



2018-1-SK01-KA203-046318

O4

Metadatenbeschreibung des Outcome-basierten Curriculums

BCIME Team



**MUNI
MED**

Uia
Universität
Augsburg
University



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Beschreibung des Arbeitspaketes

Output Bezeichnung	O4
Output Titel	Ergebnisbasierte Curriculum-Auswertung
Output Beschreibung (einschließlich: Elemente der Innovation, erwartete Auswirkungen und Übertragbarkeitspotenzial)	Dieser Output umfasst eine detaillierte formale parametrische Spezifikation von zwei Teilen des medizinischen und gesundheitspolitischen Curriculums an jeder Partnerinstitution (Haupt- und Ergänzungsfächer) in Übereinstimmung mit etablierten Richtlinien, bewährten Verfahren und ergebnisbasierter Methodik. Dieser Ansatz bietet einen ansprechenden Weg zur Entwicklung und effektiven Reform der medizinischen Ausbildung in Bezug auf die Anforderungen der lokalen Institution, wobei der Schwerpunkt auf dem Produkt liegt - welche Art von Absolventen hervorgehen sollen - und nicht auf dem Bildungsprozess selbst. Curriculum-Entwickler (Lehrer, Garanten) erstellen detaillierte Metadaten-Beschreibungen auf der Ebene bestimmter Kurse, Lerneinheiten und Ergebnisse.
Output Typ	Methodiken / Richtlinien - Methodischer Rahmen für die Implementierung
Die Arbeitsteilung der Aufgaben, die zur Produktion des intellektuellen Outputs führen, und die angewandte Methodik	Folgende Aufgaben bestehen für die einzelnen Partnerinstitutionen *** UPJS - Erstellung von ergebnisbasierten Metadaten zur Beschreibung der wichtigsten und ergänzenden medizinischen Disziplinen. *** JU - Erstellung von ergebnisbasierten Metadaten zur Beschreibung der wichtigsten und ergänzenden medizinischen Disziplinen. *** UMF - Erstellung von ergebnisbasierten Metadaten zur Beschreibung der wichtigsten und ergänzenden medizinischen Disziplinen. *** UAU - Erstellung von ergebnisbasierten Metadaten zur Beschreibung der wichtigsten und ergänzenden medizinischen Disziplinen. *** MU - Erstellung von ergebnisbasierten Metadaten zur Beschreibung der wichtigsten und ergänzenden medizinischen Disziplinen.
Startdatum	01-07-2019
Enddatum	30-11-2020
Sprachen	Tschechisch Englisch Deutsch Polnisch Rumänisch Slowakisch
Medien	Datenbank Papier-Broschüre
Leitende Organisation	UNIVERSITATEA DE MEDICINA SI FARMACIE GRIGORE T.POPA IASI
Beteiligte Organisationen	UNIVERZITA PAVLA JOZEFA SAFARIKA V KOSICIACH Masarykova univerzita UNIVERSITAET AUGSBURG UNI WERSYTET JAGIELLONSKI

1. Einleitung

In einer digitalen Welt muss eine immer größere Menge an Informationen nicht nur gespeichert, sondern auch verarbeitet, analysiert, ausgewertet und den jeweiligen Benutzern zur Verfügung gestellt werden. Daher werden die strukturierten Daten oft durch Metadaten (oder manchmal auch als Metadaten) beschrieben, die das Suchen und Arbeiten mit Informationen erleichtern. Um die mit dem Curriculum verbundenen Daten zu verarbeiten und bestimmten Benutzergruppen erweiterte Zuordnungs- und Übersichtsfunktionen zu ermöglichen, extrahierte das BCIME-Implementierungsteam die Inhalte des Anatomie-Curriculums und gab sie in Form von strukturierten Metadaten in die neu entwickelte Curriculum-Management-Plattform EDUportfolio ein. Dieses Framework war auch notwendig, um die Implementierung und Durchführung verschiedener textbasierter Analysen zu ermöglichen. Alle Partner verwendeten die realen Curriculumsinhalte, wie sie an ihren Universitäten gelehrt werden, und bearbeiteten sie für spätere Vergleichsstudien in englischer Sprache. Darüber hinaus wurde von jeder Partneruniversität eine ergänzende Disziplin in der jeweiligen Landessprache beschrieben.

2. Metadaten-Struktur

Die Struktur der Metadaten-Beschreibung wurde aus den Anforderungen und Empfehlungen abgeleitet, die kontinuierlich in den zuvor fertiggestellten intellektuellen Ergebnissen des BCIME-Projekts identifiziert wurden (siehe O1, O2 und O3). Das folgende Diagramm stellt das verallgemeinerte Schema der Metadaten-Kategorisierung dar, wie es in EDUportfolio entworfen wurde (siehe Abb. 1).

Für eine umfassendere Betrachtung der Komplexität des methodischen Rahmens muss das vorgestellte Schema mit der Anzahl der Studiengänge multipliziert werden, die von einer bestimmten Universität angeboten werden. Dann muss es wieder mit der Anzahl der Universitäten/Fakultäten multipliziert werden, die in den Prozess der Curriculum-Erstellung involviert sind, wie es in der EDUportfolio-Plattform konzipiert wurde.

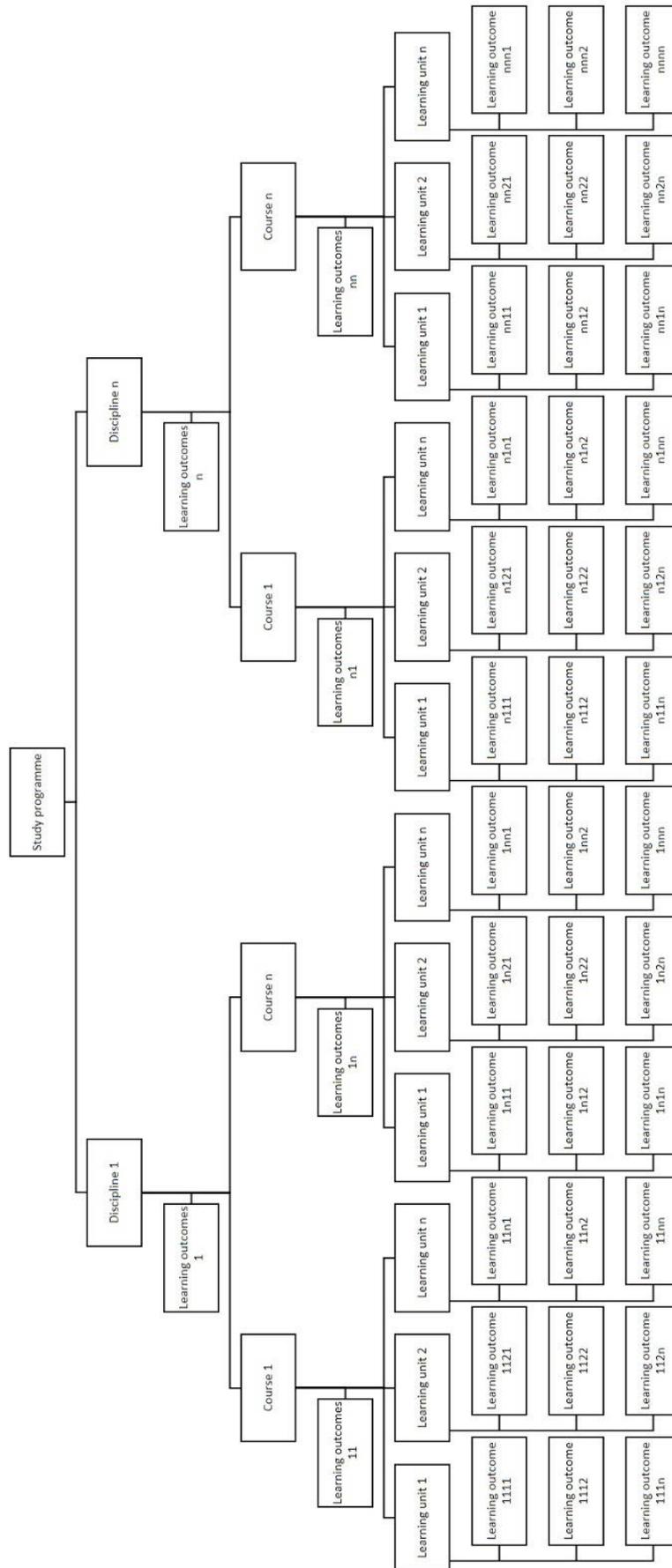


Abb. 1 Das verallgemeinerte Schema der Metadaten-Kategorisierung in EDUportfolio.

3. Beschreibung der Metadaten

3.1 Metadatenbeschreibung der Anatomie

Alle Partner beschrieben das Anatomie-Curriculum auf Englisch. Darüber hinaus einigte sich das BCIME-Team darauf, lateinische Begriffe in Schlüsselwörtern anzugeben, da diese in dieser medizinischen Disziplin häufig verwendet werden. Es wurden verschiedene Unterschiede innerhalb des Konsortiums festgestellt, da es in den Partnerländern unterschiedliche Bildungssysteme gibt. Zum Beispiel wurde in Deutschland das Curriculum übersetzt und in Form von Lernzielen in das EDUportfolio eingegeben. Sie verwendeten nur die Lernziele, die sich auf Anatomie beziehen, aus ihrem nationalen kompetenzbasierten Katalog und ordneten sie den vier Kursen (Modulen) zu, die sie in das Curriculum der Universität Augsburg integrieren wollen. Da UAU kein disziplinbasiertes Curriculum hat, war es ein gangbarer Weg, diese Metadatenbeschreibung vorzunehmen und keine "künstlich" geschaffenen Lerneinheiten in die Metadaten zu setzen. Andererseits zeigten die tschechischen und slowakischen Curricula eine hohe Ähnlichkeit, was auf das ähnliche Bildungssystem zurückzuführen ist, obwohl es in diesen Partnerländern keine nationalen Lernziele oder Lernzielkataloge gibt.

Alle Studiengänge aller Partnerinstitutionen können von einer Stelle in EDUportfolio abgerufen werden, wie in der folgenden Abbildung dargestellt.

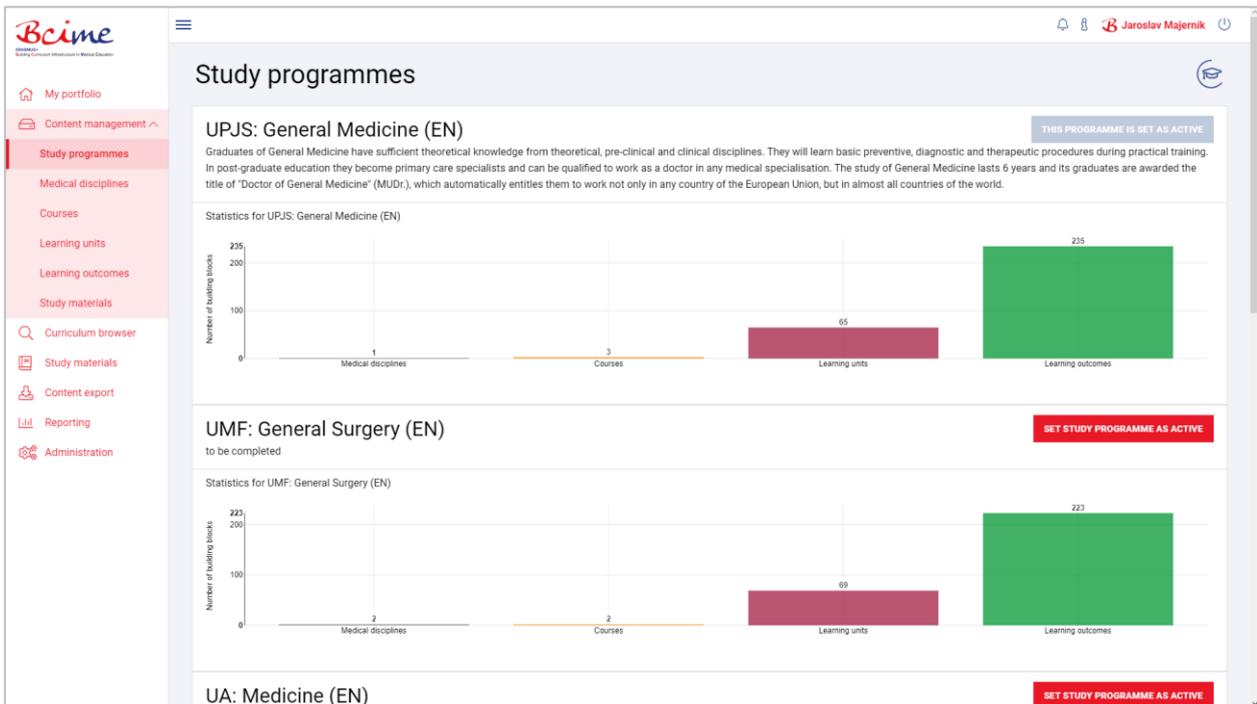


Abb. 2 Übersicht der in EDUportfolio abgebildeten Studiengänge.

Der aktuelle Stand der Anatomie-Metadatenbeschreibung, die in der EDUportfolio-Plattform beschrieben wird, ist in Tabelle 1 zusammengefasst. Die grafische Darstellung des Inhalts des Anatomie-Curriculums ist in den Abbildungen 3, 4 und 5 dargestellt.

Tab. 1. Überblick über die in EDUportfolio beschriebenen anatomiebezogenen Curriculum-Bausteine.

Institution	Disziplinen	Kurse	Lerneinheiten	Lernziele
UPJS	1	3	67	237
UMF	2	2	69	223
UAU	2	4	N/A	407
JU	1	1	52	13
MU	3	5	21	132

Abb. 3 Beispiel-Kurse mit Bezug zur Anatomie, die im EDUportfolio abgebildet sind.

Abb. 4 Beispiel-Lerneinheiten zum Thema Anatomie, die im EDUportfolio abgebildet sind.

Learning outcomes

Show 25 entries

Title	Level	Action
Student analyzes anatomical structures and parts of brain		Q
Student analyzes function of Branchial plexus		Q
Student analyzes function of Lumbar and Sacral plexus		Q
Student analyzes gender differences of pelvis		Q
Student analyzes surface anatomy		Q
Student categorizes components of Pericardium		Q
Student characterizes anatomical structure and function of spinal cord		Q
Student characterizes anatomical structures of the head		Q
Student characterizes anatomical structures of the neck		Q
Student characterizes and distinguishes parts of cerebrospinal fluid system		Q
Student characterizes arterial anastomoses of the neck		Q
Student characterizes borders of midbrain		Q
Student characterizes branches of abdominal aorta		Q
Student characterizes central and peripheral nervous system		Q
Student characterizes connection of bones		Q
Student characterizes different types of nerve tracts		Q
Student characterizes dislocations of particular parts of lower limb		Q
Student characterizes dislocations of particular parts of upper limb		Q
Student characterizes division of midbrain		Q

Count of entries: 235
My entries: 0
Finished?: 0%
Last modified:

Abb. 5 Beispiel-Lernziele in Bezug auf Anatomie, die im EDUportfolio abgebildet sind.

3.2 Metadatenbeschreibung von Neurochirurgie

Die komplementäre medizinische Disziplin Neurochirurgie wurde vom UMF-Team in rumänischer Sprache beschrieben. Neurochirurgie an der UPMF wird im 5. Jahr während vier Vorlesungen und sieben klinischen Lektionen gelernt. Die Lerneinheiten und Lernziele wurden definiert, um das Interesse der Studenten durch Interaktivität und Dynamik zu steigern. Die bereits beschriebenen einzelnen Bausteine beinhalten folgende Ergebnisse:

- Disziplinen: 2 (Anatomie und Neurochirurgie)
- Kurse: 11
- Lerneinheiten: 390
- Lernziele: 333

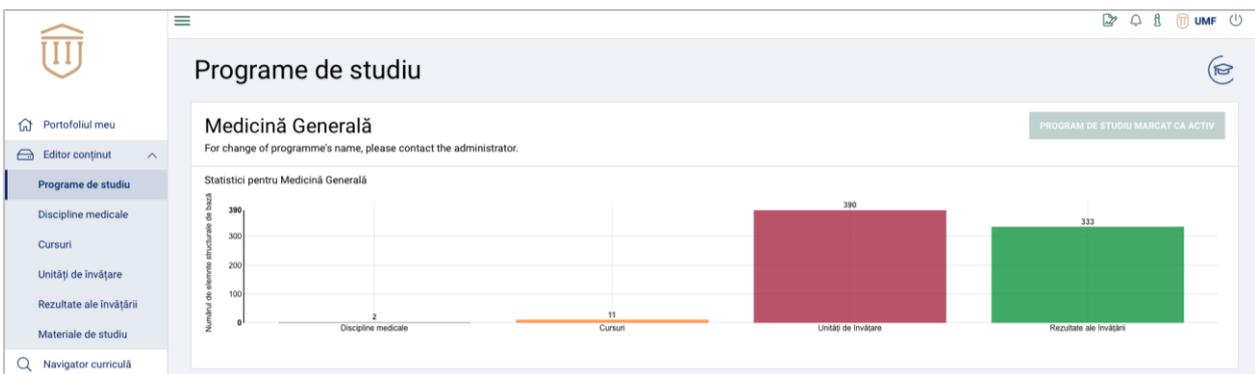


Abb. 6 Übersicht über die von UMF in EDUportfolio abgebildeten Studiengänge.

Titlu	Status	Curs	Acțiune
Dezvoltarea cordului. Formarea tubului și ansei cardiace. Dezvoltarea sinusului venos.	Finalizat	OLD A1S2	Q
Dezvoltarea sistemului vascular arterial, venos și limfatic.	Finalizat	OLD A1S2	Q
Formarea sistemului autoexcitocductor al inimii. Formarea sistemului autoexcitocductor al inimii.	Finalizat	OLD A1S2	Q
Principii de organizare funcțională a cordului și vaselor.	Finalizat	OLD A1S2	Q
1. Scheletul trunchiului	Finalizat	A1	Q
1. Morfogeneza și principii de organizare funcțională la nivelul sistemului nervos central	Finalizat	A4	Q
1. Sistemul respirator	Finalizat	A2	Q
1. Neurocraniul	Finalizat	A3	Q
10. Vasculazatia membrului superior	Finalizat	A1	Q
10. Sistemul acustico-vestibular	Finalizat	A4	Q
10. Arterial system of head and neck	Finalizat	A3 ENG	Q
10. Sistemul arterial al capului și gâtului	Finalizat	A3	Q
11. Inervatia membrului inferior	Finalizat	A1	Q
11. Sistemul gustativ	Finalizat	A4	Q
11. The innervation of the lower limb	Finalizat	A1 ENG	Q

Abb. 7 Von UMF in EDUportfolio abgebildete Lerneinheiten der Neurochirurgie.

Titlu	Nivel	Acțiune
Student analizează anatomic coloana vertebrala, cu identificarea caracterelor generale, regionale și particulare.	Q	Q
Student analizează anatomic și explica drenajul limfatic al membrului superior	Q	Q
Student analizează anatomic și identifica arterele principale ale membrului superior	Q	Q
Student analizează anatomic și identifica venele principale ale membrului superior	Q	Q
Student analizează anatomic și imagistic a articulațiilor membrului superior liber și ale centurii membrului superior	Q	Q
Student analizează anatomic și imagistic a oaselor membrului inferior liber și ale centurii membrului inferior	Q	Q
Student analizează anatomic și imagistic articulațiile membrului inferior liber și ale centurii membrului inferior	Q	Q
Student analizează explorarea anatomică și identificarea oaselor ce constituie neurocraniul	Q	Q
Student analizează identificarea și explorarea anatomică a meningelui cranian cu identificarea prelungilor și spațiilor	Q	Q
Student analizează proiecția zonelor slabe ale peretelui abdominal	Q	Q
Student analizează proiecții și descoperiri la nivelul pereților trunchiului	Q	Q
Student analizează proiecții și descoperiri neurovasculare la nivelul membrului inferior	Q	Q
Student analizează proiecții și descoperiri neurovasculare la nivelul membrului superior	Q	Q
Student analizează the main anomalies that result from the disruption of the processes that occur during weeks 4 to 8 and during the fetal period	Q	Q

Abb. 8 Von UMF in EDUportfolio abgebildete Lerneinheiten der Neurochirurgie.

3.3 Metadatenbeschreibung der Konservativen und Prothetischen Zahnmedizin

Die Konservative und Prothetische Zahnmedizin wird von UPJS in slowakischer Sprache beschrieben. Die Beschreibung dieser zahnmedizinischen Metadaten war auch eine größere Herausforderung als bei allen anderen allgemeinmedizinischen Disziplinen, was die Besonderheiten dieser klinischen Disziplin und das praktisch orientierte Curriculum betrifft. Die Plattform wurde jedoch um das neue Disziplin (Zahnmedizin) erweitert, und hinsichtlich ihrer Universalität wurde die Beschreibung auf die gleiche Weise wie in anderen Fachgebieten vorgenommen. Die einzelnen bereits beschriebenen Bausteine enthalten:

Disziplinen: 2 (Konservative Zahnmedizin, Prothetische Zahnmedizin)



Kurse: 12 (Konservative Zahnmedizin 1, Konservative Zahnmedizin 2, Konservative Zahnmedizin 3, Konservative Zahnmedizin 4, Konservative Zahnmedizin 5, Konservative Zahnmedizin 6, Prothetische Zahnmedizin 1, Prothetische Zahnmedizin 2, Prothetische Zahnmedizin 3, Prothetische Zahnmedizin 4, Prothetische Zahnmedizin 5, Prothetische Zahnmedizin 6)

Lerneinheiten: 167

Lernziele: 580

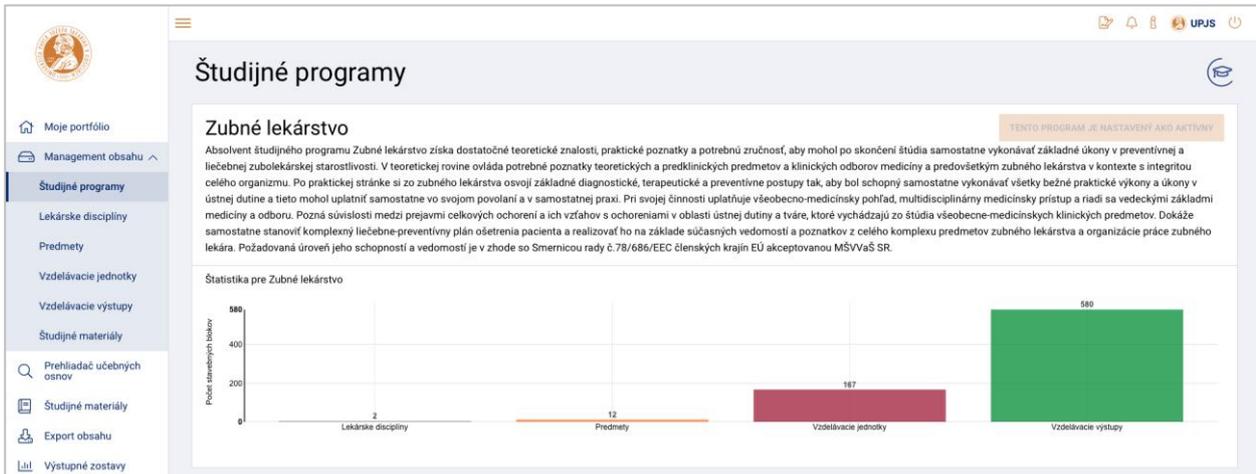


Abb. 9 Überblick über die Konservative und Prothetische Zahnmedizin, abgebildet von UPJS in EDUportfolio.

Vzdelávacie jednotky

Zobraz 25 záznamov

Názov	Stav	Predmet	Akcia
Terapia patologických stavov zubnej drene - vitálna amputácia a extripácia zubnej drene - indikácia, pracovné postupy. Vyšetrenie a ošetrovanie pacienta.	Dokončené	SK/KZL-ZL3/15	🔍 📄
Adhézia - väzba v sklovine, v dentíne. Základné princípy a otázky väzby výplňových materiálov.	Dokončené	SK/KZL-ZL2/15	🔍 📄
Adhézia a adhezíva v konzervačnom zubnom lekárstve	Dokončené	SK/KZL-ZL2/15	🔍 📄
Administratívne nariadenia a predpisy v protetike	Dokončené	SK/PrZL-ZL3/19	🔍 📄
Akútne apikálne parodontitídy - etiológia, klasifikácia, diagnostika, diferenciálna diagnostika	Dokončené	SK/KZL-ZL4/09	🔍 📄
Akútne apikálne parodontitídy - etiológia, klasifikácia, klinický obraz, diagnóza, diferenciálna diagnostika. Vyšetrenie a ošetrovanie pacienta. Vstupný test č.1 z učiva 3. a 4. roku štúdia: kariológia, endonocncia I. časť.	Dokončené	SK/KZL-ZL4/09	🔍 📄
Amalgámová výplň - história, súčasnosť, budúcnosť. Súčasné pohľady na indikáciu uvedeného výplňového materiálu	Dokončené	SK/KZL-ZL6/15	🔍 📄
Artikulačný problém	Dokončené	SK/PrZL-ZL6/15	🔍 📄
Atypické riešenia vo fixnej protetike	Dokončené	SK/PrZL-ZL3/19	🔍 📄
Atypické riešenie celkových protéz	Dokončené	SK/PrZL-ZL6/15	🔍 📄
Celkové zubné náhrady	Dokončené	SK/PrZL-ZL5/19	🔍 📄
Celoplášťové kovové korunky	Dokončené	SK/PrZL-ZL2/15	🔍 📄

Počet záznamov: 167
Moje záznamy: 0
Dokončené: 0 %
Naposledy zmenené

Abb. 10 Lerneinheiten der Konservativen und Prothetischen Zahnmedizin, abgebildet von UPJS in EDUportfolio.

Názov	Úroveň	Akcia
Študent aplikuje etiológiu akútnej apikálnej parodontitídy		
Študent aplikuje etiológiu chronickej apikálnej parodontitídy		
Študent aplikuje etiológiu dentínovej hypersenzitívy		
Študent aplikuje etiológiu hyperémie		
Študent aplikuje etiológiu nekrózy a gangrény zubnej drene		
Študent aplikuje etiológiu, diagnostiku a diferenciálnu diagnostiku		
Študent aplikuje hygienu ústnej dutiny		
Študent aplikuje klinické zásady preparácií - konvenčné		
Študent aplikuje pracovné postupy nepriameho a priameho prekrytia zubnej drene		
Študent aplikuje pracovný postup pri inlay - onlay		
Študent aplikuje preparačné pravidlá zo súčasného hľadiska		
Študent aplikuje súčasné preparačné postupy v praxi		
Študent aplikuje terapeutické možnosti akútnych a chronických apikálnych parodontitíd		
Študent aplikuje terapeutické postupy nekariéznych defektov tvrdých zubných tkanív		
Študent aplikuje terapeutické postupy so zachovaním živej zubnej drene		

Abb. 11 Lernziele der Konservativen und Prothetischen Zahnmedizin, abgebildet von UPJS in EDUportfolio.

3.4 Metadatenbeschreibung von Klinische und kommunikative Fähigkeiten

Die klinischen und kommunikativen Fähigkeiten aus dem Nationalen Kompetenzbasierten Lernzielkatalog (NKLM¹) in deutscher Sprache werden von UAU beschrieben. Die einzelnen Bausteine enthalten:

Disziplinen:	Keine (integriertes Curriculum)
Kurse:	1
Lerneinheiten:	1
Lernziele:	87

Das Curriculum an der Augsburger medizinischen Fakultät wird derzeit entwickelt, wobei die ersten Studenten im Herbst 2019 begonnen haben. Das Curriculum ist nicht disziplinbasiert, sondern folgt einem integrierten Ansatz, daher wurden traditionelle Disziplinen und Kurse nicht aufgenommen. Stattdessen sind klinische und kommunikative Fähigkeiten in vielen interdisziplinären Modulen und Kursen enthalten. Die Curriculumentwicklung basiert auf dem NKLM-Katalog und daher wurden die dort definierten Lernziele als Grundlage für dieses IO genommen. Die Lerneinheiten sind für dieses Curriculum noch nicht entwickelt worden, daher haben wir alle NKLM-Ziele einem virtuellen Kurs und einer Lerneinheit zugeordnet.



Abb. 12 Überblick über die von der UAU in EDUportfolio abgebildeten Klinischen und kommunikativen Fähigkeiten.

¹ www.nklm.de

Abb. 13 Lerneinheiten zu Klinischen und kommunikativen Fähigkeiten, wie von UAU in EDUportfolio abgebildet.

Abb. 14 Lernziele zu Klinischen und kommunikativen Fähigkeiten, wie von UAU in EDUportfolio abgebildet.

Abb. 15 Details eines Lernziels - Der Code verweist auf das NKLM-Ziel.

3.5 Metadatenbeschreibung der Kommunikationsfähigkeiten

Kommunikationsfähigkeiten in polnischer Sprache, beschrieben von JU. Die einzelnen bereits beschriebenen Bausteine enthalten:

- Disziplinen: 1 (Kommunikationsfähigkeiten einschließlich Aspekte der Professionalität (Umiejętności komunikacyjne z elementami profesjonalizmu) in der Allgemeinmedizin (Kierunek lekarski))
- Kurse: 4 (Praktisches Training klinischer Fähigkeiten 1/4 (Laboratoryjne nauczanie umiejętności klinicznych 1/4), Praktisches Training klinischer Fähigkeiten 2/4, Praktisches Training klinischer Fähigkeiten 3/4, Praktisches Training klinischer Fähigkeiten 4/4)
- Lerneinheiten: 22
- Lernziele: 33

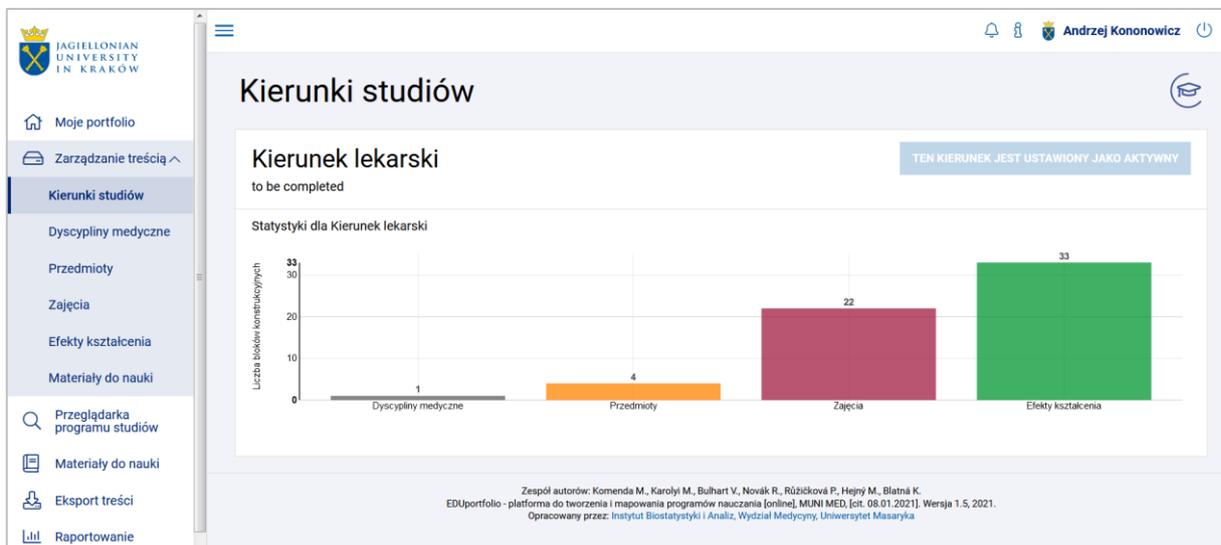


Abb. 16 Überblick über die von JU in EDUportfolio abgebildeten Kommunikationsfähigkeiten.

Tytuł	Stan	Przedmiot	Akcja
LabNuk 1/4 Zajęcia 1 Nauka umiejętności zbierania wywiadu - Informacje ogólne	Ukończone	LabNuk 1/4	[Szukaj] [Edytuj]
LabNuk 1/4 Zajęcia 2 Nauka umiejętności zbierania wywiadu - Perspektywa biomedyczna	Ukończone	LabNuk 1/4	[Szukaj] [Edytuj]
LabNuk 1/4 Zajęcia 3 Nauka umiejętności zbierania wywiadu - Perspektywa Pacjenta	Ukończone	LabNuk 1/4	[Szukaj] [Edytuj]
LabNuk 1/4 Zajęcia 4 - Nauka umiejętności zbierania wywiadu - powtórka	Ukończone	LabNuk 1/4	[Szukaj] [Edytuj]
LabNuk 2/4 Zajęcia 1 Przekazywanie Informacji - wstęp	Ukończone	LabNUK 2/4	[Szukaj] [Edytuj]
LabNuk 2/4 Zajęcia 2 Przekazywanie Informacji - sytuacje zaawansowane	Ukończone	LabNUK 2/4	[Szukaj] [Edytuj]
LabNuk 2/4 Zajęcia 3 Dialog Motywujący	Ukończone	LabNUK 2/4	[Szukaj] [Edytuj]

Abb. 17 Lerneinheiten zu Kommunikationsfähigkeiten, wie von JU in EDUportfolio abgebildet.

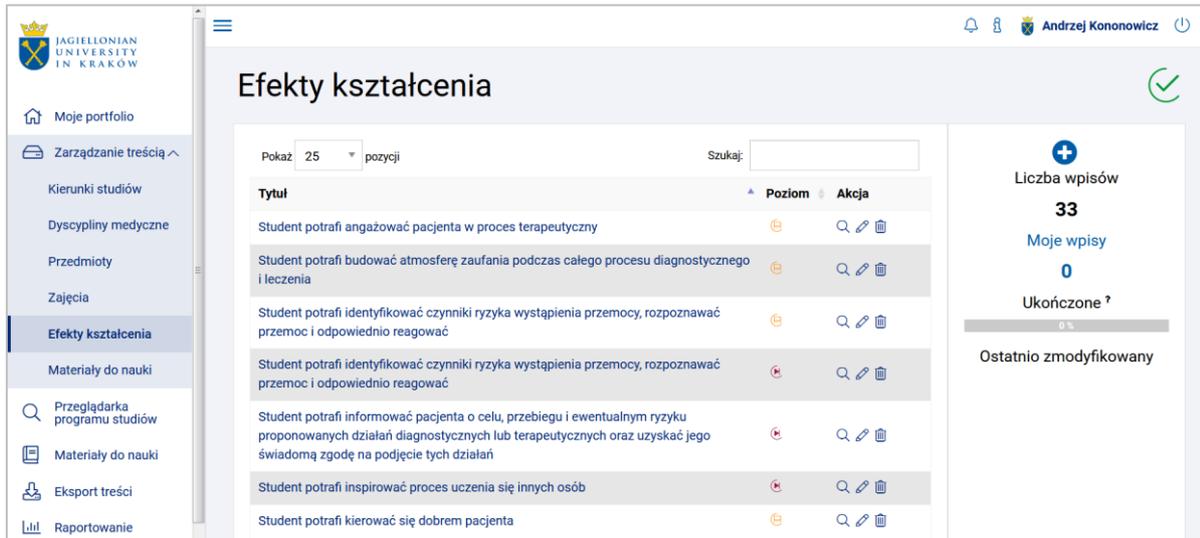


Abb. 18 Lernziele der Kommunikationsfähigkeiten, wie von JU im EDUportfolio abgebildet.

3.6. Metadatenbeschreibung der Fachrichtung Analyse, Datenmanagement und Informatik für die Spezialisierung im Gesundheitswesen

Analyse, Datenmanagement und Informatik für die Spezialisierung im Gesundheitswesen in Tschechisch beschrieben von MU. Die fortgeschrittene Datenanalyse für Neurowissenschaften umfasst eine Reihe von Zielen, um das Wissen und die praktischen Fähigkeiten der Datenanalyse der Studenten zu verbessern, indem sie fortgeschrittene multivariate Methoden der medizinischen Datenanalyse mit Rücksicht auf die Besonderheiten von großen Datendateien in der neurowissenschaftlichen Forschung lehren. Der Schwerpunkt liegt dabei auf der korrekten Anwendung der Methoden und der Interpretation der Ergebnisse. Auf die Theorie folgen praktische Demonstrationen in der Software SPSS, R und MATLAB, die an der Masaryk-Universität frei verfügbar sind. Die einzelnen bereits beschriebenen Bausteine enthalten:

- Disziplinen: 1 (Datenanalyse)
- Kurse: 2 (Datenanalyse für Neurowissenschaften, Fortgeschrittene Datenanalyse für Neurowissenschaften)
- Lerneinheiten: 24 (Datenanalyse für Neurowissenschaften - 12, Fortgeschrittene Datenanalyse für Neurowissenschaften - 12)
- Lernziele: 102 (Datenanalyse für Neurowissenschaften - 48, Fortgeschrittene Datenanalyse für Neurowissenschaften - 54)

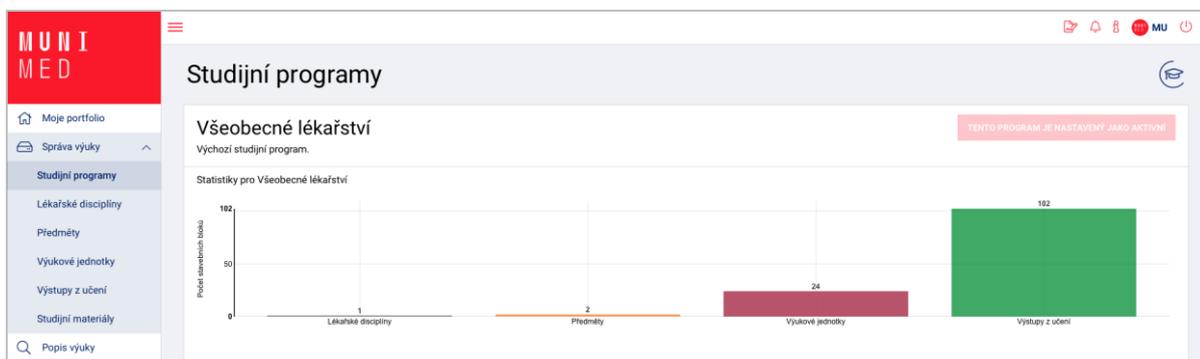


Abb. 19 Überblick über die Analyse, Datenmanagement und Informatik für die Spezialisierung im Gesundheitswesen, wie von MU in EDUportfolio abgebildet.

Název	Stav	Předmět	Akce
Analýza kontingenčních tabulek	Dokončeno	DSAN01	🔍 ✎ 🗑️
Analýza přežití	Dokončeno	DSAN01	🔍 ✎ 🗑️
Hodnocení diagnostických testů	Dokončeno	DSAN01	🔍 ✎ 🗑️
Klasifikace	Dokončeno	DSAN02	🔍 ✎ 🗑️
Korelační analýza	Dokončeno	DSAN01	🔍 ✎ 🗑️
Metriky podobnosti a vzdálenosti ve vícerozměrném prostoru	Dokončeno	DSAN02	🔍 ✎ 🗑️
Modelová rozdělení dat	Dokončeno	DSAN01	🔍 ✎ 🗑️
Ordinační analýzy	Dokončeno	DSAN02	🔍 ✎ 🗑️
Principy redukce dimenzionality dat	Dokončeno	DSAN02	🔍 ✎ 🗑️
Předpracování vícerozměrných dat	Dokončeno	DSAN02	🔍 ✎ 🗑️
Relativní riziko a poměr šancí	Dokončeno	DSAN01	🔍 ✎ 🗑️
ROC analýza	Dokončeno	DSAN01	🔍 ✎ 🗑️
Selekce proměnných	Dokončeno	DSAN02	🔍 ✎ 🗑️
Shluková analýza	Dokončeno	DSAN02	🔍 ✎ 🗑️

Fig. 20 Lerneinheiten für Analyse, Datenmanagement und Informatik für die Spezialisierung im Gesundheitswesen, wie von MU in EDUportfolio abgebildet.

Název	Úroveň	Akce
Student aplikuje kritéria pro selekci proměnných při řešení praktických úloh	🔴	🔍 ✎ 🗑️
Student aplikuje vhodnou vizualizační metodu podle typu dat	🔴	🔍 ✎ 🗑️
Student aplikuje vhodný statistický test dle charakteru dat	🔴	🔍 ✎ 🗑️
Student charakterizuje princip jednotlivých metod klasifikace dat	🔴	🔍 ✎ 🗑️
Student charakterizuje rozdíly a princip jednorozměrné analýzy rozptylu dvojnásobného třídění bez interakcí a s interakcemi	🔴	🔍 ✎ 🗑️
Student charakterizuje vícerozměrné normální rozdělení	🔴	🔍 ✎ 🗑️
Student definuje cíle shlukové analýzy	🔴	🔍 ✎ 🗑️
Student definuje cíle transformace dat	🔴	🔍 ✎ 🗑️
Student definuje cíle vícerozměrné analýzy rozptylu	🔴	🔍 ✎ 🗑️
Student definuje jednotlivé míry hodnocení úspěšnosti klasifikace	🔴	🔍 ✎ 🗑️
Student definuje podstatu jednotlivých metod ordinační analýzy	🔴	🔍 ✎ 🗑️
Student definuje pojmy hladina významnosti testu, síla testu a chyba I. a II. druhu	🔴	🔍 ✎ 🗑️
Student dokáže aplikovat pravidlo +/- 3 sigma	🔴	🔍 ✎ 🗑️
Student dokáže nalézt cut-off hodnotu nejlépe rozlišující skupiny subjektů	🔴	🔍 ✎ 🗑️

Fig. 21 Lernziele für Analyse, Datenmanagement und Informatik für die Spezialisierung im Gesundheitswesen, wie von MU in EDUportfolio abgebildet.

4. Schlussfolgerung

Innerhalb dieses intellektuellen Outputs wurden der methodische Rahmen und die Datenbank mit lehrplanbezogenen Metadaten entwickelt und implementiert. Diese Datenbank wurde als Teil der neu eingerichteten Curriculum-Management-Plattform EDUportfolio erstellt, die sowohl in Englisch als auch in den Landessprachen der Partner verfügbar ist. Mit Hilfe dieser Curriculum-Management-Plattform beschrieben die Projektpartner ausgewählte Teile des medizinischen und gesundheitlichen Curriculums. Als gemeinsame und wichtigste medizinische Disziplin wurde die Anatomie von allen Partnern beschrieben, wie sie an ihren Universitäten gelehrt wird. Jeder Partner beschrieb auch eine ergänzende

medizinische Disziplin in seiner Landessprache. Diese ergänzenden Disziplinen umfassen Konservativen und Prothetischen Zahnmedizin, beschrieben von UPJS auf Slowakisch, Kommunikationsfähigkeiten, beschrieben von JU auf Polnisch, Neurochirurgie, beschrieben von UMF auf Rumänisch, Klinische und kommunikative Fähigkeiten, beschrieben von UAU auf Deutsch sowie Analyse, Datenmanagement und Informatik für die Spezialisierung im Gesundheitswesen, beschrieben von MU auf Tschechisch.



Appendix

Beschreibung der Metadaten



Metadata description of Anatomy taught at partner institutions.

Institution	Learning unit/Course	Learning outcome
MUNI	Digestive system	Student defines the digestive system according to the internationally recognized anatomical terminology (PNA).
MUNI	Digestive system	Student names all the organs of the digestive system and explain their morphology, basic structure and function.
MUNI	Digestive system	Student describes digestive organs on radiological method images.
MUNI	Digestive system	Student identifies digestive organs on radiological method images.
MUNI	Digestive system	Student summarizes the knowledge of the digestive system and assess correlation with other systems.
MUNI	Digestive system	Student knows the blood supply and innervation.
MUNI	Endocrine system	Student defines individual endocrine glands according to the internationally recognized anatomical terminology (PNA).
MUNI	Endocrine system	Student identifies individual endocrine glands according to the internationally recognized anatomical terminology (PNA).
MUNI	Endocrine system	Student explains the importance of the endocrine system, its basic function, shape, placement in the body, blood supply and innervation
MUNI	Endocrine system	Student identifies individual anatomical structures of the endocrine system on human anatomical preparations.
MUNI	Endocrine system	Student uses theoretical knowledge to be oriented about the placement of the endocrine glands and indicate their placement in individual topographic regions.
MUNI	Endocrine system	Student assesses mutual topographic relations between the endocrine system and other anatomic structures.
MUNI	Endocrine system	Student characterizes mutual topographic relations between the endocrine system and other anatomic structures.
MUNI	Female genital system	Student defines the female reproductive system according to the internationally recognized anatomical terminology (PNA).
MUNI	Female genital system	Student names all the organs of the female reproductive system.
MUNI	Female genital system	Student explains morphology, basic structure, and function of female reproductive system.
MUNI	Female genital system	Student knows the blood supply and innervation.
MUNI	Female genital system	Student describes the mutual topographical relationships of individual organs.
MUNI	Female genital system	Student summarizes all knowledge of the female reproductive system.
MUNI	Female genital system	Student assesses correlation with other systems.
MUNI	Gustatory system	Student identifies the gustatory system according to the internationally recognized anatomical terminology (PNA).
MUNI	Gustatory system	Student describes the gustatory system according to the internationally recognized anatomical terminology (PNA).
MUNI	Gustatory system	Student demonstrates placement of the gustatory system within the topographical relationship with neighbouring organs.
MUNI	Gustatory system	Student characterizes the importance of the gustatory system.
MUNI	Lymphatic system	Student explains basic morphology and function of all parts of the lymphatic system.
MUNI	Lymphatic system	Student describes topographic mutual relations between the lymphatic system and other systems.
MUNI	Lymphatic system	Student formulates normal structure of the lymphatic system.
MUNI	Lymphatic system	Student evaluates the studied anatomical structures on radiological images.
MUNI	Lymphatic system	Student defines the lymphatic system on human anatomical preparations according to the internationally valid anatomical terminology (PNA).

Institution	Learning unit/Course	Learning outcome
MUNI	Lymphatic system	Student describes the lymphatic system on human anatomical preparations according to the internationally valid anatomical terminology (PNA).
MUNI	Lymphatic system	Student identifies the lymphatic system on human anatomical preparations according to the internationally valid anatomical terminology (PNA)
MUNI	Lymphatic system	Student names all parts of the lymphatic system.
MUNI	Male genital system	Student defines the male reproductive system according to the internationally recognized anatomical terminology (PNA).
MUNI	Male genital system	Student names all the organs of the male reproductive system.
MUNI	Male genital system	Student explains morphology, basic structure, and function of the male reproductive system.
MUNI	Male genital system	Student knows the blood supply and innervation.
MUNI	Male genital system	Student uses theoretical knowledge to be oriented in terms of position of individual organs.
MUNI	Male genital system	Student describes the mutual topographical relationships of individual organs.
MUNI	Male genital system	Student summarizes all knowledge about the male genital system.
MUNI	Male genital system	Student assesses correlation with other systems.
MUNI	Olfactory system	Student identifies the olfactory system according to the internationally recognized anatomical terminology (PNA).
MUNI	Olfactory system	Student describes the olfactory system according to the internationally recognized anatomical terminology (PNA).
MUNI	Olfactory system	Student demonstrates placement of the olfactory system within the topographical relationship with neighbouring organs.
MUNI	Olfactory system	Student characterizes the importance of the olfactory system
MUNI	Olfactory system	Student distinguishes functionally and macroscopically: regio respiratoria and regio olfactoria.
MUNI	Peripheral nervous system	Student describes the peripheral nervous system according to the internationally recognized anatomical terminology (PNA).
MUNI	Peripheral nervous system	Student identifies the peripheral nervous system according to the internationally recognized anatomical terminology (PNA).
MUNI	Peripheral nervous system	Student explains the importance of individual parts of the peripheral nervous system.
MUNI	Peripheral nervous system	Student identifies the individual anatomical structures of the peripheral nervous system on human anatomical preparations.
MUNI	Peripheral nervous system	Student demonstrates cranial nerves emerging from the brain stem and placement of peripheral nerves in various topographic regions.
MUNI	Peripheral nervous system	Student characterizes mutual topographic relationships between the peripheral nervous system and other anatomic structures.
MUNI	Peripheral nervous system	Student characterizes the progress and structure of anatomical formations of peripheral nerves.
MUNI	Peripheral nervous system	Student knows innervation area for each peripheral nerve.
MUNI	Respiratory system	Student knows the blood supply and innervation, basic structure and function.
MUNI	Respiratory system	Student summarizes all the knowledge of the respiratory system and assess interaction with other systems.
MUNI	Respiratory system	Student assesses interaction with other systems.
MUNI	Respiratory system	Student defines the respiratory system according to the internationally recognized anatomical terminology (PNA).
MUNI	Respiratory system	Student names all organs of the respiratory system.
MUNI	Respiratory system	Student explains morphology of all organs of the respiratory system.



Institution	Learning unit/Course	Learning outcome
MUNI	Respiratory system	Student describes the topographic mutual relations between the internal organs.
MUNI	Respiratory system	Student identifies structures on the radiological method images.
MUNI	Skin	Student assesses interrelationships between other organs.
MUNI	Skin	Student describes skin according to the internationally recognized anatomical terminology (PNA).
MUNI	Skin	Student names all layers of the skin (and its derivatives).
MUNI	Skin	Student explains morphology of all layers of the skin (and its derivatives).
MUNI	Skin	Student uses theoretical knowledge to be oriented about the mutual topographic relationships with other organs.
MUNI	Topographical anatomy	Student defines the topographical regions of the human body.
MUNI	Topographical anatomy	Student identifies basic anatomical structures in these regions (i.e. bones, joints, muscles, internal organs, blood vessels and nerves - knowledge of these structures builds on previous studies of systemic anatomy).
MUNI	Topographical anatomy	Student defines boundaries, content and individual layers of each region.
MUNI	Topographical anatomy	Student demonstrates the structures on cadavers.
MUNI	Topographical anatomy	Student assesses relationships between individual anatomical structures in topographic regions.
MUNI	Topographical anatomy	Student prepares anatomical specimen of the given studied region with the help of prescribed autopsy procedure and tools.
MUNI	Topographical anatomy	Student evaluates normal topographical arrangement of individual regions.
MUNI	Urinary system	Student names all organs of the excretory system and explain their morphology, basic structure, blood supply, innervation, and basic function.
MUNI	Urinary system	Student explains their morphology, basic structure, blood supply, innervation, and basic function.
MUNI	Urinary system	Student defines the excretory system according to the international anatomical terminology (PNA).
MUNI	Urinary system	Student summarizes all the knowledge of the excretory system and assess relation with other systems.
MUNI	Urinary system	Student describes the topographic mutual relations between the internal organs.
MUNI	Urinary system	Student describes basic anatomical structures in radiological methods.
MUNI	Urinary system	Student identifies basic anatomical structures in radiological methods.
MUNI	Veins	Student uses theoretical knowledge about the origin and structure of the venous system.
MUNI	Veins	Student demonstrates on cadavers outflow of blood from individual organs.
MUNI	Veins	Student names parts of the venous system.
MUNI	Veins	Student knows morphology of parts of the venous system.
MUNI	Veins	Student defines describe the venous system according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations.
MUNI	Veins	Student identifies describe the venous system according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations.
MUNI	Veins	Student describes describe the venous system according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations.

Institution	Learning unit/Course	Learning outcome
MUNI	Veins	Student identifies basic morphological structures on human preparations.
MUNI	Veins	Student assesses the anatomical structures on radiological images.
MUNI	Veins	Student describes fetal circulation (identify structures before and after birth).
MUNI	Vestibular and auditory system	Student identifies the vestibular and auditory system according to the internationally recognized anatomical terminology (PNA) (structure and placement of utriculus, sacculus, macula statica, canales et ductus semicirculares, cristae ampullares, neurons and structure of the cranial nerve VIII).
MUNI	Vestibular and auditory system	Student describes the vestibular and auditory system according to the internationally recognized anatomical terminology (PNA) (structure and placement of utriculus, sacculus, macula statica, canales et ductus semicirculares, cristae ampullares, neurons and structure of the cranial nerve VIII).
MUNI	Vestibular and auditory system	Student demonstrates placement of the vestibular system within the topographical relationship with neighbouring organs.
MUNI	Vestibular and auditory system	Student characterizes the importance of the vestibular system.
MUNI	Vestibular and auditory system	Student identifies individual anatomical structures of the ear on human anatomical preparations.
MUNI	Vestibular and auditory system	Student characterizes the importance of anatomical formations of the ear.
MUNI	Vestibular and auditory system	Student knows about the normal anatomic ratios of different ear structures and evaluate them on X-rays.
MUNI	Vestibular and auditory system	Student demonstrates placement of individual parts of the ear in various topographic regions.
MUNI	Visual system	Student describes the sensory organ eye according to the internationally recognized anatomical terminology (PNA).
MUNI	Visual system	Student explains the importance of different structures.
MUNI	Visual system	Student uses the acquired theoretical knowledge to be oriented about the placement of the eye.
MUNI	Visual system	Student characterizes the mutual topographic relationships between the eye and other anatomical structures.
MUNI	Muscles	Student defines basic concepts of the general myology.
MUNI	Muscles	Student describes individual muscles of the human body using the internationally recognized anatomical terminology (PNA).
MUNI	Muscles	Student describes on each muscle its origin, insertion, innervation and function.
MUNI	Muscles	Student identifies appropriate muscles on anatomical specimens.
MUNI	Muscles	Student characterizes movements provided with individual muscles.
MUNI	Muscles	Student identifies individual muscle and groups of muscles on radiological method images.
MUNI	Osteology	Student defines basic concepts of general osteology.
MUNI	Osteology	Student describes skeleton structures including detailed relief using internationally acknowledged anatomical terminology (PNA) on anatomical specimens.
MUNI	Osteology	Student identifies skeleton structures including detailed relief using internationally acknowledged anatomical terminology (PNA) on anatomical specimens.
MUNI	Osteology	Student identifies bones and their structures on radiological method images.

Institution	Learning unit/Course	Learning outcome
MUNI	Arteries	Student defines arteries according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations.
MUNI	Arteries	Student identifies arteries according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations.
MUNI	Arteries	Student describes arteries according to the internationally recognized anatomical terminology (PNA) using the human anatomical preparations.
MUNI	Arteries	Student explains morphology.
MUNI	Arteries	Student identifies basic morphological structures on human preparations.
MUNI	Arteries	Student demonstrates on cadavers vasculature of individual organs.
MUNI	Arteries	Student assesses the anatomical structures on radiological method images
MUNI	Arteries	Student assesses the interrelationship between arteries and other organs.
MUNI	Arthrology	Student describes connection of bones and divide them into synarthrosis and diarthrosis.
MUNI	Arthrology	Student identifies each joint (in accordance with internationally recognized Latin terminology PNA).
MUNI	Arthrology	Student describes each joint (in accordance with internationally recognized Latin terminology PNA).
MUNI	Arthrology	Student defines the range of movement in each joint.
MUNI	Arthrology	Student identifies individual joint structures in radiological methods.
MUNI	Central nervous system	Student describes the central nervous system according to the internationally recognized anatomical terminology (PNA).
MUNI	Central nervous system	Student uses the acquired knowledge to be oriented about the placement of individual organs of the nervous system.
MUNI	Central nervous system	Student characterizes the topographic mutual relations between the nervous system and other anatomic structures.
MUNI	Central nervous system	Student summarizes all knowledge of human anatomy obtained through previous studies.
MUNI	Central nervous system	Student assesses the relationship between the different studied organs.
MUNI	Central nervous system	Student explains the importance of the system.
MUNI	Heart	Student explains morphology.
MUNI	Heart	Student defines human anatomical preparation according to the internationally recognized anatomical terminology (PNA) of the heart.
MUNI	Heart	Student describes human anatomical preparation according to the internationally recognized anatomical terminology (PNA) of the heart.
MUNI	Heart	Student identifies basic morphological formations on the heart preparations.
MUNI	Heart	Student evaluates the studied anatomical structures of the heart on radiological method images.
MUNI	Heart	Student uses theoretical knowledge to be oriented about the placement of the heart and indicates on cadavers the topographical relationships of the heart with other organs.
MUNI	Heart	Student assesses interrelationship between the heart with other organs.
UA	Communication skills	Student is able to reflect on the collaboration in the multi-professional team and designs it in a constructive manner with a view to high quality in patient care.

Institution	Learning unit/Course	Learning outcome
UA	Communication skills	Student shows a job-specific role identity and know the roles, competencies and areas of responsibility of the other professional groups involved.
UA	Communication skills	Student identifies and classifies complications that have occurred as well as name medical, organizational and communicative consequences for damaging / avoiding damage.
UA	Communication skills	Student is able to develop professional goals at the beginning of career and career planning and take into account and communicates the work-life balance when implementing the goals.
UA	Communication skills	Student is able to process documented decision-making according to hierarchical, occupational group-dependent, communication-based and medical-legal aspects, as well as depict and critically evaluate the roles of those involved based on a given medical history.
UA	Communication skills	Student explains the basics of communication between the individual and social interaction partners and between social groups.
UA	Communication skills	Student is able to recognize the central importance of communication skills for the medical profession and for health care and knows that communication can be learned.
UA	Communication skills	Student is able to reflect typical sensitive topics in everyday medical work and arranges their communication appropriately, even in emotionally challenging situations.
UA	Communication skills	Student is able to successfully shape her communicative actions through the targeted use of communication strategies even in challenging clinical contexts and constellations.
UA	Communication skills	Student is able to reflect critically on one's own and others' roles in experienced situations and draws conclusions for the further course of action in the joint communication process.
UA	Communication skills	Student demonstrates appropriate handling of undesirable events and errors.
UA	Communication skills	Student uses specific data to show and communicate the possibilities and limits of professional (continuing education, leadership activities) and academic (doctorate, habilitation) career plans.
UA	Communication skills	Student is able to align her actions with values and norms.
UA	Communication skills	Student is able to contribute to the dissemination, application and translation of new knowledge and practices.
UA	Communication skills	Student is able to reflect and justify his communicative action on the basis of concepts and models of medical communication.
UA	Communication skills	Student explains the biopsychosocial model of the development of health and illness.
UA	Communication skills	Student explains the influence of doctor-patient communication on safety, adherence, outcome, quality of life, conflicts, coping strategies and satisfaction of doctors and patients.
UA	Communication skills	Student is able to adopt a patient-centered (congruent, accepting and empathic) basic attitude, communicate accordingly and thereby professionally design proximity and distance.
UA	Communication skills	Student applies techniques of systematic and structured information gathering.
UA	Communication skills	Student is able to give and receive this in accordance with the rules for constructive feedback
UA	Communication skills	Student is able to go into the subjective illness theory and the explanatory models of the patients, coordinate with the medical illness theories, values and interests and integrate them into the treatment
UA	Communication skills	Student is able to structure the conversation transparently from start to finish.

Institution	Learning unit/Course	Learning outcome
UA	Communication skills	Student uses structuring conversation techniques and, depending on the task, use specific questioning techniques.
UA	Communication skills	Student is able to greet patients, introduce him or herself with name and function, and begin with opening questions that open up the discussion space for patients
UA	Communication skills	Student is able to take a medical history based on the situation.
UA	Communication skills	Student is able to take a development history
UA	Communication skills	Student is able to take an emergency medical history.
UA	Communication skills	Student is able to orientate him or herself to the needs and resources of the patients with regard to autonomy and responsibility, amount of information and completeness and respect their right to refuse information, especially when communicating a diagnosis
UA	Communication skills	Student designs decision-making processes together with patients or their caregivers, taking into account the requirements and possible consequences of judgment formation (participatory decision making / shared decision making).
UA	Communication skills	Student is able to individually clarify the patient's need for participation and shape decision-making processes together with them.
UA	Communication skills	Student explains health policy and economic factors influencing decision-making as well as the time and organizational framework.
UA	Communication skills	Student summarizes the session, discuss the next steps with the patient and concludes the patient discussion.
UA	Communication skills	Student is able to take a third-party medical history.
UA	Communication skills	Student is able to advise and educate patients and, if applicable, caregivers or nursing staff in detail about the use of the various medicines and prescriptions
UA	Communication skills	Student is able to hold a discharge interview
UA	Communication skills	Student is able to talk to the patient about the subject of living will
UA	Communication skills	Student is able to recognize strong or difficult emotions both in patients and their caregivers / guardians as well as communication disorders and respond accordingly in the conversation.
UA	Communication skills	Student is able to perceive and analyze conflicts, address them specifically to patients and, if applicable, caregivers, and appropriately classify the underlying socio-cultural dynamics and ethical dilemmas.
UA	Communication skills	Student is able to address this sensitively if suspected of being subjected to domestic violence
UA	Communication skills	Student is able to appropriately inquire about a possible biographical burden of abuse or sexual abuse in childhood in the history
UA	Communication skills	Student is able to convey bad news appropriately, taking into account a situation-specific discussion model
UA	Communication skills	Student is able to appropriately address psychosocial, gender-specific, age-specific, cultural, in particular family or job-related conflicts
UA	Communication skills	Student is able to transparently addresses cost issues by correctly presenting the necessity, the recommended scope and the justifiability of services to the patient
UA	Communication skills	Student analyzes his or her own mistakes and masters a situation-specific appropriate error communication.
UA	Communication skills	Student is able to communicate errors as promptly and directly as possible to the patient and, if applicable, their caregivers / guardians.
UA	Communication skills	Student knows and names typical challenging clinical contexts and can apply appropriate communication strategies.
UA	Communication skills	Student is able to have a conversation with non-adherent patients and take specific models into account

Institution	Learning unit/Course	Learning outcome
UA	Communication skills	Student explains measures of a crisis intervention in the event of a psychosocial crisis, a medical emergency, or a major loss event
UA	Communication skills	Student is able to is in a position to provide appropriate risk communication and information.
UA	Communication skills	Student is able to present diagnostic and therapeutic measures with their advantages and disadvantages and the expected success with the help of transparent risk communication techniques, and weigh and communicate benefits, risks and costs.
UA	Communication skills	Student explains positive and negative consequences of not using diagnostic and therapeutic measures.
UA	Communication skills	Student is able to consider uncertainty as an integral part of judgment and decision making, critically reflect on implicit and explicit judgment models of health and illness and deal with them appropriately.
UA	Communication skills	Student is able to recognize and communicate healthy and risky behaviors of patients and can support indicated changes in behavior through a basic knowledge of appropriate counseling and therapy options, including the possibility of medical rehabilitation.
UA	Communication skills	Student is able to hold resource-activating and autonomy-promoting discussions with patients
UA	Communication skills	Student is able to conduct advice and, if necessary, interventions to change behavior and lifestyle based on basic knowledge
UA	Communication skills	Student is able to hold an appropriate conversation in a multi-person setting.
UA	Communication skills	Student is able to hold discussions with caregivers / custodians / representatives, taking into account the patient's will and confidentiality
UA	Communication skills	Student is able to take personal views, circumstances and wishes of those who act on behalf of the patient into account when making decisions
UA	Communication skills	Student is able to treat patients as the primary contact, i.e. if possible, address them directly
UA	Communication skills	Student analyzes and reflects socio-demographic and socio-economic factors influencing communication and communicates accordingly.
UA	Communication skills	Student is able to reflect and take into account age, development, disability and gender-related influencing variables on communication.
UA	Communication skills	Student is able to adapt to the patient's understanding of language.
UA	Communication skills	Student is able to communicate in a gender-sensitive manner.
UA	Communication skills	Student is able to take into account developmental and age-related differences in communication.
UA	Communication skills	Student is able to be aware of the socio-cultural diversity and the plurality of values and norms in society and takes them into account appropriately in clinical situations.
UA	Communication skills	Student is able to perceive cultural, social, gender-related, socio-economic, religious and ideological value and norm systems differently among themselves and others and reflect on their importance for the individual case and for medical treatment
UA	Communication skills	Student is able to handle individual shame boundaries sensitively and at the same time explain and fulfill medical duties and tasks
UA	Communication skills	Student is able to take social stigmatization processes into account in their effects on health and illness and disability
UA	Communication skills	Student is able to acquire knowledge of socio-cultural diversity while remaining critical of simplifications (avoiding culturalization)
UA	Communication skills	Student applies strategies for culture-sensitive communication.

Institution	Learning unit/Course	Learning outcome
UA	Communication skills	Student is able to be aware of the consequences of language barriers for the interaction with patients and their caregivers and take these into account when planning and conducting the interview.
UA	Communication skills	Student assesses the language skills and individual language level of patients and to adapt their own language level, e.g. for patients with a mother tongue other than German
UA	Communication skills	Student is able to specifically control the understanding of patients through measures to ensure understanding (verbal and non-verbal) and to intervene directly when there are problems of understanding
UA	Communication skills	Student is able to reflect on the advantages and disadvantages of using non-professional and professional interpreters in everyday clinical practice and to work competently with them
UA	Communication skills	Student is able to ask and take into account the relationship with the patient and take over the organization of the interpreting situation when using non-professional interpreters, especially in the case of relatives
UA	Communication skills	Student is able to carry out the medical tasks of communication while using interpreters and not delegate it to the interpreter.
UA	Communication skills	Student arranges the handling of patients whose perception and communication skills are limited and / or disturbed according to the special requirements.
UA	Communication skills	Student is able to inquire about the type and severity of the perception and communication disorder and communicate accordingly, with special attention to the setting.
UA	Communication skills	Student is able to take measures of "supported communication", i.e. to expand the communicative possibilities, use in conversation.
UA	Communication skills	Student uses other communication channels if one of the channels is restricted and, if necessary (and whenever patients read from the lips), separate the interaction from the communication and ensure understanding.
UA	Communication skills	Student is able to provide professional support if necessary
UA	Communication skills	Student is able to separate the interaction from the communication if necessary (and whenever patients read their lips or make eye contact).
UA	Communication skills	Student is able to effect the specific requirements of oral, written and electronic communication as well as public communication and interacts in a context-specific manner while observing data protection.
UA	Communication skills	Student is able to adapt his or her communication to the specific requirements of different types of oral communication.
UA	Communication skills	Student is able to hand over patients orally or by telephone to medical colleagues
UA	Communication skills	Student is able to deliver a patient orally or by telephone to a member of the nursing or other health professions using the appropriate medical language
UA	Communication skills	Student is able to present patients, prioritize their problems and systematically discuss the diagnostic and therapeutic management with colleagues including other health professions.
UA	Communication skills	Student is able to recognize the central importance of communication skills for the medical profession and health care and know that communication can be learned
UA	Communication skills	Student analyzes and reflects socio-demographic and socio-economic factors influencing communication and communicates accordingly.
UA	Communication skills	Student is able to behave respectfully in interprofessional collaboration and thus contribute to good patient care.

Institution	Learning unit/Course	Learning outcome
UA	Communication skills	Student is able to observe patient safety and is aware of their immediate personal responsibility.
UA	Communication skills	Student is able to communicate errors adequately to patients and their relatives.
UA	Communication skills	Student is able to develop leadership skills.
UA	Communication skills	Student knows and takes into account the requirements for good clinical and scientific practice.
UA	Communication skills	Student is able to make the results of a scientific investigation accessible to medical practice.
UA	Communication skills	Student explains general theoretical basics of communication.
UA	Communication skills	Student explains the theoretical concepts of transference / countertransference, reciprocity, intersubjectivity and the influence of expectation and experience in their effects on doctor-patient communication.
UA	Communication skills	Student is able to build a trusting, stable doctor-patient relationship and master a professional and patient-centered conversation, taking into account the specific types of conversation, phases of the conversation and tasks.
UA	Communication skills	Student is able to simultaneously consider psychological, somatic, social, age-related and gender-related aspects of a disease during the conversation.
UA	Communication skills	Student is able to consider both verbal, non-verbal and para-verbal aspects in communication with him or herself and others.
UA	Communication skills	Student is able to obtain consent before and during the physical examination and explain the procedure.
UA	Communication skills	Student is able to offer support.
UA	Communication skills	Student practises time management adapted to different conversation situations and requirements
UA	Communication skills	Student is able to recognize and control the focus during the conversation and make an appropriate switch between doctor-centered and patient-centered conversation.
UA	Communication skills	Student is able to collect general and specific medical histories with the patient, structured according to the situation and disease, and to include information from other sources.
UA	Communication skills	Student is able to take a vegetative history.
UA	Communication skills	Student is able to carry out a psychosocial medical history, including a work history, possibly a history of migration.
UA	Communication skills	Student is able to take a medical history of health-related behaviors.
UA	Communication skills	Student is able to convey information, in particular diagnosis information, and explanations attentively and understandably, encourages inquiries and discussions and takes into account the patient's need for participation.
UA	Communication skills	Student is able to adequately communicate the findings of their significance for patients.
UA	Communication skills	Student explains and offers responsibilities in the decision-making process and to involve relevant people (e.g. parents, legal guardians, children, etc.) in the decision-making process.
UA	Communication skills	Student determines the expectations, concerns and preferences of patients and communicates their own expectations and treatment preferences in relation to this.
UA	Communication skills	Student plans the further, especially diagnostic and therapeutic steps and to conclude a patient consultation.
UA	Communication skills	Student designs various interview tasks taking into account their essential characteristics and requirements.

Institution	Learning unit/Course	Learning outcome
UA	Communication skills	Student is able to communicate a diagnosis.
UA	Communication skills	Student is able to provide a informative conversation
UA	Communication skills	Student is able to make a home visit
UA	Communication skills	Student is able to provide information and advice on participating in a self-support group
UA	Communication skills	Student is able to recognize situational and individual differences in emotion management and take them into account appropriately.
UA	Communication skills	Student knows and names typical sensitive subject areas that can occur in everyday medical work, and can conduct corresponding discussions or consultations sensitively and in accordance with current standards.
UA	Communication skills	Student is able to take appropriate measures if there is a suspicion of child abuse
UA	Communication skills	Student is able to have a sensitive conversation with the custody of a (seriously) ill child
UA	Communication skills	Student uses resource-activating and supportive interventions to a reasonable extent in seriously ill patients
UA	Communication skills	Student is able to communicate truthfully and empathetically with the dying and their relatives.
UA	Communication skills	Student is able to deal with general uncertainty about medical decisions and individual uncertainty and communicate them appropriately, taking into account their own role.
UA	Communication skills	Student is able to address his or her own mistakes to colleagues, analyze them in accordance with the situation with those responsible for the treatment and, if necessary together with patients, decide who will conduct the subsequent interviews
UA	Communication skills	Student is able to successfully shapes her communicative actions through the targeted use of communication strategies even in challenging clinical contexts and constellations.
UA	Communication skills	Student is able to recognize the central importance of communication skills for the medical profession and health care and know that communication can be learned
UA	Communication skills	Student is able to build a trusting, stable doctor-patient relationship and master a professional and patient-centered conversation, taking into account the specific types of conversation, phases of the conversation and tasks
UA	Communication skills	Student is able to reflect the specific requirements of oral, written and electronic communication as well as public communication and interacts in a context-specific manner while observing data protection.
UA	Communication skills	Student is able to communicate with the other health professions in the appropriate technical language.
UA	Communication skills	Student knows essential aspects of complication management, risk communication, the critical incident reporting system (CIRS), recognize critical events and are instructed in dealing with wrong decisions.
UA	Communication skills	Student is able to pursue career planning.
UA	Communication skills	Student is able to deal with the role of a young team member and their future development as a leader.
UA	Communication skills	Student explains the influences of third parties on the results or the communication of research, reflect and align their actions accordingly.
UA	Communication skills	Student is able to present scientific results in a form that is understandable to laypeople.
UA	Communication skills	Student explains specific basics of medical communication (influencing factors, specifics and requirements).

Institution	Learning unit/Course	Learning outcome
UA	Communication skills	Student explains different models of doctor-patient communication and the different effects of patient-centered and doctor-centered communication.
UA	Communication skills	Student is able to build and maintain a positive, sustainable and trusting doctor-patient relationship through communicative action.
UA	Communication skills	Student is able to perceive, adopt and respect the patient perspective (ideas, feelings, autonomy, values, gender aspects, social, cultural and material environment) and include them in decisions.
UA	Communication skills	Student is able to perceive, distinguish and name his / her own and other emotions and feelings, such as shame or disgust, and use appropriate models to conduct the conversation in a manner that is appropriate in a situation.
UA	Communication skills	Student uses the participative decision making (PEM) / shared decision making (SDM) method.
UA	Communication skills	Student uses appropriate techniques to activate resources and promote personal responsibility.
UA	Communication skills	Student is able to set the agenda for the interview taking into account doctor and patient concerns and communicate accordingly.
UA	Communication skills	Student is able to find an appropriate start to the conversation and creates a conversation situation that is adapted to the general conditions.
UA	Communication skills	Student is able to inquire about medical knowledge, attitudes, experiences and expectations regarding the illness of patients.
UA	Communication skills	Student is able to get a system overview.
UA	Communication skills	Student is able to take a medical history, including allergies and intolerances.
UA	Communication skills	Student is able to take a sexual history, including a menstrual history.
UA	Communication skills	Student is able to provide understandable and empathetic information and advice
UA	Communication skills	Student tests the patient's understanding respectfully.
UA	Communication skills	Student is able to communicate information about the various treatment options with their advantages, disadvantages and risks in an understandable manner using aids.
UA	Communication skills	Student is able to address and take into account the interactions between the decision and the social environment of the patient.
UA	Communication skills	Student defines a common diagnostic and treatment plan and change it if necessary.
UA	Communication skills	Student is able to take a medical history.
UA	Communication skills	Student is able to give advice and refer to other suitable contact points
UA	Communication skills	Student is able to conduct a medical ward round.
UA	Communication skills	Student is able to provide information regarding inclusion in a clinical study
UA	Communication skills	Student is able to reflect typical sensitive topics in everyday medical work and arrange their communication appropriately, even in emotionally challenging situations.
UA	Communication skills	Student is able to recognize his or her own feelings in contact with others, especially patients and colleagues, reflect on concepts of transference and countertransference and maintain an appropriate and objective communication style.
UA	Communication skills	Student is able to perceive taboo topics and stigmatized illnesses, accept them and, if a deepening seems sensible or necessary, address this topic appropriately

Institution	Learning unit/Course	Learning outcome
UA	Communication skills	Student is able to have a sensitive, person-centered conversation with children of (seriously) ill caregivers / caregivers
UA	Communication skills	Student is able to appropriately address the suspicion of suicidality or third-party risk and refer patients if the suspicion is confirmed
UA	Communication skills	Student is able to provide or arrange grief counseling
UA	Communication skills	Student is able to address uncertainties towards colleagues and superiors and communicate them appropriately to patients and their caregivers according to their level of education.
UA	Communication skills	Student is able to make phone calls with patients or third parties
UA	Communication skills	Student is able to appropriately write different forms of patient reports / written communication.
UA	Communication skills	Student creates various forms of patient reports (admission protocol, short report, discharge report) in a structured and relevant form with all relevant examination results and suggestions for treatment planning
UA	Communication skills	Student is able to issue prescriptions.
UA	Communication skills	Student is able to issue death certificates
UA	Communication skills	Student is able to master and reflect the handling of medical information technologies.
UA	Communication skills	Student is able to retrieve patient-specific information from clinical information systems, as well as to know and apply the medical responsibility in the operation of these systems and procedures for the secure transmission and storage of patient data
UA	Communication skills	Student is able to request test, document findings, carry out medication prescriptions and write medical reports in an electronic patient record.
UA	Communication skills	Student uses telemedicine solutions in a patient-oriented manner and explain the general conditions of the health issue
UA	Communication skills	Student is able to master and reflect appropriate communication with media representatives and in public.
UA	Communication skills	Student is able to pass medical information on to the public and / or the media appropriately.
UA	Communication skills	Student demonstrates the communicative and cooperative dimension and non-technical skills of emergency medicine.
UA	Communication skills	Student explains and reflects key terms, models and variables of health and illness as well as prevention and health promotion and applies them.
UA	Communication skills	Student is able to reflect on cultural, socio-economic and gender-related aspects of health and illness and integrates them into their own actions.
UA	Communication skills	Student explains the need for gender-sensitive approaches to health promotion, prevention and appropriate communication.
UA	Communication skills	Student explains, reflects and advises on disease and target group-specific measures of prevention and health promotion and takes individual aspects and participation into account.
UA	Communication skills	Student is able to reflect and explain measures and contents of preventive and early detection examinations and carries them out under aspects of risk communication.
UA	Communication skills	Student knows, explains and communicates target group-specific measures for health promotion and prevention for children and adolescents.
UA	Communication skills	Student explains the importance of active sensory perception for the child's physical, psychological and linguistic development.
UJ	Anatomy with embryology	Student knows topographic relations between particular organs

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UJ	Anatomy with embryology	Student is able to use of spoken and written anatomical, histological and embryological nomenclature
UJ	Anatomy with embryology	Student is able to use objective sources of information
UJ	Anatomy with embryology	Student is able to implement of the principles of professional camaraderie and cooperation in a team of specialists, including representatives of other medical professions, also in a multicultural and multinational environment
UJ	Anatomy with embryology	Student is able to infer the relationships between anatomical structures based on in vivo diagnostic tests, in particular in the field of radiology (X-rays, tests using contrast media, computed tomography and nuclear magnetic resonance imaging)
UJ	Anatomy with embryology	Student is able to formulate opinions on various aspects of professional activity
UJ	Anatomy with embryology	Student is able to explain the anatomical basis of physical examination
UJ	Anatomy with embryology	Student knows development, structure and functions of the human body in physiological and pathological conditions.
UJ	Anatomy with embryology	Student knows human body structure in a topographic approach (upper and lower limbs, chest, abdomen, pelvis, back, neck, head) and functional (bone and joint system, muscular system, circulatory system, respiratory system, digestive system, urinary system, genital systems, nervous system and sense organs, integument)
UJ	Anatomy with embryology	Student knows stages of development of the human embryo, structure and function of the fetal membranes and placenta, stages of development of individual organs and the impact of harmful factors on the development of the embryo and fetus (teratogenic)
UJ	Anatomy with embryology	Student is able to take the responsibility related to decisions taken as part of professional activities, including terms of self and other people's safety
UJ	Anatomy with embryology	Student is able to perceive and recognize one's own limitations and self-assessing educational deficits and needs
UJ	Anatomy with embryology	Student knows anatomical, histological and embryological nomenclature in Polish and English
UMF	I.15. Regional, applied and clinical anatomy of the trunk	Student describes projections and dissecting the walls of the trunk
UMF	I.15. Regional, applied and clinical anatomy of the trunk	Student describes the projections of the weak spots of the abdominal wall
UMF	I.16. Developmental anatomy: principles, gametogenesis	Student identifies the main stages that take place within ovogenesis
UMF	I.15. Regional, applied and clinical anatomy of the trunk	Student identifies the main anatomotopographic regions of the trunk
UMF	I.16. Developmental anatomy: principles, gametogenesis	Student identifies the main stages that take place within the spermatogenesis
UMF	III. 11. The venous system of head and neck	Student explains Vein projections and findings at head level
UMF	III. 12. The lymphatic system of head and neck	Student explains lymphatic drainage of head and neck viscera
UMF	I.16. Developmental anatomy: principles, gametogenesis	Student identifies the main numerical and structural anomalies of the chromosomes
UMF	III. 9. The endocrine system at the neck and the lateral visceral lodges	Student explains the main components of the endocrine system at the neck



Institution	Learning unit/Course	Learning outcome
UMF	III. 10. Arterial system of head and neck	Student describes the main components of the arterial system of the head and neck
UMF	III. 12. The lymphatic system of head and neck	Student describes the main components of the lymphatic system of the head and neck
UMF	I.17. The first and second week of development (embryonic life)	Student describes the main anomalies that result from the disruption of the processes that take place during the first and second week.
UMF	IV. 5. Diencephalon	Student analyzes anatomical, sectional and imaging exploration of the diencephalon
UMF	IV. 6. Cerebral hemispheres	Student explains the circulation of the cerebrospinal fluid
UMF	IV. 7. The cavitory system of the encephalon and the cranial meninges	Student analyzes anatomical identification and exploration of the cranial meninges with the identification of prolongations and spaces
UMF	I.15. Regional, applied and clinical anatomy of the trunk	Student identifies projections and dissecting the walls of the trunk
UMF	III. 9. The endocrine system at the neck and the lateral visceral lodges	Student describes the main stages and processes involved in the morphogenesis of the endocrine system at the neck
UMF	III. 10. Arterial system of head and neck	Student identifies the main cranio-facial arterial anastomoses
UMF	III. 11. The venous system of head and neck	Student describes the main components of the venous system of the head and neck
UMF	I.17. The first and second week of development (embryonic life)	Student describes the main processes that take place during the first week of development
UMF	IV. 5. Diencephalon	Student is able to identify and describe the main nuclear groups at the diencephalon level
UMF	IV. 7. The cavitory system of the encephalon and the cranial meninges	Student explains the circulation of the cerebrospinal fluid
UMF	I.18. Third week of development (embryonic life)	Student identifies the main anomalies resulting from the disruption of the processes that take place during the third week
UMF	IV. 9. Optic system	Student analyzes anatomical identification and exploration of the main components of the visual system
UMF	I.19. Embryogenesis during week 4 to 8 and the fetal period.	Student identifies the main structures derived from the three germinal layers
UMF	I.19. Embryogenesis during week 4 to 8 and the fetal period.	Student identifies the main changes that occur during the fetal period
UMF	IV. 11. The gustatory system	Student analyzes anatomical identification and exploration of the main components of the taste system
UMF	IV. 14. The autonomous nervous system (ANS)	Student analyzes anatomical identification and exploration of the main components of the autonomic nervous system
UMF	III. 4. The muscular-fascial system of the head and neck	Student describes the main muscle groups at the level of the head and neck
UMF	III. 4. The muscular-fascial system of the head and neck	Student identifies the main muscle groups at the level of the head and neck
UMF	III. 3. The cranium- general description; head and neck joints	Student identifies the main pits and cavities in the skull
UMF	III. 3. The cranium- general description; head and neck joints	Student describes the appearance of the skull in general according to the norms of the skull

Institution	Learning unit/Course	Learning outcome
UMF	III. 3. The cranium- general description; head and neck joints	Student identifies the main structures of resistance of the skull and explanation of the fracture path at this level
UMF	I.11 The innervation of the lower limb	Student identifies the branches of the lumbar plexus
UMF	I.11 The innervation of the lower limb	Student identifies the branches of the sacral plexus
UMF	I.12 Lower limb vascularization	Student identifies the main arteries of the lower limb
UMF	I.12 Lower limb vascularization	Student identifies the main veins of the lower limb
UMF	I.12 Lower limb vascularization	Student explains the lymphatic drainage of the lower limb
UMF	I.12 Lower limb vascularization	Student is able to check the arterial pulse in the lower limb
UMF	I.13. Regional, applied and clinical anatomy of the upper limb	Student identifies the main anatomotopographic regions of the upper limb
UMF	I.13. Regional, applied and clinical anatomy of the upper limb	Student describes the neurovascular projections and dissections in the upper limbs
UMF	III. 6. The pharyngeal apparatus	Student identifies the main stages and processes involved in the development of the pharyngeal system
UMF	III. 6. The pharyngeal apparatus	Student identifies pharyngeal device derivatives
UMF	III. 6. The pharyngeal apparatus	Student identifies the main anomalies that result from the disruption of the processes involved in the development of the pharyngeal system
UMF	I.14. The regional, applied and clinical anatomy of the lower limb	Student identifies the main anatomotopographic regions of the lower limb
UMF	III. 7. The superior respiratory system (SRS)	Student identifies the main stages and processes involved in the development of the upper respiratory system
UMF	III. 7. The superior respiratory system (SRS)	Student describes the main components of the upper respiratory system
UMF	III. 8. Superior digestive system	Student identifies the main stages and processes involved in the development of the upper digestive system
UMF	III. 8. Superior digestive system	Student describes the main components of the upper digestive system
UMF	I.14. The regional, applied and clinical anatomy of the lower limb	Student describes the neurovascular projections and dissections in the lower limbs
UMF	III. 9. The endocrine system at the neck and the lateral visceral lodges	Student identifies the lateral visceral lodges of the neck
UMF	III. 10. Arterial system of head and neck	Student explains Vascular projections and findings at head level
UMF	III. 11. The venous system of head and neck	Student identifies the main cranio-facial venous anastomoses
UMF	I.17. The first and second week of development (embryonic life)	Student describes the main processes that take place during the second week of development
UMF	IV. 6. Cerebral hemispheres	Student analyzes anatomical, sectional and imaging exploration of the cerebral hemispheres

Institution	Learning unit/Course	Learning outcome
UMF	IV. 8. Cerebral vascular system	Student analyzes anatomical identification and exploration of the main components of the vascular system of the brain
UMF	I.18. Third week of development (embryonic life)	Student identifies the main processes that take place during the third week of development
UMF	I.19. Embryogenesis during week 4 to 8 and the fetal period.	Student explains the processes of craniocaudal and laterolateral folding
UMF	I.19. Embryogenesis during week 4 to 8 and the fetal period.	Student describes the main anomalies that result from the disruption of the processes that occur during weeks 4 to 8 and during the fetal period
UMF	I.20. Morphofunctional dynamics of the embryo-fetal attachments	Student identifies the main embryo-fetal attachments and explaining their role
UMF	IV. 10. The acoustic-vestibular system	Student analyzes anatomical identification and exploration of the main components of the acoustic-vestibular
UMF	I.20. Morphofunctional dynamics of the embryo-fetal attachments	Student identifies the main anomalies resulting from the disturbance of the morpho-functional dynamics of the embryo-fetal attachments.
UMF	IV. 12. The olfactory system	Student analyzes anatomical identification and exploration of the main components of the olfactory system
UMF	IV. 13. The motor systems	Student analyzes anatomical identification and exploration of the main components of the motor systems
UMF	I.1. The skeleton of the trunk	Student identifies Being able to anatomically explore the spine; identifying general, regional and particular characters of the vertebrae
UMF	I.1. The skeleton of the trunk	Student analyzes Acquiring the skill of counting vertebrae
UMF	I.1. The skeleton of the trunk	Student is able to Anatomically explore the rib cage; identifying the general and particular characters of the ribs; the description of the sternum.
UMF	I.1. The skeleton of the trunk	Student applies The skill of counting the ribs
UMF	I.2. The skeleton of upper limb	Student analyzes Anatomical and imagistic exploration of the bones of the free upper limb and of the upper limb belt
UMF	I.3. The joints of the upper limb	Student identifies The anatomical details of the joints of the free upper limb and of the upper limb belt
UMF	I.3. The joints of the upper limb	Student analyzes Anatomical and imagistic exploration of the joints of the free upper limb and of the upper limb belt
UMF	I.4. The skeleton of the lower limb	Student identifies The anatomical details of the bones forming the lower limb belt and the free lower limb.
UMF	I.4. The skeleton of the lower limb	Student analyzes Anatomical and imagistic exploration of the lower limb belt and of the bones of the free lower limb
UMF	I.5. The joints of the lower limb	Student identifies The anatomical details of the joints of the lower limb belt and of the free lower limb.
UMF	I.5. The joints of the lower limb	Student analyzes Anatomical and imagistic exploration of the joints of the free lower limb and of the lower limb belt
UMF	I.10. Upper limb vascularization	Student is able to anatomically explore and identify the main arteries of the upper limb
UMF	I.10. Upper limb vascularization	Student is able to anatomically explore and identify the main veins of the upper limb
UMF	I.10. Upper limb vascularization	Student is able to anatomically explore and explain the lymphatic drainage of the upper limb
UMF	I.10. Upper limb vascularization	Student is able to Check the arterial pulse in the upper limb
UMF	1. Intracranial hypertension syndrome	Student names the clinical symptoms of ICH
UMF	1. Intracranial hypertension syndrome	Student names Cushing triad

Institution	Learning unit/Course	Learning outcome
UMF	1. Intracranial hypertension syndrome	Student explains the physiology of intracranial pressure
UMF	1. Intracranial hypertension syndrome	Student explains cerebral herniation
UMF	1. Intracranial hypertension syndrome	Student applies ICH principles to particular clinical case
UMF	1. Intracranial hypertension syndrome	Student is able to answer 3 questions
UMF	2. Hydrocephalus	Student names the anatomy of the cerebral ventricular system
UMF	2. Hydrocephalus	Student explains the physiology of CSF circulation
UMF	2. Hydrocephalus	Student names the causes and the clinical symptoms of hydrocephalus
UMF	2. Hydrocephalus	Student describes the Hakim-Adams triad
UMF	2. Hydrocephalus	Student names the treatment options for hydrocephalus
UMF	3. Intracranial expansive processes	Student names the types of intracranial expansive processes
UMF	3. Intracranial expansive processes	Student names the clinical symptoms of expansive processes based on their localisation
UMF	3. Intracranial expansive processes	Student explains the brain-expansive process interaction
UMF	3. Intracranial expansive processes	Student names the principles of treatment
UMF	3. Intracranial expansive processes	Student explains the types of cerebral tumors based on their nature and localization
UMF	3. Intracranial expansive processes	Student names the therapeutic possibilities in cerebral tumors
UMF	3. Intracranial expansive processes	Student names the types of intracranial expansive processes other than tumors
UMF	3. Intracranial expansive processes	Student formulates a clinical case based on the type of cerebral tumor and its localization
UMF	4. Alteration of consciousness	Student explains the physiology of consciousness
UMF	4. Alteration of consciousness	Student names the causes of consciousness loss
UMF	4. Alteration of consciousness	Student names the phases of consciousness loss and defines coma
UMF	4. Alteration of consciousness	Student explains the clinical and topographical diagnosis
UMF	4. Alteration of consciousness	Student names the elements of Glasgow Coma Scale
UMF	4. Alteration of consciousness	Student explains the clinical examination of the comatous patient
UMF	4. Alteration of consciousness	Student applies notions in differentiating between various causes of consciousness loss
UMF	4. Alteration of consciousness	Student names the diagnostic criteria for brain death
UMF	5. Head trauma	Student explains the particularities of brain/skull interaction physics in head impact
UMF	5. Head trauma	Student names the types of brain lesions that can be produced by trauma
UMF	5. Head trauma	Student classifies the cranio-cerebral trauma based on GCS and ames the follow-up criteria
UMF	5. Head trauma	Student names the particularities of cranial fractures
UMF	5. Head trauma	Student names the particularities of diffuse axonal lesions
UMF	5. Head trauma	Student names the particularities of dilaceration



Institution	Learning unit/Course	Learning outcome
UMF	5. Head trauma	Student names the particularities of subdural hematoma
UMF	5. Head trauma	Student names the particularities of extradural hematoma
UMF	5. Head trauma	Student explains the imaging aspects in cranio-cerebral trauma
UMF	5. Head trauma	Student explains the particularities of polytrauma involving brain trauma
UMF	5. Head trauma	Student explains brain trauma guidelines (pre-ICU, adults, children)
UMF	5. Head trauma	Student is able to answer 3 questions
UMF	6. Neurosurgical vascular emergencies	Student names the anatomy of intracranial vasculature
UMF	6. Neurosurgical vascular emergencies	Student names the particularities of brain vascularization physiology
UMF	6. Neurosurgical vascular emergencies	Student names the etiology of spontaneous intracranial/intracerebral hemorrhage
UMF	6. Neurosurgical vascular emergencies	Student names the clinical symptoms and imaging aspects of subarachnoid hemorrhage
UMF	6. Neurosurgical vascular emergencies	Student explains the imaging of spontaneous intracranial/intracerebral hemorrhage
UMF	6. Neurosurgical vascular emergencies	Student describes attitude in the face of a subarachnoid hemorrhage
UMF	6. Neurosurgical vascular emergencies	Student names the treatment options for hydrocephalus
UMF	6. Neurosurgical vascular emergencies	Student describes clinical and imaging aspects in ischemic cerebral diseases
UMF	6. Neurosurgical vascular emergencies	Student knows the principles of medical thrombolysis, mechanical thrombectomy, and surgical treatment in ischemic brain disease
UMF	7. Radicular and medular compression syndrome	Student names the causes for radicular and medular compression
UMF	7. Radicular and medular compression syndrome	Student names the particularities of EPS syndrome
UMF	7. Radicular and medular compression syndrome	Student names the particularities of IPS syndrome
UMF	7. Radicular and medular compression syndrome	Student explains imaging aspects in medular and radicular compression
UMF	7. Radicular and medular compression syndrome	Student explains the principles of radicular compression syndrome management
UMF	7. Radicular and medular compression syndrome	Student is able to answer 3 questions
UMF	8. Vertebral instability syndrome	Student explains the biomechanics of the spine
UMF	8. Vertebral instability syndrome	Student describes the clinical picture of vertebral instability
UMF	8. Vertebral instability syndrome	Student describes imaging aspects in vertebral instability
UMF	8. Vertebral instability syndrome	Student describes the principles of vertebral instability treatment
UMF	9. Vertebro-medular trauma	Student names the stages of spine involvement of trauma
UMF	9. Vertebro-medular trauma	Student names the types of spine fractures
UMF	9. Vertebro-medular trauma	Student explains the physiology of spinal cord in trauma
UMF	9. Vertebro-medular trauma	Student describes imaging aspects in vertebro-medular trauma
UMF	9. Vertebro-medular trauma	Student names therapeutic possibilities in various types of vertebro-medular trauma
UMF	9. Vertebro-medular trauma	Student constructs 3 clinical cases with vertebro-medular trauma localized at various levels within the spine

Institution	Learning unit/Course	Learning outcome
UMF	10. Discopathy and disk herniation	Student describes the anatomy of disk/bony landmarks/nerve root complex
UMF	10. Discopathy and disk herniation	Student names the clinical picture of disk herniation
UMF	10. Discopathy and disk herniation	Student names the phases of discopathy
UMF	10. Discopathy and disk herniation	Student describes imaging aspects in spinal degenerative diseases
UMF	10. Discopathy and disk herniation	Student names the surgical indication in disk herniation
UMF	10. Discopathy and disk herniation	Student applies notions to a case of disk herniation
UMF	11. Neurosurgical clinical exam	Student names the stages of neurologic clinical exam
UMF	11. Neurosurgical clinical exam	Student names the central nervous system structures that need to be evaluated in the exam
UMF	11. Neurosurgical clinical exam	Student knows neurosurgical semiology
UMF	11. Neurosurgical clinical exam	Student applies knowledge to a real neurosurgical case
UMF	11. Neurosurgical clinical exam	Student characterizes the particularities of history taking and narrative medicine in neurosurgery
UMF	12. Basic imaging of the head and spine	Student knows the basic physics and indication of imaging modalities (CT, MRI)
UMF	12. Basic imaging of the head and spine	Student names basic image characteristics for CT
UMF	12. Basic imaging of the head and spine	Student names basic image characteristics for essential MRI modalities (T1, T2, FLAIR, contrast)
UMF	12. Basic imaging of the head and spine	Student applies knowledge to real cases images
UMF	I.6. Upper limb muscles	Student identifies The anatomical details of the musculofascial complexes of the upper limb belt.
UMF	I.6. Upper limb muscles	Student identifies The anatomical details of the musculofascial complexes of the free upper limb.
UMF	I.21. Growth and development of the locomotor system of the limbs and of the vertebral segment of the axial organ.	Student identifies the main stages and processes involved in the development of the limbs and spine
UMF	I.21. Growth and development of the locomotor system of the limbs and of the vertebral segment of the axial organ.	Student identifies the main anomalies that result from the disruption of the processes involved in the development of the limbs and spine.
UMF	I.7. The muscles of the lower limb	Student identifies The anatomical details of the musculofascial complexes of the lower limb belt
UMF	I.7. The muscles of the lower limb	Student identifies The anatomical details of the musculofascial complexes of the free lower limb
UMF	I.8. Torso muscles	Student identifies The anatomical details of the musculofascial complexes of the back
UMF	I.8. Torso muscles	Student identifies The anatomical details of the musculofascial complexes of the thorax
UMF	I.8. Torso muscles	Student identifies The anatomical details of the complex muscles of the abdomen
UMF	I.8. Torso muscles	Student identifies The diaphragm's hiatus and groin canal structures

Institution	Learning unit/Course	Learning outcome
UMF	I.9. Innervation of the upper limb	Student is able to anatomically explore and identify the trunks, cords and branches of the brachial plexus
UMF	III.1. Neurocranium	Student identifies the main stages and processes involved in the development of the neurocranium system
UMF	III.1. Neurocranium	Student identifies the main anomalies resulting from the disruption of the processes involved in the development of the neurocranium
UMF	III.1. Neurocranium	Student masters Anatomical exploration and identification of the bones that make up the neurocranium
UMF	III.2. Viscerocranium	Student identifies the main stages and processes involved in the development of viscerocranium
UMF	III.2. Viscerocranium	Student identifies of the main anomalies resulting from the disruption of the processes involved in the development of viscerocranium
UMF	III.2. Viscerocranium	Student masters Anatomical exploration and identification of the bones that make up the viscerocranium
UMF	II.1. The respiratory system	Student identifies the main stages and processes involved in the development of the respiratory system
UMF	II.1. The respiratory system	Student identifies the main anomalies resulting from the disruption of the processes involved in the development of the respiratory system
UMF	II.1. The respiratory system	Student knows the maneuvers required to explore the chest cavity, the serous compartments and their formations
UMF	II.1. The respiratory system	Student is able to Anatomically explore the organs of the respiratory system (both in situ and extracted from the body
UMF	II.1. The respiratory system	Student identifies the pleuro-pulmonary projection line on the chest wall
UMF	II.2. Cardio-vascular aparatus	Student identifies the main stages and processes involved in the development of the cardiovascular system
UMF	II.2. Cardio-vascular aparatus	Student identifies the main anomalies resulting from the disruption of the processes involved in the development of the cardiovascular system
UMF	II.2. Cardio-vascular aparatus	Student is able to anatomically explore the organs that make up the cardio-vascular apparatus (both in situ and extracted from the body)
UMF	II.2. Cardio-vascular aparatus	Student identifies the pericardio-cardio-orificial projection lines on the chest wall
UMF	II.2. Cardio-vascular aparatus	Student knows the maneuvers needed for exposing the pericardial sinuses
UMF	II.2. Cardio-vascular aparatus	Student identifies the main auscultation areas and the apexian shock on the chest wall
UMF	III. 5. Principles of functional organization and conjunctival spaces at the level of the head and neck	Student describes the main conjunctival spaces at the level of the head and neck
UMF	II. 3. The digestive system:	Student identifies the projection lines of the organs of the digestive system on the thoracoabdominal wall
UMF	II. 3. The digestive system:	Student is able to Anatomically explore the organs that take part in forming the digestive system (in situ and extracted from the body)
UMF	II. 3. The digestive system:	Student practises the maneuvers to explore the peritoneal cavity, its compartments its serous formations
UMF	II. 3. The digestive system:	Student identifies the main anomalies that result from the disruption of the processes involved in the development of the digestive system
UMF	II. 3. The digestive system:	Student identifies the main stages and processes involved in the development of the digestive system
UMF	II. 4. The urinary system:	Student identifies the projection lines of the organs of the urinary system on the abdominal wall

Institution	Learning unit/Course	Learning outcome
UMF	II. 4. The urinary system:	Student is able to o Anatomically explore the organs that take part in forming the urinary system (both in situ and extracted from the body)
UMF	II. 4. The urinary system:	Student identifies the main anomalies resulting from the disruption of the processes involved in the development of the urinary system
UMF	II. 4. The urinary system:	Student identifies the main stages and processes involved in the development of the urinary system
UMF	II. 5. The genital system::	Student knows the skills necessary for the exploration of the pelvis, visceral lodges and their contents. Exploration of the pelvis subperitoneal space
UMF	II. 5. The genital system::	Student is able to o Anatomically explore the organs that make up the genital system (both in situ and extracted from the body)
UMF	II. 5. The genital system::	Student identifies the main anomalies resulting from the disruption of the processes involved in the development of the genital system
UMF	II. 5. The genital system::	Student identifies the main stages and processes involved in the development of the male and female genital system
UMF	II. 6. The nervous system (trunk level):	Student identifies the main components of the sympathetic paravertebral chain
UMF	II. 6. The nervous system (trunk level):	Student identifies the main nerve plexuses innervating the thoracic and abdominal-pelvic viscera
UMF	II. 7. Trunk endocrine system	Student identifies and explores the main components of the endocrine system (trunk level
UMF	III.13. Nerves of head and neck	Student explains the anatomical description and exploration of the main components of the cervical plexus and the cervical sympathetic trunk
UMF	III.13. Nerves of head and neck	Student explains the anatomical description and exploration of the cranial nerves
UMF	III.13. Nerves of head and neck	Student demonstrates nervous projections and discoveries in the head
UMF	III.14. Regional anatomy of the head	Student explains the anatomical description and exploration of the main anatomical topographic regions of the head
UMF	III.14. Regional anatomy of the head	Student demonstrates head projections and discoveries
UMF	III.15. Anatomical regions of the neck	Student explains the anatomical description and exploration of the main anatomical topographic regions of the neck
UMF	III.15. Anatomical regions of the neck	Student demonstrates throat projections and discoveries
UMF	IV.1. Morphogenesis and principles of the functional organization in the central nervous system	Student identifies the main stages and processes involved in the morphogenesis of the central nervous system
UMF	IV.1. Morphogenesis and principles of the functional organization in the central nervous system	Student identifies the main developmental abnormalities arising from the disturbance of the morphogenesis of the central nervous system
UMF	IV.1. Morphogenesis and principles of the functional organization in the central nervous system	Student explains the theories and levels of organization of the central nervous system
UMF	IV.2. The spinal cord	Student explains the anatomical, sectional and imaging exploration of the spinal cord
UMF	IV.2. The spinal cord	Student identifies the main neural stations of the posterior and anterolateral cord systems
UMF	IV.2. The spinal cord	Student identifies the prolongations and spaces of the spinal cord

Institution	Learning unit/Course	Learning outcome
UMF	IV.3. Brainstem	Student explains the anatomical, sectional and imaging exploration of the brainstem
UMF	IV.3. Brainstem	Student identifies the main nuclear groups in the brainstem
UMF	IV.4. Cerebellum	Student explains the anatomical, sectional and imagistic exploration of the cerebellum
UMF	IV.4. Cerebellum	Student identifies the main circuits in the cerebellum and describes them
UPJS	Clinically important regions of upper limb	Student names all regions of upper limb
UPJS	Upper limb from orthopedic point of view	Student distinguishes types of fractures in particular parts of upper limb
UPJS	Clinically important regions of upper limb	Student characterizes superficial and deep structures of upper limb
UPJS	Upper limb from orthopedic point of view	Student characterizes dislocations of particular parts of upper limb
UPJS	Pelvis borders, pelvic diameters, walls of pelvis	Student defines walls of pelvis
UPJS	Thorax - borders. Thoracic wall. Diaphragm	Student characterizes lines of orientation of thoracic borders
UPJS	Thorax - borders. Thoracic wall. Diaphragm	Student describes movement of the ribs and sternum during breathing
UPJS	Upper limb from orthopedic point of view	Student describes carpal tunnel syndrome
UPJS	Thorax - borders. Thoracic wall. Diaphragm	Student names layers of thoracic wall
UPJS	Thorax - borders. Thoracic wall. Diaphragm	Student names ligaments, joints and curvatures of vertebral column
UPJS	Thorax - borders. Thoracic wall. Diaphragm	Student distinguishes arteries and veins of the thoracic wall
UPJS	Thorax - borders. Thoracic wall. Diaphragm	Student characterizes function of diaphragm
UPJS	Mediastinum - division. Superior and inferior mediastinum	Student describes Mediastinum division
UPJS	Mediastinum - division. Superior and inferior mediastinum	Student characterizes function, innervation and blood supply of mediastinum structures
UPJS	Heart - external description	Student is able to explain systemic and pulmonary circulation
UPJS	Heart - external description	Student describes arteries and veins of human body
UPJS	Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves	Student distinguishes atriums and ventricles of the heart
UPJS	Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves	Student explains lymphatic drainage of the heart
UPJS	Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves	Student distinguishes auscultation sites
UPJS	Respiratory system. Upper and lower respiratory tract, lungs, pleura	Student describes anatomical structures of lower respiratory tract

Institution	Learning unit/Course	Learning outcome
UPJS	Respiratory system. Upper and lower respiratory tract, lungs, pleura	Student explains blood supply, innervation and function of particular parts of respiratory system
UPJS	Respiratory system. Upper and lower respiratory tract, lungs, pleura	Student describes clinical tips of respiratory obstruction
UPJS	Repetition of anatomical structures of thorax	Student names layers of thoracic wall
UPJS	Urinary system. Adrenal (suprarenal) glands	Student describes structure and function of nephron
UPJS	Urinary system. Adrenal (suprarenal) glands	Student describes transplantation of kidney
UPJS	Autonomic nervous system	Student describes sympathetic and parasympathetic part of autonomic nervous system
UPJS	Male genital organs	Student distinguishes internal and external male genital organs
UPJS	Female genital organs	Student distinguishes internal and external female genital organs
UPJS	Endocrine system and skin	Student defines parts of skin
UPJS	Endocrine system and skin	Student describes appendages of skin
UPJS	Pelvic floor. Regional anatomy of lesser pelvis. Blood supply, lymphatic drainage and innervation of pelvic organs	Student names bones, borders, organs and diaphragms of pelvic floor
UPJS	Pelvic floor. Regional anatomy of lesser pelvis. Blood supply, lymphatic drainage and innervation of pelvic organs	Student defines branches of internal iliac artery
UPJS	Repetition of pelvic and abdominal anatomical structures	Student interprets knowledge of pelvic anatomical structures
UPJS	Skull - neurocranium, cervical vertebrae and their joints	Student describes function of cervical vertebrae joints
UPJS	Medulla oblongata, pons, rhomboid fossa - external and internal description, tracts of spinal cord	Student describes function of reticular formation in medulla oblongata
UPJS	Medulla oblongata, pons, rhomboid fossa - external and internal description, tracts of spinal cord	Student describes anatomical structure of medulla oblongata, pon and fossa rhomboidea
UPJS	Medulla oblongata, pons, rhomboid fossa - external and internal description, tracts of spinal cord	Student defines parts and development of Rhomboid fossa
UPJS	Medulla oblongata, pons, rhomboid fossa - external and internal description, tracts of spinal cord	Student describes function of reticular formation
UPJS	Medulla oblongata, pons, rhomboid fossa - external and internal description, tracts of spinal cord	Student characterizes nervous tracts of brainstem
UPJS	Medulla oblongata, pons, rhomboid fossa - external	Student describes external features and internal structure of pons



Institution	Learning unit/Course	Learning outcome
	and internal description, tracts of spinal cord	
UPJS	Nerve tracts " overview	Student characterizes different types of nerve tracts
UPJS	Organs of hearing	Student characterizes layers of auditory and vestibular apparatus
UPJS	Organs of hearing	Student explains function of auditory organs
UPJS	Organs of hearing	Student describes blood supply and innervation of auditory and vestibular apparatus
UPJS	Organs of hearing	Student describes auditory pathway
UPJS	Organs of hearing	Student describes vestibular pathway
UPJS	Pelvis borders, pelvic diameters, walls of pelvis	Student analyses gender differences of pelvis
UPJS	Thorax " borders. Thoracic wall. Diaphragm	Student describes joints of the ribs
UPJS	Thorax " borders. Thoracic wall. Diaphragm	Student distinguishes deep, middle and superficial layers of thoracic wall
UPJS	Thorax " borders. Thoracic wall. Diaphragm	Student characterizes function, blood supply, innervation and lymph drainage of mammary gland
UPJS	Mediastinum - division. Superior and inferior mediastinum	Student distinguishes superior and inferior mediastinum
UPJS	Mediastinum - division. Superior and inferior mediastinum	Student describes function of sympathetic trunk, autonomic nervous system, thoracic ganglia
UPJS	Heart - external description	Student categorizes components of Pericardium
UPJS	Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves	Student defines layers of the heart wall
UPJS	Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves	Student names valves of the heart
UPJS	Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves	Student explains cardiac conduction system
UPJS	Heart - chambers, valves, cardiac skeleton, conducting system, blood supply. Auscultation of the valves	Student describes blood supply and innervation of the heart
UPJS	Respiratory system. Upper and lower respiratory tract, lungs, pleura	Student describes anatomical structures of upper respiratory tract
UPJS	Respiratory system. Upper and lower respiratory tract, lungs, pleura	Student names cartilages, ligaments and cavities of respiratory system
UPJS	Respiratory system. Upper and lower respiratory tract, lungs, pleura	Student explains borders of lung and pleura
UPJS	Repetition of anatomical structures of thorax	Student characterizes lines of orientation of thoracic borders
UPJS	Repetition of anatomical structures of thorax	Student distinguishes deep, middle and superficial layers of thoracic wall

Institution	Learning unit/Course	Learning outcome
UPJS	Urinary system. Adrenal (suprarenal) glands	Student describes organs of urinary system and their structure and function
UPJS	Urinary system. Adrenal (suprarenal) glands	Student names muscles of urinary bladder and urethra
UPJS	Urinary system. Adrenal (suprarenal) glands	Student describes blood supply and innervation of urinary system organs
UPJS	Autonomic nervous system	Student describes function of autonomic nervous system
UPJS	Autonomic nervous system	Student is able to name and describe function the most important autonomic plexuses of the body
UPJS	Male genital organs	Student describes organs of male genital system and their structure and function
UPJS	Female genital organs	Student describes organs of female genital system and their structure and function
UPJS	Endocrine system and skin	Student describes glands of endocrine system and their anatomical structure and function
UPJS	Endocrine system and skin	Student defines types of hair
UPJS	Pelvic floor. Regional anatomy of lesser pelvis. Blood supply, lymphatic drainage and innervation of pelvic organs	Student describes blood supply and innervation of pelvic floor organs
UPJS	Pelvic floor. Regional anatomy of lesser pelvis. Blood supply, lymphatic drainage and innervation of pelvic organs	Student describes blood supply and lymphatic drainage of rectum
UPJS	Repetition of pelvic and abdominal anatomical structures	Student discusses about abdominal anatomical structures
UPJS	Repetition of pelvic and abdominal anatomical structures	Student is able to practise their skills
UPJS	Skull - neurocranium, cervical vertebrae and their joints	Student names and describes cervical vertebrae
UPJS	Skull - neurocranium, cervical vertebrae and their joints	Student names and describe neurocranium bones
UPJS	Skull - splanchnocranium and neurocranium, skull cavities	Student names bones of skull
UPJS	Skull - splanchnocranium and neurocranium, skull cavities	Student names spaces of skull
UPJS	Skull - splanchnocranium and neurocranium, skull cavities	Student describes ossification of cranial bones
UPJS	Skull - splanchnocranium and neurocranium, skull cavities	Student describes deformities and sutures of skull
UPJS	Skull - splanchnocranium and neurocranium, skull cavities	Student describes function of temporomandibular joint
UPJS	Skull - splanchnocranium and neurocranium, skull cavities	Student names ligaments, movements, blood supply and innervation of temporomandibular joint
UPJS	Muscles of head and neck, arterial blood supply of head and neck	Student describes types of muscles of the head
UPJS	Muscles of head and neck, arterial blood supply of head and neck	Student describes function of particular muscles of the head



Institution	Learning unit/Course	Learning outcome
UPJS	Muscles of head and neck, arterial blood supply of head and neck	Student characterizes paralysis of facial muscles
UPJS	Muscles of head and neck, arterial blood supply of head and neck	Student names muscles of the neck
UPJS	Muscles of head and neck, arterial blood supply of head and neck	Student describes function of particular muscles of the neck
UPJS	Muscles of head and neck, arterial blood supply of head and neck	Student describes arterial blood supply of the head and the neck
UPJS	Venous and lymphatic drainage of head and neck. Cranial nerves "overview"	Student describes parts of subclavian artery
UPJS	Venous and lymphatic drainage of head and neck. Cranial nerves "overview"	Student characterizes arterial anastomoses of the neck
UPJS	Venous and lymphatic drainage of head and neck. Cranial nerves "overview"	Student describes venous drainage of the neck
UPJS	Venous and lymphatic drainage of head and neck. Cranial nerves "overview"	Student distinguishes types of cranial tributaries and know their names
UPJS	Venous and lymphatic drainage of head and neck. Cranial nerves "overview"	Student characterizes venous anastomoses of the neck
UPJS	Venous and lymphatic drainage of head and neck. Cranial nerves "overview"	Student describes lymphatic drainage of the head and the neck
UPJS	Venous and lymphatic drainage of head and neck. Cranial nerves "overview"	Student describes cranial nerves and axons
UPJS	Innervation of the head and neck, cranial nerves, cervical plexus, ANS.	Student describes sensory, motor and autonomic nerves of the head and the neck
UPJS	Innervation of the head and neck, cranial nerves, cervical plexus, ANS.	Student names spinal cervical nerves and their function
UPJS	Innervation of the head and neck, cranial nerves, cervical plexus, ANS.	Student names cranial nerves and their function
UPJS	Innervation of the head and neck, cranial nerves, cervical plexus, ANS.	Student describes innervation of tongue
UPJS	Regional anatomy and clinically important regions of head, parasympathetic ganglia	Student characterizes parotidomasseteric region
UPJS	Regional anatomy and clinically important regions of head, parasympathetic ganglia	Student describes lines and compartments of orbital cavity
UPJS	Regional anatomy and clinically important regions	Student defines blood supply and innervation of nasal cavity

Institution	Learning unit/Course	Learning outcome
	of head, parasympathetic ganglia	
UPJS	Regional anatomy and clinically important regions of head, parasympathetic ganglia	Student defines parasympathetic system and ganglions
UPJS	Cranial nerves VIII.-XII., cervical plexus, sympathetic trunk and regional anatomy of head and neck	Student characterizes function of cranial nerves VIII.-XII
UPJS	Cranial nerves VIII.-XII., cervical plexus, sympathetic trunk and regional anatomy of head and neck	Student characterizes function of cervical plexus
UPJS	Cranial nerves VIII.-XII., cervical plexus, sympathetic trunk and regional anatomy of head and neck	Student characterizes function of sympathetic trunk
UPJS	Cranial nerves VIII.-XII., cervical plexus, sympathetic trunk and regional anatomy of head and neck	Student describes regional anatomy of head and neck
UPJS	Subclavian a. and innervation of head and neck - cranial nerves I.-VII.	Student characterizes function of subclavian a.
UPJS	Subclavian a. and innervation of head and neck - cranial nerves I.-VII.	Student characterizes function of cranial nerves I.-VII.
UPJS	Regional anatomy and clinically important regions of the neck	Student defines borders of the neck
UPJS	Regional anatomy and clinically important regions of the neck	Student describes palpable and visible structures of the neck
UPJS	Regional anatomy and clinically important regions of the neck	Student defines regions of the neck
UPJS	Regional anatomy and clinically important regions of the neck	Student names organs of the neck and describe their function
UPJS	Repetition of anatomical structures of the head and the neck	Student characterizes anatomical structures of the neck
UPJS	Repetition of anatomical structures of the head and the neck	Student characterizes anatomical structures of the head
UPJS	Division of CNS, spinal cord	Student classifies central nervous system and function
UPJS	Division of CNS, spinal cord	Student describes anatomical structure and function of neuron
UPJS	Division of CNS, spinal cord	Student describes division of brain
UPJS	Division of CNS, spinal cord	Student describes distribution of white and grey matter
UPJS	Division of CNS, spinal cord	Student characterizes anatomical structure and function of spinal cord
UPJS	Midbrain (brain stem) and nerve tracts	Student characterizes nervous tracts of brainstem



Institution	Learning unit/Course	Learning outcome
UPJS	Midbrain (brain stem) and nerve tracts	Student characterizes borders of midbrain
UPJS	Midbrain (brain stem) and nerve tracts	Student characterizes division of midbrain
UPJS	Midbrain (brain stem) and nerve tracts	Student characterizes internal structure of tectum, cerebral crus and tegmentum mesencephali
UPJS	Reticular formation	Student describes function of reticular formation
UPJS	Reticular formation	Student distinguishes the division of reticular formation
UPJS	Reticular formation	Student describes efferent connections from reticular formation
UPJS	Cerebellum and its connections	Student describes function of cerebellum
UPJS	Cerebellum and its connections	Student characterizes morphological division of cerebellum
UPJS	Cerebellum and its connections	Student defines tracts of cerebellum
UPJS	Cerebellum and its connections	Student is able to describe functional anatomy of cerebellum
UPJS	Diencephalon - external and internal structure. Basal ganglia - nerve tracts	Student describes function of diencephalon
UPJS	Diencephalon - external and internal structure. Basal ganglia - nerve tracts	Student characterizes main divisions of diencephalon
UPJS	Diencephalon - external and internal structure. Basal ganglia - nerve tracts	Student describes external and internal structure of diencephalon
UPJS	Diencephalon - external and internal structure. Basal ganglia - nerve tracts	Student defines anatomical classification of basal ganglia
UPJS	Diencephalon - external and internal structure. Basal ganglia - nerve tracts	Student names disorders of basal ganglia
UPJS	Telencephalon - functional regions of brain cortex. Olfactory and limbic system - nerve tracts	Student characterizes parts of telencephalon
UPJS	Telencephalon - functional regions of brain cortex. Olfactory and limbic system - nerve tracts	Student defines functional cortical areas of telencephalon
UPJS	Telencephalon - functional regions of brain cortex. Olfactory and limbic system - nerve tracts	Student describes olfactory system
UPJS	Telencephalon - functional regions of brain cortex. Olfactory and limbic system - nerve tracts	Student describes limbic system
UPJS	Telencephalon - functional regions of brain cortex. Olfactory and limbic system - nerve tracts	Student defines deep structures and white matter of telencephalon
UPJS	Organs of vision	Student describes anatomical structure and layers of eyeball
UPJS	Organs of vision	Student names and describe function of accessory organs of eye



Institution	Learning unit/Course	Learning outcome
UPJS	Organs of vision	Student is able to characterize strabismus
UPJS	Organs of vision	Student explains blood supply and innervation of orbit
UPJS	Organs of vision	Student describes visual pathway
UPJS	Skeleton of upper limb	Student distinguishes cardinal planes
UPJS	Skeleton of upper limb	Student is able to name the parts of upper limb
UPJS	Skeleton of upper limb	Student masters range of motion in particular joints of upper limb
UPJS	Arterial blood supply of lower limb	Student is able to distinguish lower limb arteries
UPJS	Arterial blood supply of lower limb	Student characterizes venous drainage of the lower limb
UPJS	Arterial blood supply of lower limb	Student characterizes lymphatic drainage of the lower limb
UPJS	Arterial blood supply, venous and lymphatic drainage of upper limb	Student defines superficial and deep palmar arch
UPJS	Arterial blood supply, venous and lymphatic drainage of upper limb	Student explains relationship between Brachial a. and another structures
UPJS	Arterial blood supply, venous and lymphatic drainage of upper limb	Student names lymph vessels of upper limb
UPJS	Brachial plexus and sensory innervation of upper limb	Student defines myotome
UPJS	Brachial plexus and sensory innervation of upper limb	Student analyses function of Branchial plexus
UPJS	Brachial plexus and sensory innervation of upper limb	Student defines dermatome
UPJS	Brachial plexus and sensory innervation of upper limb	Student names nerves of Branchial plexus
UPJS	Connections of bones in general	Student characterizes connection of bones
UPJS	Connections of bones in general	Student classifies joints
UPJS	Connections of bones in general	Student is able to use terminology
UPJS	Introduction to anatomy	Student is able to use anatomical nomenclature
UPJS	Introduction to anatomy	Student distinguishes cardinal planes
UPJS	Introduction to anatomy	Student describes anatomic location and directions
UPJS	Introduction to digestive system	Student defines anatomical structures of oral cavity
UPJS	Introduction to digestive system	Student distinguishes types of teeth
UPJS	Joints of lower limb	Student classifies all connection of lower limb
UPJS	Joints of lower limb	Student describes joint of pelvic girdle and joints free lower limb
UPJS	Joints of lower limb	Student formulates function of lower limb and ligaments
UPJS	Joints of upper limb	Student classifies joints
UPJS	Joints of upper limb	Student knows function of ligaments
UPJS	Joints of upper limb	Student knows function of joints
UPJS	Lower limb from orthopedic point of view	Student describes compartment syndrome
UPJS	Lower limb from orthopedic point of view	Student characterizes dislocations of particular parts of lower limb



Institution	Learning unit/Course	Learning outcome
UPJS	Lower limb from orthopedic point of view	Student distinguishes types of fractures in lower limb extremity
UPJS	Digestive system	Student characterizes organs of digestive system
UPJS	Digestive system	Student defines anatomical structures of digestive system
UPJS	Digestive system	Student describes blood supply and innervation of particular parts of digestive system
UPJS	Lumbar and sacral plexus, sensory innervation of lower limb	Student analyses function of Lumbar and Sacral plexus
UPJS	Lumbar and sacral plexus, sensory innervation of lower limb	Student names nerves of Lumbar and Sacral plexus
UPJS	Lumbar and sacral plexus, sensory innervation of lower limb	Student describes sensory and motor innervation of Lower Limb
UPJS	Muscles in general	Student characterizes types of muscles
UPJS	Muscles in general	Student describes function of motor unit
UPJS	Muscles in general	Student describes structure of muscle
UPJS	Muscles in general	Student describes structure of tendon
UPJS	Muscles of lower limb	Student distinguishes fascias and muscles of lower limb
UPJS	Muscles of lower limb	Student names fascias and muscles of lower limb
UPJS	Muscles of lower limb	Student characterizes types of movement
UPJS	Muscles of lower limb	Student describes function and innervation of lower limb
UPJS	Muscles of upper limb	Student distinguishes muscles of upper limb
UPJS	Muscles of upper limb	Student identifies nerves of muscles
UPJS	Muscles of upper limb	Student describes function of rotator cuff
UPJS	Nervous system in general	Student characterizes central and peripheral nervous system
UPJS	Nervous system in general	Student defines branches of spinal nerve
UPJS	Nervous system in general	Student describes the structure of spinal nerve
UPJS	Regional anatomy of lower limb	Student defines visible structures of lower limb
UPJS	Regional anatomy of lower limb	Student defines palpable structures of lower limb
UPJS	Regional anatomy of lower limb	Student names spaces of lower limb
UPJS	Regional anatomy of upper limb	Student analyses surface anatomy
UPJS	Regional anatomy of upper limb	Student identifies visible structures of upper limb
UPJS	Regional anatomy of upper limb	Student determines palpable structures of upper limb
UPJS	Regional anatomy of upper limb	Student distinguishes spaces of upper limb
UPJS	Repetition of anatomical structures of lower limb and pelvis	Student defines anatomical structures of lower limb
UPJS	Repetition of anatomical structures of lower limb and pelvis	Student describes function of lower limb structures
UPJS	Repetition of anatomical structures of lower limb and pelvis	Student describes innervation of lower limb structures

Institution	Learning unit/Course	Learning outcome
UPJS	Repetition of structures of upper limb	Student defines structures of upper limb
UPJS	Repetition of structures of upper limb	Student describes function of upper limb structures
UPJS	Repetition of structures of upper limb	Student describes innervation of upper limb structures
UPJS	Skeleton of lower limb	Student describes surface anatomy of lower limb
UPJS	Skeleton of lower limb	Student distinguishes bones of pelvic girdle, bones of free lower limb and bones of foot
UPJS	Skeleton of lower limb	Student knows function of lower limb
UPJS	Vascular system in general	Student knows difference between artery and vein
UPJS	Vascular system in general	Student describes systemic and pulmonary circulation
UPJS	Vascular system in general	Student identifies inner, middle and outer layer of vessels
UPJS	Abdominal wall. Inguinal canal. Peritoneum. Spleen	Student defines groups of abdominal wall muscles
UPJS	Abdominal wall. Inguinal canal. Peritoneum. Spleen	Student defines fascias of abdominal wall
UPJS	Abdominal wall. Inguinal canal. Peritoneum. Spleen	Student names arteries and nerves of abdominal wall
UPJS	Abdominal wall. Inguinal canal. Peritoneum. Spleen	Student distinguishes and defines abdominal and peritoneal cavity
UPJS	Retroperitoneal space	Student characterizes branches of abdominal aorta
UPJS	Retroperitoneal space	Student describes anatomical structures of retroperitoneal space
UPJS	Retroperitoneal space	Student names tributaries of inferior vena cava
UPJS	Retroperitoneal space	Student describes autonomic nerves of abdominal wall
UPJS	Retroperitoneal space	Student explains function of somatic nerves of posterior abdominal wall
UPJS	Brain ventricles, coverings and blood supply of the brain	Student names and explains function of large arteries of brain
UPJS	Brain ventricles, coverings and blood supply of the brain	Student describes groups of brain veins
UPJS	Brain ventricles, coverings and blood supply of the brain	Student describes venous sinuses of the dura mater
UPJS	Brain ventricles, coverings and blood supply of the brain	Student characterizes and distinguishes parts of cerebrospinal fluid system
UPJS	Brain ventricles, coverings and blood supply of the brain	Student explains function of meninges
UPJS	Revision of the structures of CNS	Student analyses anatomical structures and parts of brain
UPJS	Bones in general	Student explains structure of bones
UPJS	Bones in general	Student classifies bones
UPJS	Bones in general	Student characterizes vessels and nerves of bone



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