Introduction to Basic Medical Terminology
(aVLLT0121)

AUTUMN 2019

Course requirements and rules

- ## STUDY MATERIALS
  - materials available in the IS
  - textbook: Prucklová, R. – Severová, M.: *Introduction to Latin and Greek Terminology in Medicine*. Praha: KLP, 2012 (Units 1–7)
  - drill on the IS (https://is.muni.cz/auth/dril/?lang=en)

- ## TESTING
  - 2 progress tests (pass limit = 70%)
  - credit test (pass limit: 60–70%)
  - rules for testing
 - access to test results

- ## CLASS ATTENDANCE AND SUBSTITUTIONS

Latin in medical terminology

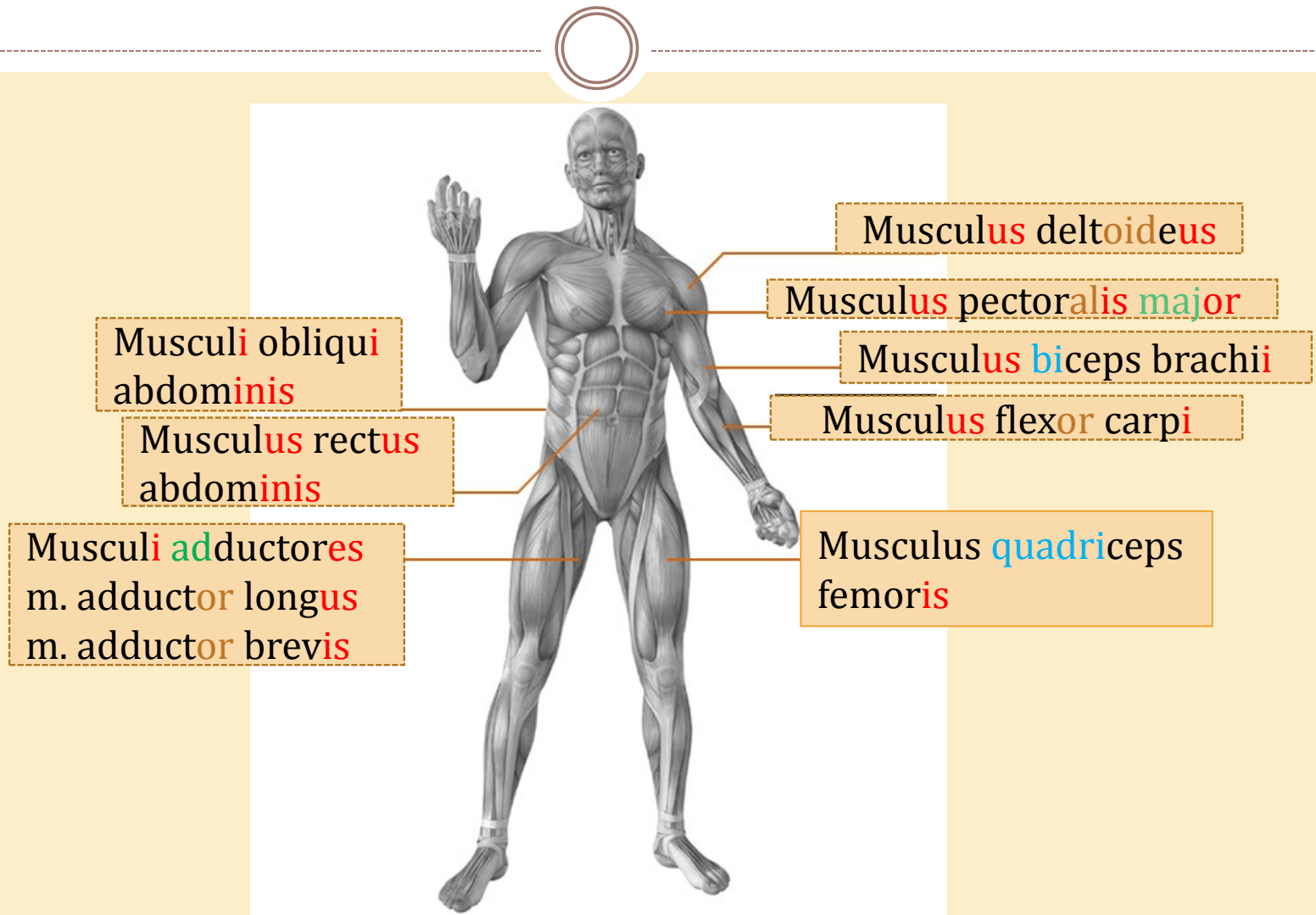= universal, precise and flexible system of terms used in:

- **anatomical nomenclature** (= definite set of terms denoting parts and structures of the human body)

    – first worldwide official standard terminology appeared in 1895 (*Basiliensia Nomina Anatomica*), since then it has been periodically updated and changed to implement new findings and/or understanding of the anatomical structures

    – current terminology, approved by FCAT (Federative Committee on Anatomical Terminology), was published in 1998 as TERMINOLOGIA ANATOMICA (cf. http://www.unifr.ch)

Anatomical structures
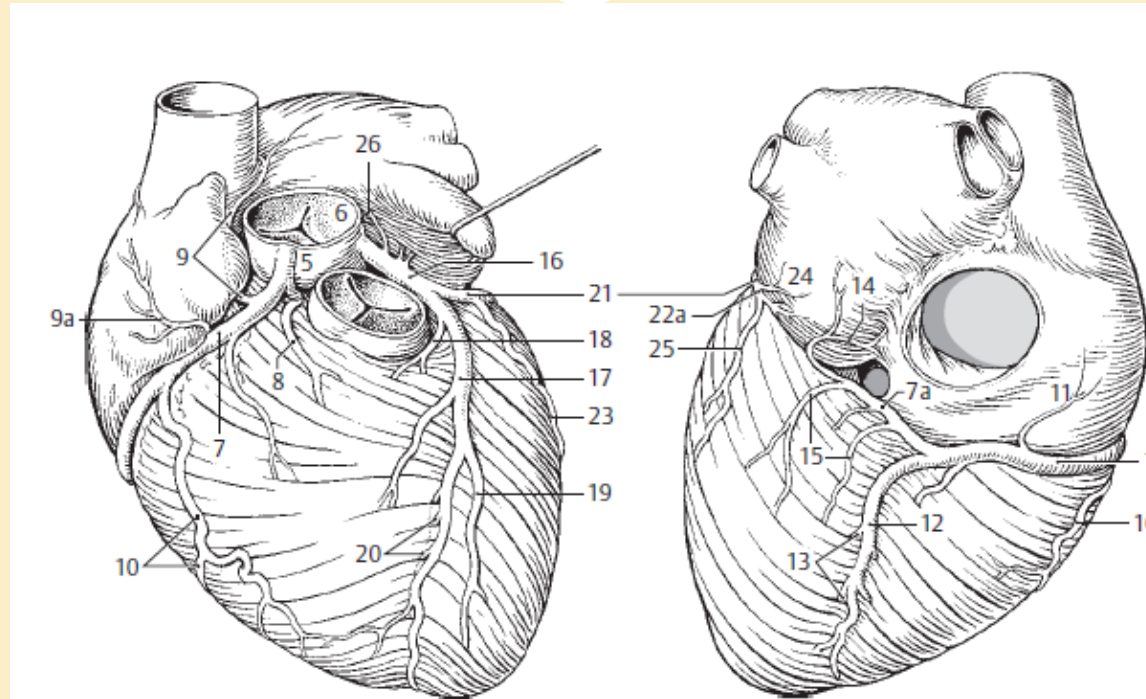
5 bulbus aortae	12 ramus atrialis intermedius	19 ramus coni arteriosi
6 arteria coronaria dextra	13 ramus interventricularis posterior	20 ramus lateralis
7 rami atrioventriculares	14 rami interventriculares septales	21 rami interventriculares septales
8 ramus coni arteriosi	15 ramus nodi atrioventricularis	22 ramus circumflexus
9 ramus nodi sinuatrialis	16 ramus posterolateralis dexter	23 ramus atrialis anastomoticus
10 ramia atriales	17 arteria coronaria sinistra	
11 ramus marginalis dexter	18 ramus interventricularis major	

Anatomical structures

Musculus deltoideus

Musculus pectoralis major

Musculus biceps brachii

Musculus flexor carpi

Musculi obliqui abdominis

Musculus rectus abdominis

Musculi adductores
m. adductor longus
m. adductor brevis

Musculus quadriceps femoris

Latin in medical terminology

= universal, precise and flexible system of terms used in:

- **clinical terminology** (= non-definite set of terms denoting diseases, health conditions or causes of death)

  – the first international classification of diseases
    was adopted in 1893

  – current terminology ICD-10 (*International Classification
    of Diseases*) is approved by WHO and published every ± 10 years
    (www.who.int/classifications/icd/en/)

  – widely used in medical documentation, e.g. in medical reports,
    surgical and hospital reports, pathological reports (central Europe,
    Russia and former republics of USSR, partly Western Europe –
    Germany, Austria)

Clinical diagnosis

```
Dg: T068 Polytrauma
    W1731    Pád s padákem
    S4220    Fractura humeri proximalis l. sin comminutiva luxans
    S3250    Fr. rami sup. et inferioris ossis pubis l. dx
    S3250    Fr. ramus sup. ossis pubis l. sin
    S3210    Fr. sacri l. dx
    S2210    Fr. corporis vertebrae thoraciceae VII et VIII.
    S3200    fr. procesus transversi vertebrae lumbalis II.-IV.
    S3700    Contusio renis l. dx cum hematoma perirenale
    S134     Distensio ligg. col. vert. partis cervicalis
    S202     Contusio thoracis l. sin
    S2730    Contusio pulm. l. sin
    S2710    Hemothorax postraumaticum l. sin
    S4210    Fr. proc. coracoideus scapulae l. sin
    I269     Embolia pulmonum susp.
```

ICD http://apps.who.int/classifications/icd10 ⟶ S20.2 = Contusion of thorax

Dissection protocol

I.a/ Otok mozku, podchlazení
  c/ Podchlazení organizmu   E 901, 991

I.
CONGELATIO.
Alcoholaemia :
Alcoholuria :
Livores mortis lucide rubri.
II.
Oedema cerebri grave, conus occipitalis et temporalis. Ecchymoses
aliquot subpleurales. Venostasis acuta pulmonum. Haemorrhagiae
dispersae pulmonum. Sanguis ventriculorum cordis liguidus.
Venostasis acuta organorum abdominalium.
III.
Oedema cerebri. Congelatio.
IV.
Atherosclerosis aortae I.gradus et arteriarum periphericarum minoris
gradus. Bronchitis catarrhalis chronica. Emphysema chronicum
vesicularum pulmonum. Hypertrophia trabecularis concentrica ventricul
dextri cordis /cor pulmonale/. Haematoma subcutanema faciei,
extremitarum inferiorum et superiorum. Excoriationes superficiales
cutis dorsi manusl.u&riusque.

Latin in medical terminology

= universal, precise and flexible system of terms used in:

- **pharmacological terminology** = definite set of terms used in European Pharmacopoea to denote:

  – essential medicines (*acidum phosphoricum*)

  – classes of medicines (*antipyretica*, *spasmolytica*)

  – forms of medicines (*solutio*, *injectio*, *tabuletta*)

  – drugs (*calendula officinalis*)

- **prescriptions**

  – the main part of the prescription (including the name and quantity of the medicine as well as the way of its administration) is usually written in Latin, using a system of standard abbreviations

Medical prescription

Learning outcomes

At the end of the course, you will be able to:

➤ understand the structure of anatomical terms and apply them correctly (this makes the memorizing of anatomical terminology much easier!)

➤ understand the principles of forming more complex (anatomical and clinical) terms

➤ understand and write a clinical diagnosis

➤ write a medical prescription

Latin pronunciation

Vowels

A	Ā	B	C	D	E	Ē	F	G	H	I	Ī	K	L	M	N

O	Ō	P	Q	R	S	T	U	Ū	V	X	Y	Ÿ	Z

Vowels

Long

Ā (f**a**ther) fr**ā**ctūra

Ē (s**a**d) art**ē**ria

Ī (intr**i**gue) sp**ī**na

Ō (d**oo**r) sens**ō**rius

Ū (b**oo**m) rupt**ū**ra

Y (anal**y**sis) h**y**pophysis

Short

A (c**u**t) lingu**a**

E (m**e**t) v**e**rte**b**ra

I (**i**ntrigue) d**i**gitus

I (**y**es) > J

O (**o**n) skelet**o**n

U (p**u**t) **u**ter**u**s

Y (lad**y**) t**y**mpanum

Diphtongs

AE=Ē (c**a**re) an**ae**mia

OE=Ē (c**a**re) lag**oe**na

Greek words

OE (o-e) dyspn**oe**

EU (e-u) **eu**thanasia

Read aloud

- hypnosis
- ala
- olla
- eupnoe
- ileus
- mucus
- haematoma
- iliacus
- ossa
- diploe
- cubitus
- venae
- diameter
- sacralis
- ulcus
- iris
- sutura
- sigmoideus
- depressor
- area
- oesophagus
- melior
- meatus
- leucocytus

Consonants

A | Ā | B | C | D | E | Ē | F | G | H | I | Ī | K | L | M | N

O | Ō | P | Q | R | S | T | U | Ū | V | X | Y | Ŷ | Z

Consonant/group of consonants	Pronunciation	Example
1: c + a, o, u, consonants	[k] medi**c**al	c<u>a</u>mera, c<u>o</u>sta, c<u>u</u>ltivatio, c<u>r</u>anium
c + ae, oe, e, i, y	[ts]	c<u>ae</u>cus, c<u>oe</u>liac<u>i</u>a, c<u>e</u>ntrum, c<u>i</u>rculatio, c<u>y</u>nismus
2: ch	[x = Greek chi]	chirurgia, cholera

Consonants II

Consonant/group of consonants	Pronunciation	Example
3: **g** **gu + vowel**	[g] **g**round [gv]	gramma, gastritis lingua, sanguis
4: **h**	[h] **h**ouse	herba, haematologia
5: **j/i + vowel**	[y] **y**es	iniectio/injectio, maior/major
6: **p** **p + h**	[p] **p**resent [f] **ph**ysiology	pneumonia, pulmo phantasia, pharmacia
7: **qu+ vowel**	[kv]	aqua, quadriceps
8: **r** **r+h**	[r] **r**upture [r]	vertebra, ruptura rheuma, rhinitis

Consonants III

Consonant/group of consonants	Pronunciation	Example
9: s/ss **s** *between two vowels and following after l, r, n* **s** *between a vowel and m*	[s] **s**ome [z] **z**ebra [z] **z**ebra	serum, fossa nasus, incisura, pulsus, inversus, tonsilla, suspensio spasmus

10: t
  ti
  ti *+ vowel*
  s/t/x + ti *+ vowel*
  t+h
	[t] **t**ongue
	[ty]
	[tsi]
	[ty]
	[t]
		trauma, tactus
		tibia
		operatio, substantia
		ostium, mixtio
		therapia, thermometrum

11: z	[z] **z**one	zoologia

Read aloud

- cancer, medicamentum, lingua
- thorax, pulsus, contusio
- corpus, exitus, functio
- hemispherium, angulus, fractura
- intestinum, aqua, pharmacon
- oedema, musculus, defectus
- medicus, operatio, infarctus
- homo, bronchus, duodenum
- angina, haemorrhagia, spasmus

- encephalon, bacterium, acne
- migraena, pharynx, dysenteria
- inflammatio, leucaemia, virus
- laparoscopia, typhus, organismus
- therapia, digitus, gingiva
- gangraena, diagnosis, tonsilla
- injectio, lympha, oxygenium
- vademecum, insufficientia, chirurgia

Grammatical categories of Latin nouns and adjectives

Morphological typology of languages:
English vs. Latin

- **analytic / isolating languages**

  = rely mainly on word order to convey meaning > contain very little inflection
  (e.g. Chinese, <u>English</u> – fixed word order = SVOMPT
  keeps sentences understandable)

- **synthetic languages**

  = word order is less important, individual words express their grammatical
  functions/relations by means of prefixes and suffixes, higher degree of
  inflection

  – agglutinative (e.g. Turkish, Hungarian, Japanese, Finnish)
  – **fusional = inflectional** (e.g. <u>Latin</u>, <u>Greek</u>, Czech, Russian,
    Romance languages)
  – polysynthetic (Eskimo languages)

Number and gender

Number

- singular (sg. = 1)
- plural (pl. = 2 and more)

Gender

- masculine (nervus, i, m.)
- feminine (vena, ae, f.)
- neutral (cerebrum, i, n.)

Case

Case expresses the grammatical function of a word in a sentence/phrase.

There are six cases in Latin, but only four of them are used in medical terminology:

- 1. **nominative** (nom.) – expresses subject
- 2. **genitive** (gen.) – expresses possession ("of")
- 4. **accusative** (accus.) – prepositional case
- 6. **ablative** (abl.) – prepositional case

Case

case	function	use	vocabulary system
nominative	subject of a phrase	ANATOMY corpus ulnae (= body of elbow bone)	1st part of the dictionary entry
genitive	possessive case = *English* „of"	ANATOMY caput femoris (= head of thigh bone)	2nd part of the dictionary entry
accusative	after prepositions	CLINICAL DIAGNOSES post operationem (after operation) sine complicationibus (= without complications)	
ablative			

Case: English vs. Latin

- **English:** (fixed) word order gives the information on the grammatical function of each word in a sentence/phrase

  e.g. Teacher gives a book to the student.
  (**subject** – **verb** – direct **object** – indirect object)

- **Latin:** the form of each word expresses its grammatical function in a sentence/phrase (> loose word order)

  e.g. Magist*er* libr*um* discipul*o* d*at*.

Case: English vs. Latin

- **English**: change of the word order > meaning change

  soft ulcer in duodenum x ~~ulcer in soft duodenum~~

  ○ the grammatical function of a word is conveyed by WORD ORDER (Subject-Verb-Object rule)

- **Latin**: change of the word order > nothing happens

  soft ulcer of/in duodenum:

  ulcus molle duodeni = ulcus duodeni molle

  ○ the grammatical function of a word is conveyed by its ENDING!!!

Case: example

status post implantationem osteoprotheseos coxae sine complicationibus

NOMINATIVE
= state/condition

ACCUSATIVE
= after implantation

GENITIVE
= of osteoprothesis
= of hip joint

ABLATIVE
= without complications

= state after the implantation of osteoprothesis of hip joint without complications

How does a dictionary entry look like?

- English: one single form of a noun is given
- Latin: a noun is presented in the following way

MUSCULUS, I, M. = MUSCLE

nominative singular

genitive ending/or full genitive form

gender

English translation

OS, OSSIS, N. = BONE
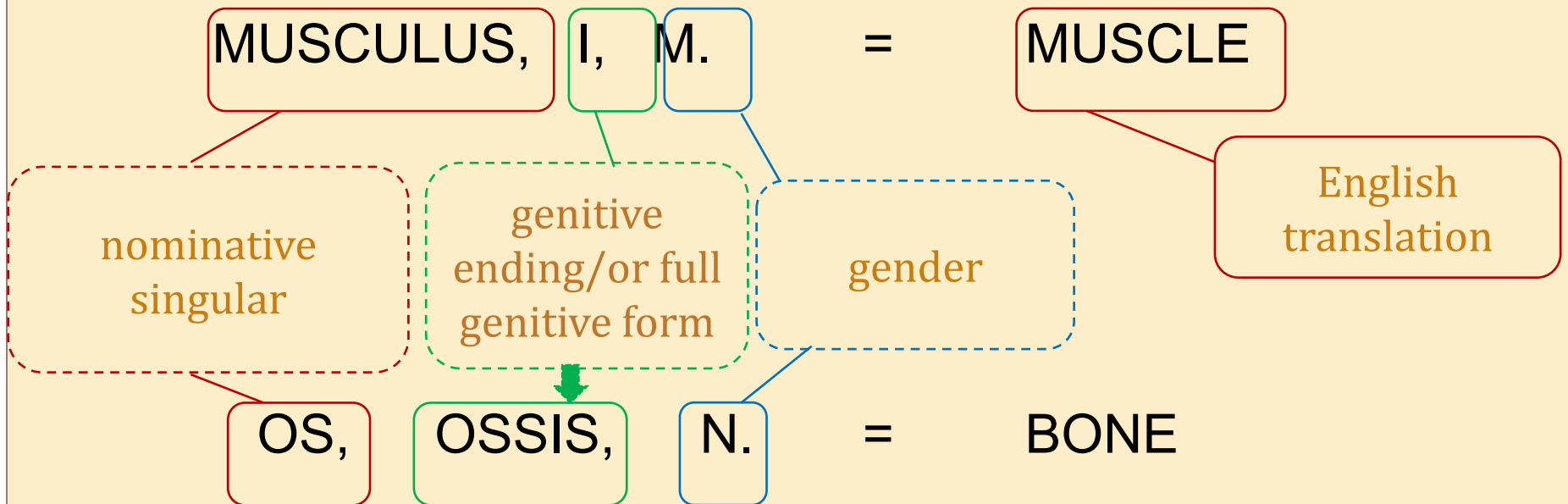
ALL these pieces of information are EQUALLY important and should be learned by heart!!!

Latin declensions

- declensions are groups of nouns (+ adjectives) declined in the same way (i.e. they share one and the same set of case endings)
- there are 5 declensions in Latin
- the declension of a noun can be identified on the basis of the genitive singular ending

DECLENSION	1st	2nd	3rd	4th	5th
GENITIVE ENDING	-ae (-es)	-i	-(?)-is	-us	-ei
EXAMPLE	coxa, ae, f.	humerus, i, m. cranium, ii, n.	coccyx, gis, f. dens, dentis, m. femur, oris, n. pelvis, is, f.	arcus, us, m. genu, us, n.	facies, ei, f.

Latin declensions

Nouns are divided into 5 declensions on the basis of their stem sound (see gen. pl.!):

- 1st declension – a-stems – ven-**a**-rum
- 2nd declension – o-stems – nerv-o-rum
- 3rd declension
  - ➢ i-stems – pelv-**i**-um
  - ➢ consonant stems – dolo-**r**-um, pon-**t**-um, sectio-**n**-um
- 4th declesion – u-stems – duct-**u**-um
- 5th declension – e-stems – faci-**e**-rum

How to decline a Latin noun?

1. find the right declension paradigm
   (on the basis of gen. sg. + gender)

2. find the stem of the noun

   = part of the word, which remains after the
   removal of the ending of genitive singular

3. attach individual case endings to the stem

ven-a	humer-us	dol-or	arc-us	faci-es
ven-ae	humer-i	dolor-is	arc-us	faci-ei
		corp-us		
	diamet-er	corpor-is	gen-u	
	diametr-i	de-ns	gen-us	
		dent-is		

LATIN AND GREEK DECLENSIONS

Declens.		I.			II.				III.					IV.		V.
Paradigm		vena	*systole*	*diabetes*	nervus	septum	*nephros*	*colon*	dolor	corpus	pelvis	*dosis* febris	rete	ductus	genu	facies
Gender		f.	f.	m.	m.	n.	m.	n.	m. + f.	n.	m. + f.	m. + f.	n.	m.	n.	f.
S i n g u l a r	1.	-a	-e	-es	-us/-er	-um	-os	-on	?	?	-is/-es	-(s)is/ -xis/-osis	-ar/-e/ -al	-us	-u	-es
	2.	-ae	-es	-ae	-i	-i	-i	-i	-is	-is	-is	-is/-eos	-is	-us	-us	-ei
	4.	-am	-en	-am	-um	1	-on	1	-em	1	-em	-im/-in	1	-um	1	-em
	6.	-a	-e	-a	-o	-o	-o	-o	-e	-e	-e	-i	-i	-u	-u	-e
P l u r a l	1.	-ae	-ae	-ae	-i	-a	-i	-a	-es	-a	-es	-es	-ia	-us	-ua	-es
	2.	-arum	-arum	-arum	-orum	-orum	-orum	-orum	-um	-um	-ium	-ium	-ium	-uum	-uum	-erum
	4.	-as	-as	-as	-os	1	-os	1	-es	1	-es	-es	1	-us	1	-es
	6.	-is	-is	-is	-is	-is	-is	-is	-ibus	-ibus	-ibus	-ibus	-ibus	-ibus	-ibus	-ebus
		+ Adj. of 1st decl. F			+ Adj. of 2nd decl. M	+ Adj. of 2nd decl. N			+Com-parative forms M+F	+Com-parative forms N	+ Adj. of 3rd decl. M + F		+ Adj. of 3rd decl. N			

Adjectives

= words that describe nouns

Noun-adjective agreement in Latin
= a Latin adjective always corresponds with the respective noun in gender, number and case!!!!

Noun + adjective = agreed attribute

Examples: fractur**a** uln**ae** dextr**ae** complicat**a**
vertebr**ae** thoracic**ae**
ad lagoen**am** fusc**am**
cum anaemi**a** pernicios**a**

Why do you think this is so?

Prepositions

= words that express relations (spacial, temporal etc.) between nouns

with ACCUSATIVE

> **in** (direction) = towards, into – in venam
> **sub** (direction) = under – sub tibiam
> **ad** = towards, to – ad cranium
> **ante** / **post** = before / after – ante / post operationem
> **extra** / **intra** = outside / inside of – extra / intra pulmones
> **contra** = against – contra tussim
> **per** = through – per rectum
> **prope** (motion) = near to – prope ulnam
> **propter** = because of – propter anaemiam
> **circum** = around – circum oculum
> **inter** = between – inter costas
> **secundum** = according to – secundum Geppert

with ABLATIVE

in (location) = inside – in vena
sub (location) = under – sub tibia
e/ex = out of – e scatula
a/ab = from, by – a medico
sine = without – sine insufficientia
cum = with – cum digito medio
pro = for the sake of – pro adulto