breathing*. Work of ventilation. Lung capacities and volumes. The gas exchange. Control of breathing.
- *Nervous system*. Central nervous system and peripheral nervous system. Somatic nervous system and autonomic nervous system. Higher functions of the nervous system.
- *Senses.* Defining the receptors. Muscles, eye, ear, taste and smell.
- *Kidney function.*
- *Metabolism and body temperature*. Metabolism of carbohydrates, proteins and lipids. Metabolism. Thermoregulation.
- *Digestion*. Mechanical and chemical digestion.
- *Endocrine system*.

Pathology (30 lectures, 15 hours of laboratory work)

- *General pathology.*
- *Basic terms*. Definition of health and disease. Homeostasis. The lesion. Etiology. Pathogenesis.
- *Nomenclature*. Diseases of the heart, Diseases of blood and hematopoietic tissues, Diseases of the respiratory tract, Diseases of the urinary tract, Gastrointestinal diseases, Diseases of the liver, gallbladder and exocrine part of the pancreas, Diseases of the endocrine system, Diseases of the genital and genital tract, Diseases of the locomotor system, Diseases of the skin, Pigments and concretions.

malignih novotvorb. Zasevanje. Stadij bolezni. • *Škodljivi dejavniki – dejavniki okolja in notranji dejavniki*. Onesnaženje zraka. Infekcijski dejavniki. Nutricijski dejavniki. *Staranje, smrt in osnove tanatologije*. Laboratorijske vaje: • Prikaz anatomskih struktur s pomočjo anatomskih modelov. • Prikaz fizioloških procesov v telesu: dinamika dihanja, uravnavanje krvnega sladkorja, strjevanje krvi, določanje krvnih skupin. • Diagnostični postopki v patologiji.	• *Diagnostic procedures in clinical pathology*. Histological and cytological biopsy. • *Autopsy*. • *Basic reactions of cells and tissues*. Cell adaptation. Cell damage. Cell (tissue) death. Adaptation mechanisms. • *Infection and renewal*. Categorisation of infections. Body fluids circulation disorders. • *Blood circulation disorders.* Immune diseases. • *Neoplasia*. Benign and malignant tumours. Classification of tumours. Metastases. Staging of the disease. • *Harmful environmental factors*. Air pollution. Infectious factors. Nutritional factors. • *Aging, death and fundamentals of thanatology.* Laboratory work: • Demonstration of anatomical structures using anatomical models. • Demonstration of physiological processes in the body: dynamics of respiration, regulation of blood sugar, blood clotting, determination of blood groups. • Diagnostic procedures in pathology.

Temeljna literatura in viri/Readings:

Temeljna literatura/Basic literature

- Štiblar Martinčič, D., Cvetko, E., Coer, A., Marš, T., Finderle, Ž. (2021). A*natomija, histologija in fiziologija. 3. izdaja.* Ljubljana: Medicinska fakulteta.
- Dahmane, R. (2005). *Ilustrirana anatomija. 2. izdaja.* Ljubljana: Tehniška založba Slovenije.
- Paulsen, D. F. and Waschke, J. (2011). *Sobotta Atlas of Human Anatomy: The exam atlas for understanding, learning, and training anatomy.* Urban & Fischer.
- Pocajt, M. (2001). *Anatomija in fiziologija za medicinske šole.* Ljubljana: DZS.
- Putz, R. (2008). Sobotta - Atlas of Human Anatomy. (English and Latin Edition). http://www.ii4u.com/Reinhard-Putz-PDF1458909.PDF
- Jančar, J. (2009). *Osnove patologije*. Radovljica: Didakta d.o.o.

Priporočljiva literatura/Recommended literature

- Kindlen, S., Peattie, P. (2003). Physiology for Health Care and Nursing. Elsevier Health Sciences.

Cilji in competence:	**Objectives and competences:**
Učna enota prispeva predvsem k razvoju naslednjih splošnih in specifičnih kompetenc: • usvojitev temeljnega znanja medicinskih ved: anatomija, fiziologija, • sposobnost povezovanja znanja s področij anatomije in fiziologije ter njegova aplikacija, • usposobljenost za sprejemanje odgovornosti za profesionalni razvoj in učenje, izboljševanje lastnega dela skozi evalvacijo z namenom, da se zagotovi kvaliteta storitev, • usposobljenost prepoznati in interpretirati znake normalnega in spreminjajočega se zdravja, • usposobljenost za uporabo informacijsko-komunikacijske tehnologije.	*The learning unit mainly contributes to the development of the following general and specific competences:* • the acquisition of basic knowledge in medical sciences: anatomy, physiology, • the ability to integrate and apply the knowledge of anatomy and physiology, • being qualified for the responsibility of professional development and learning, improving work through the evaluation, striving to ensure the quality of service, • being qualified to recognize and interpret signs of normal and changing health, • being qualified to use information and communication technologies.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Študent/študentka: • usvoji znanje o zgradbi človekovega telesa, • usposobi se za uporabo strokovne latinske terminologije, • pridobi znanje iz anatomije in osnovne pojme iz histologije, • seznani se s posameznimi variacijami in anomalijami, • spozna in usvoji osnove delovanja zdravega človeškega organizma, • razume fiziološke procese na nivoju posameznih organov in vloge posameznega organa, • usvoji osnovne veščine merjenja fizioloških parametrov, ki odražajo delovanje organov oziroma organskih sistemov, • spozna sodobne osnove patologije, • seznani se s temeljnimi preiskavami v patologiji, • spozna etiologijo bolezni, • pridobi znanje o diagnostičnih postopkih v patologiji,	***Students:*** • acquire knowledge about the structure of the human body, • are qualified to use the professional Latin terminology, • acquire knowledge from anatomy and basic concepts of histology, • familiarize themselves with individual variations and anomalies, • acquire the basics of a healthy human organism functions, • understand the physiological processes at the level of individual organs and roles of the organs, • acquire basic skills for measuring physiological parameters, reflecting the functionality of organs or organ systems, • evaluate and quantitatively show a physiological status of a patient, • meet the modern fundamentals of pathology, • familiarize themselves with fundamental investigations in pathology, • know the aetiology of the disease, • acquire knowledge of diagnostic procedures in pathology,

• usposobi se za sodelovanje v strokovnih diskusijah, zastopa svoje mnenje in kritično presoja mnenje drugih.	• are qualified to participate in professional discussions, represent their opinion and critically assess the views of others.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• *predavanja* z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov), • *laboratorijske vaje:* reševanje problemskih situacij, študije primera, metode kritičnega mišljenja, diskusija, refleksija izkušenj, individualno delo.	• *lectures* with active student participation (explanation, discussion, questions, examples, problem solving); • *tutorial:* problem solving, case studies with discussion, methods of critical thinking, reflection of experience, individual study.

Načini ocenjevanja:	Delež (v %) Weight (in %)	**Assessment:**
Način: <u>izpit:</u> • anatomija • fiziologija • patologija <u>vaje:</u> • kolokvij iz anatomije • opravljene naloge zbrane v portfolio na vajah iz fiziologije in patologije Uspešno opravljene laboratorijske vaje (uspešno opravljen kolokvij pri anatomiji, pozitivna ocena portfolia pri fiziologiji in patologiji) so pogoji za pristop k delnemu izpitu iz posameznega področja. Opravljen delni izpit iz anatomije je pogoj za pristop k delnima izpitoma iz fiziologije in patologije.	<u>90 % :</u> 30 %, 30 %, 30 %. <u>10 %:</u> vsak del prispeva 20 % k oceni delnega izpita Each part contributes 20% of the final mark of the corresponding partial exam)	Types: <u>exam:</u> • anatomy • physiology • pathology <u>laboratory work:</u> • preliminary exam in anatomy • accomplished assignments collected in a portfolio for both, physiology and pathology Successfully completed laboratory work (successfully accomplished preliminary exam in anatomy, a positive mark of portfolio for physiology and pathology) are the primary conditions for taking the partial exam in the individual areas. The successfully accomplished partial examination in anatomy is a precondition to take the partial exams in physiology and pathology.

Ocenjevalna lestvica: ECTS.		Grading scheme: ECTS.