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Anatomy at Masaryk University Brno Czech Republic Brno team

Michaela Račanská – Lucie Kubíčková – Veronika Dzetkuličová – Marek Joukal

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KAROLINSKA INSTITUTET ANNO 1810 Karolinska Institutet

UNIVERSITY OF CAMBRIDGE

UNIVERSITAS STUDIORUM ZAGRABIENSIS MDCLXIX

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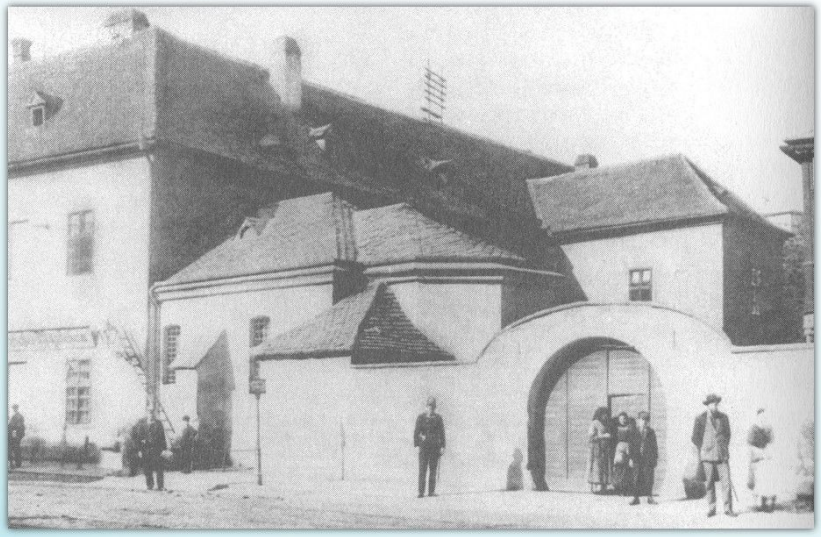
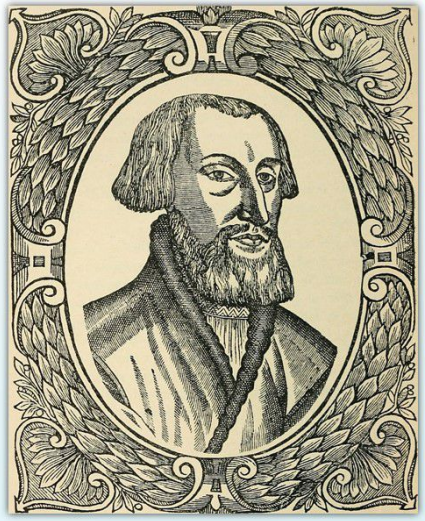
Brno – first documented anatomy dissection in the Czech lands 28.11. 1594

The autopsy of the maid of Benjamin Heller's wife was performed by a graduate of the University of Basel, Simeon Grynaeus (a pupil of the prominent Danish anatomist Caspar Bauhin) in the Church of St. Stephen in Brno.



scaned from Karel Kuča: Brno - vývoj města, předměstí a připojených vesnic
ISBN 80-86223-11-6



https://upload.wikimedia.org/wikipedia/commons/thumb/6/68/Beza%27s_Icones%2C_contemporary_portraits_of_reformers_of_religion_and_letters%3B_being_facsimile_reproductions_of_the_portraits_in_Beza%27s_Icones_%281580%29_and_in_Goulard%27s_edition_%281581%29_%281906%29_%28147662547329%29.jpg/800px-thumbnail.jpg

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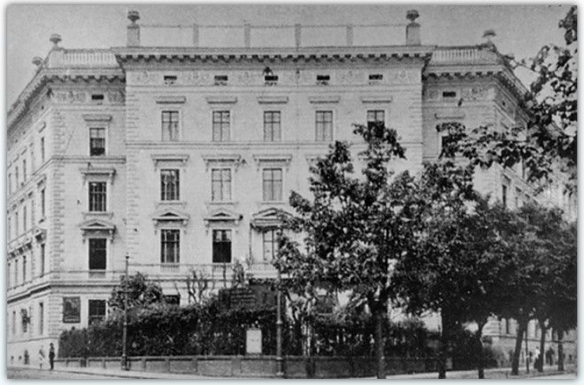
1919 – Masaryk University in BRNO

For more see: https://anatomy.med.muni.cz/en/about-us/development-of-anatomy-in-brno



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2001-2023

For more see:
https://www.youtube.com/watch?v=GjmYCvCJmgw

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Compulsory ANATOMY subjects in undergraduate study programs

Program/number of students (22/23)	Type	Subject (L- lecture, S - seminar, D- dissection, P- practice)	Hours/week	Total/term
General medicine (Cz 435/Eng 280)	M	Anatomy I - L/S/D/P Anatomy II - L/S/D/P	3/3/1.3/0.4 3/3/2.7/0.6	45/45/20/6 45/45/40/9
Dentistry (Cz 61/Eng 25)	M	Anatomy I - L/S Anatomy II - L/S/D Clinical anatomy of the head and nervous tracts - L	3/3 3/3/1.7 3	45/45 45/45/25 45
Bioanalytical laboratory diagnostics in healthcare – Embryologist (22)	M	Anatomy I - L Anatomy II - L/S	3 3/0.5	45 45/8
Dental hygiene (19)	B	Anatomy - L Clinical anatomy of the head and nervous tracts - L	3 3	45 45
Physiotherapy (Cz 71/Eng 2)	B	Anatomy of the locomotor system I, II - L/S Bases of anatomy - L	2/2,2/2 3	30, 30 45

Program/number of students (22/23)	Type	Subject (L- lecture, S - seminar, D- dissection, P- practice)	Hours/week	Total/term
Laboratory diagnostics in health care (43)	B	Bases of anatomy - L	3	45
Nutritional therapy (45)	B	Bases of anatomy - L	3	45
Optics and Optometry (42)	B	Bases of anatomy - L	3	45
Orthotics (55)	B	Bases of anatomy - L	3	45
Midwifery (44)	B	Anatomy - L/S	3/1	45/15
Radiological assistance (61)	B	Bases of anatomy -L	3	45
General Nursing (53)	B	Anatomy - L	3	45
Emergency medical services (37)	B	Anatomy - L/S	3/1	45/14

M – master, B- bachelor

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Organisation of Anatomy teaching in GM program

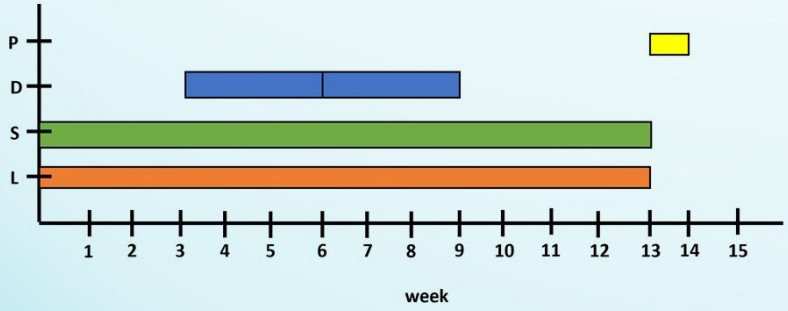
Anatomy subjects for GM

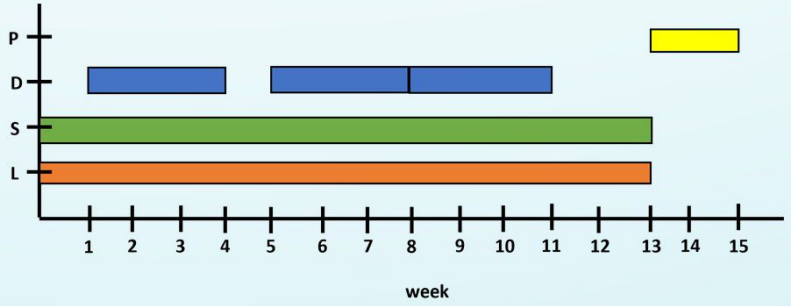
1st semester (autumn)

- **theoretical part**
  - **lecture** - 3/15
- **practical part**
  - **seminar** - 3/15
  - **practice - SIMU** - 6
  - **dissection course** - 20

2nd semester (spring)

- **theoretical part**
  - **lecture** - 3/15
- **practical part**
  - **seminar** - 3/15
  - **practice - SIMU** - 9
  - **dissection course** - 40





L - lecture
S - seminar
P – practice - SIMU
D – dissection course

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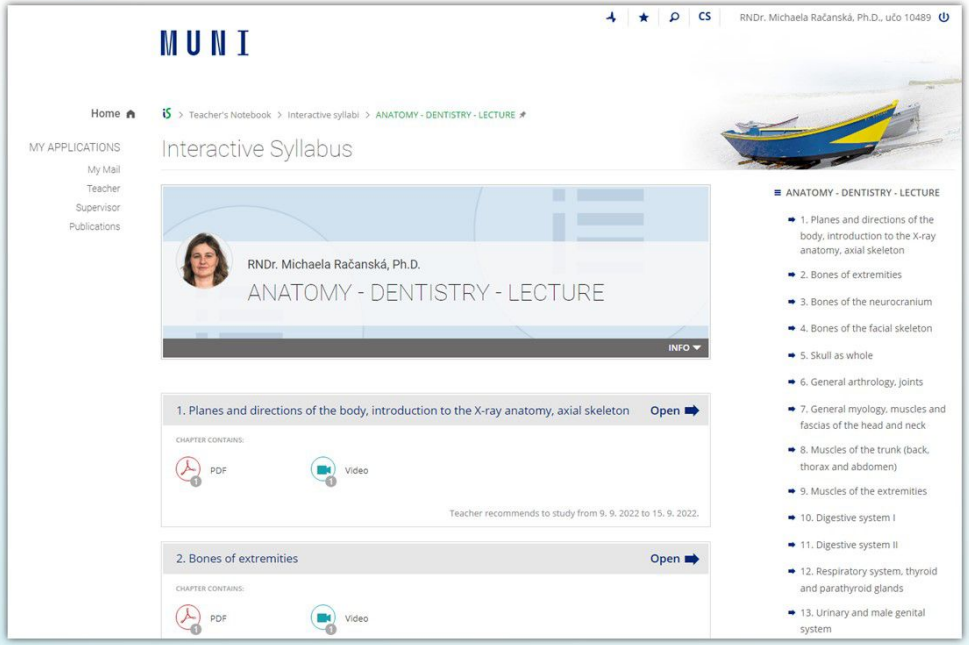
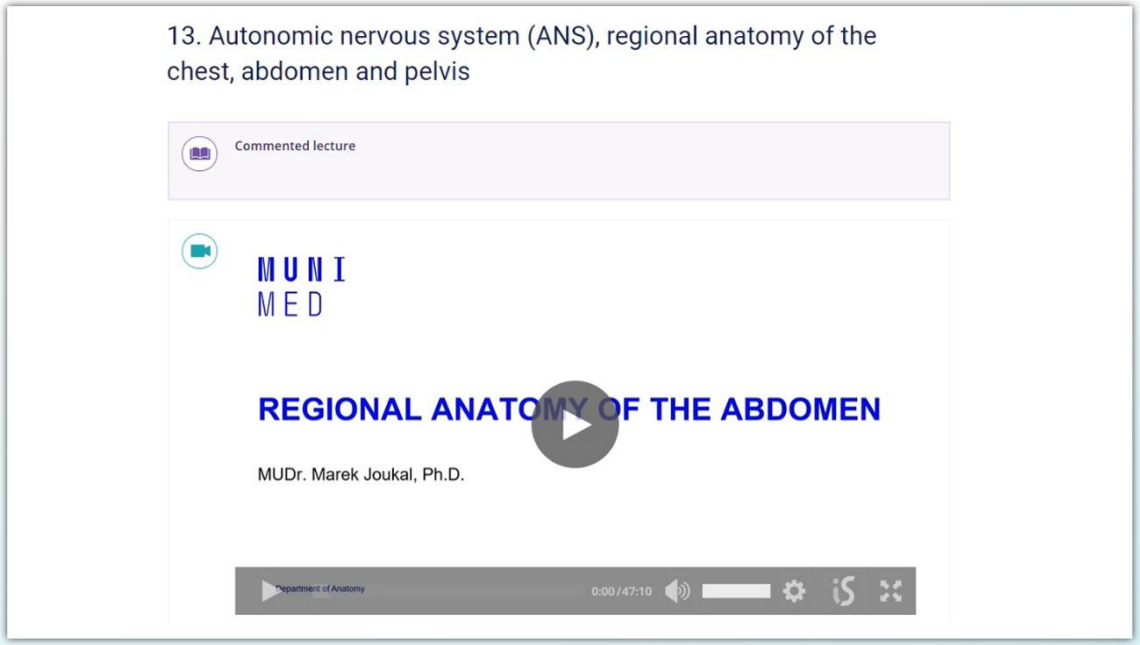
Anatomy – lectures – 3 hours/week





For more see: https://youtu.be/-kA4BUYhooM

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Organisation of Anatomy I in GM programme

	LECTURES	SEMINARS	
1.	Introduction to the Anatomy (nomenclature, planes and directions on the body), skeleton of the upper extremity	Planes and directions on the body, skeleton of the upper extremity	
2.	General arthrology, Joints of the upper extremity	General arthrology, Joints of the upper extremity	
3.	Muscles of the upper extremity	Muscles of the upper extremity	
4.	Vessels, nerves and lymph of the upper extremity	Vessels, nerves and lymph of the upper extremity	**SIMU1** (topo UL)
5.	Bones and joints of the lower extremity	Bones and joints of the lower extremity	
6.	Muscles of the lower extremity	Muscles of the lower extremity	
7.	Vessels, nerves and lymph of the lower extremity	Vessels, nerves and lymph of the lower extremity	**SIMU 2** (topo LL)
8.	Axial skeleton and connections of the spine and thorax	Axial skeleton and connections of the spine and thorax	
9.	Muscles and nerves of the back, neck, thorax and abdomen	Muscles and nerves of the back, neck, thorax and abdomen	
10.	Skull – bones of the neurocranium	Skull – bones of the neurocranium	**TEST 1** (UL, LL)
11.	Skull – bones of facial skeleton	Skull – bones of the facial skeleton	
12.	Skull as a whole	Skull as a whole	
13.	Connections of the head, craniovertebral connections, muscles of the head	Connections of the head, craniovertebral connections, muscles of the head	
14.	**Dissection week (dissection of the back, upper and lower extremity)**		

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Organisation of Anatomy II in GM programme

	LECTURES	SEMINARS	
1.	Digestive system	Digestive system	
2.	Respiratory system, Heart	Respiratory system, Heart	**SIMU 3** (regional anatomy of the neck and chest)
3.	Overview of the arteries and veins, Lymphatic system	Overview of the arteries and veins, Lymphatic system	
4.	Male genital system, Urinary system	Male genital system, Urinary system	
5.	Female genital system, pelvic floor	Female genital system, pelvic floor	**TEST 2** (locomot. + splan.)
6.	Introduction to the nervous system, Spinal cord – gross anatomy and structure, spinal nerve	Introduction to the nervous system, Spinal cord – gross anatomy and structure, spinal nerve	**SIMU4** (regional anatomy of the abdomen and pelvis)
7.	Gross anatomy and structure of the brainstem	Gross anatomy and structure of the brainstem	
8.	Gross anatomy and structure of the cerebellum and diencephalon	Gross anatomy and structure of the cerebellum and diencephalon	
9.	Gross anatomy and structure of the telencephalon Ventricles, meninges and blood supply of the CNS	Gross anatomy and structure of the telencephalon Ventricles, meninges and blood supply of the CNS	**SIMU 5** (regional anatomy of the head)
10.	Cranial nerves (CN V, VII, IX, X, XI, XII)	Cranial nerves (CN V, VII, IX, X, XI, XII)	
11.	Visual and auditory systems, cranial nerves III, IV, VI, VIII	Visual and auditory systems, cranial nerves III, IV, VI, VIII	
12.	Neural pathways; regional anatomy of the head and neck	Neural pathways; regional anatomy of the head and neck	
13	Autonomic nervous system (ANS), regional anatomy of the chest, abdomen and pelvis	Autonomic nervous system (ANS), regional anatomy of the chest, abdomen and pelvis	**TEST 3** (locomot., splan., NS)
14. a 15.	**Dissection (dissection of the head, neck, ventral side of the trunk and pelvis)**		**Practical exam**

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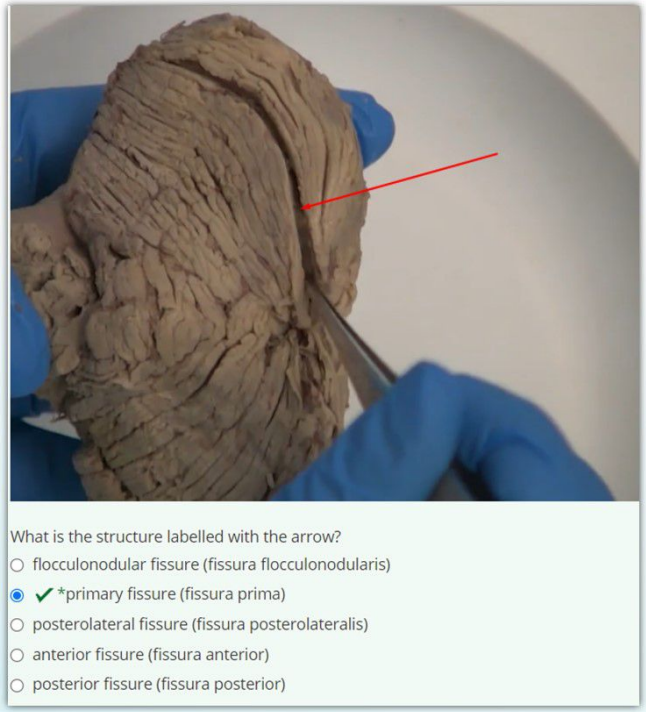
Anatomy – seminar – 3 hours/week



What is the structure labelled with the arrow?

- flocculonodular fissure (fissura flocculonodularis)
- ✔ *primary fissure (fissura prima)
- posterolateral fissure (fissura posterolateralis)
- anterior fissure (fissura anterior)
- posterior fissure (fissura posterior)

ROPOT

- Prior to each seminar
- Need to get 5 points (everything has to be correct)

For more see: https://youtu.be/qX_3Hr4lryY

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Anatomy – dissection – 3 weeks – 60 hours

ethanol-fixed bodies

For more see: https://youtu.be/NBGwPQdBYio

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Anatomy – practice – 15 hours

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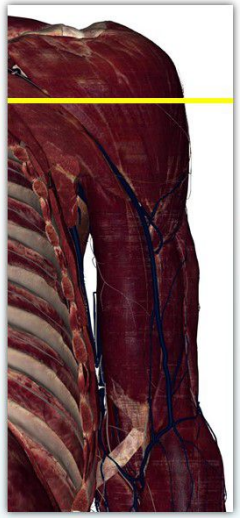
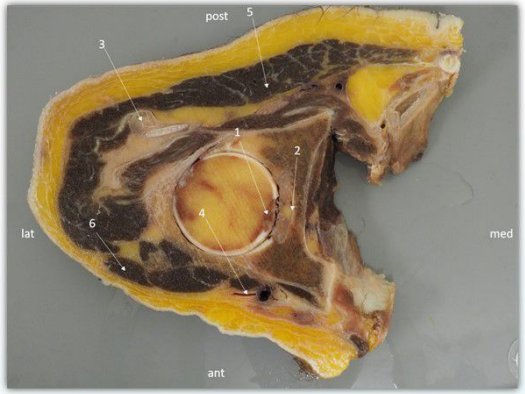
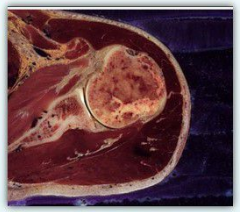
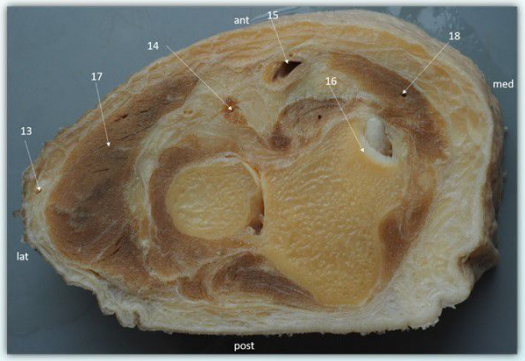
SIMU practice - materials









For more see: https://youtu.be/amWtpKMq8gM

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Anatomy final exam

3 USMLE-type tests (multiple choice questions)

Practical exam:

1) **regional anatomy of the UL, LL and back** (need to get a minimum score 6 out of 10 asked structures)
2) **regional anatomy of the head, neck, thorax, abdomen and pelvis**

Oral exam: 9 questions + 2 scans (X-ray, CT or MRI); all are available to students on the IS

4 main TOPICS:

A. **locomotor system** – 3 questions (bones, joints, muscles)
B. **splanchnology** – 3 questions (blood vessels and lymph, digestive and respiratory system, heart and urogenital)
C. **nervous system** – 2 questions (CNS + senses, PNS)
D. **regional anatomy** – 1 question from regional anatomy

+ imaging anatomy - short question
(materials are available in the study materials on the IS, SIMU, lectures and seminars).

3 control tests based on USMLE principles

For each test students can get 0 – 3 points based on the division of the students into 4 categories

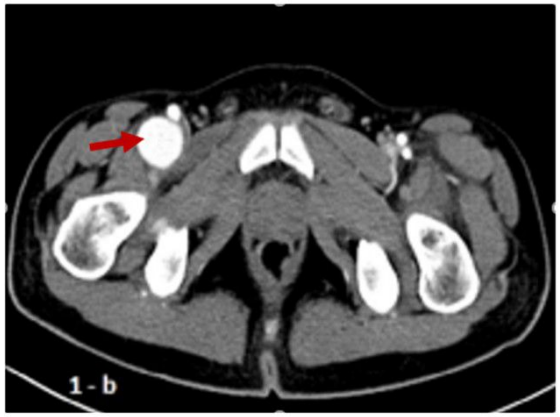
To have the opportunity to pass anatomy without the requirement of the oral exam following conditions must be met:

- Minimum of 6 points and at the same time no test with 0 points
- dissection test 1 graded A to C

Dissection test 2 contains more detail-oriented theoretical questions concerning especially nervous system

Final mark based on the results of Dissection test 1, Dissection test 2 and tests 1-3.

A 45-year-old male is brought to the emergency department of University Hospital Brno with a gunshot wound to the right lower extremity. CT image demonstrated contrast outpouching with a clear border (pseudoaneurysm – indicated with the red arrow on the CT image below) at the place of its origin. What is the name of the vessel where this outpouching is located?



- ○ right deep femoral artery (a. profunda femoris dextra)
- ○ left lateral circumflex artery of the left deep femoral artery (a. circumflexa lateralis arteriae profundae femoris sinistrae)
- ○ right inferior epigastric artery (a. epigastrica inferior dextra)
- ○ right superficial circumflex iliac artery (a. circumflexa superficialis dextra)

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Answers on the given project questions/topics

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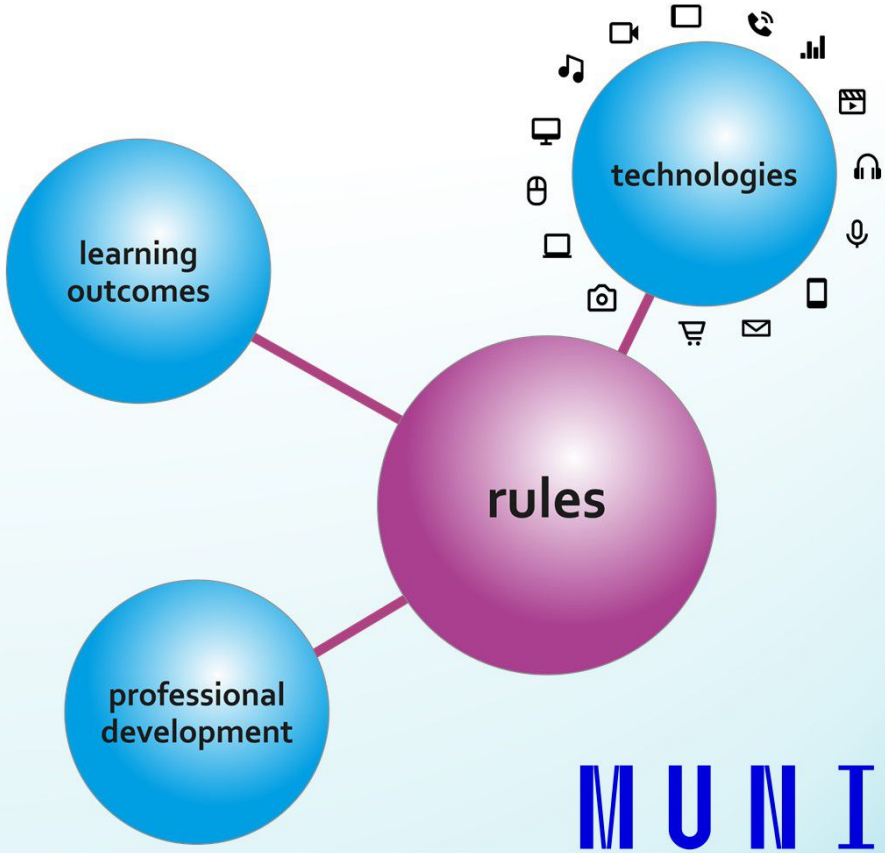
Topic 1: How to keep up global quality standards with high number of students

1. **Clear learning outcomes** for each course or program, so that all students are held to the same high standards of achievement (no LO for separate lectures/seminars/practices/dissections)
2. **Study materials** are available to the students from the beginning of their study: question sets for the final oral exam, syllabus, Optimed, terminology (TA2-https://ta2viewer.openanatomy.org/)

   \+ available ahead of the lecture/seminar/dissection: video demonstrations, commented lectures, video dissection manuals, protocols and images for practices
3. We regularly collect **student feedback** on each of the courses twice a year
4. **Professional development opportunities for lecturers**: workshops, conferences, and online courses
5. **Part of the LEANbody project to find the answer to this question** (high number of students)



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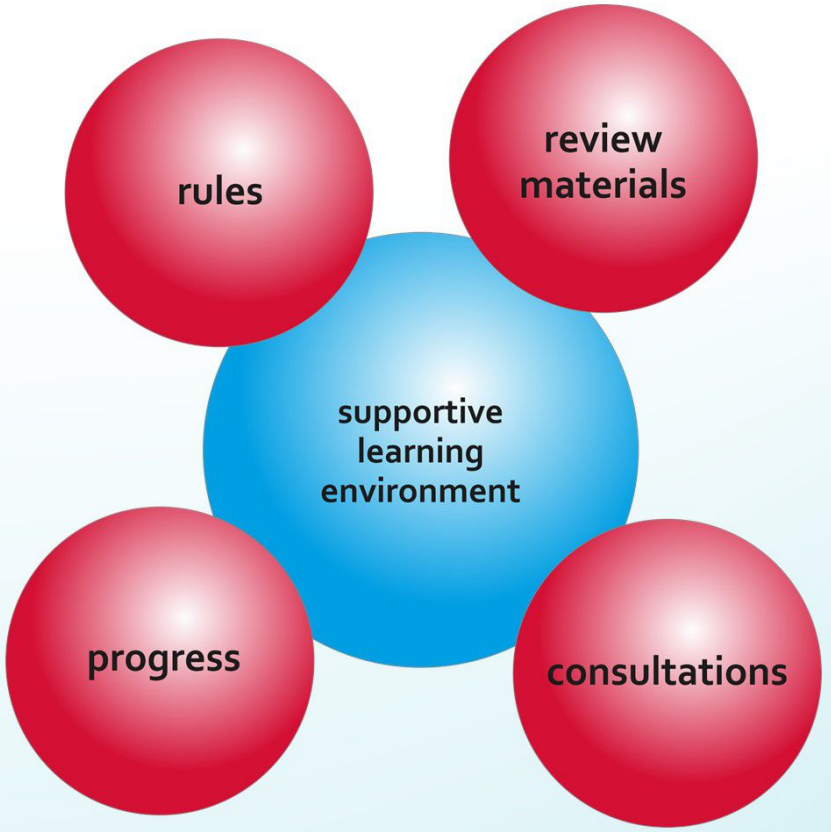
Topic 2: How to manage dropout rates

Dropout rates during exams is a challenging issue to manage:

1. **Given rules**: clear and detailed **syllabus, study guide, review materials,** guide on how the **exam** will be structured and graded, **commented presentations, list of terms** (Optimed)
2. We try to provide **supportive learning environment**: they can ask questions throughout seminars and lectures, there are many supporting mechanism available during the course – student volunteers, extra lectures, consultations
3. Summative written exams throughout the year (3 USMLE tests), weekly formative exams (ROPOT, KvIS), and student-lead study groups, additional resources such as online tutorials
4. Monitor student progress: throughout the semester, and intervene early if we notice signs that a student may be struggling (no formal requirement of the teachers, done individually)
5. **Additional anatomy elective subjects**: instant anatomy, human anatomy of locomotor system, human anatomy of visceral organs, nervous system



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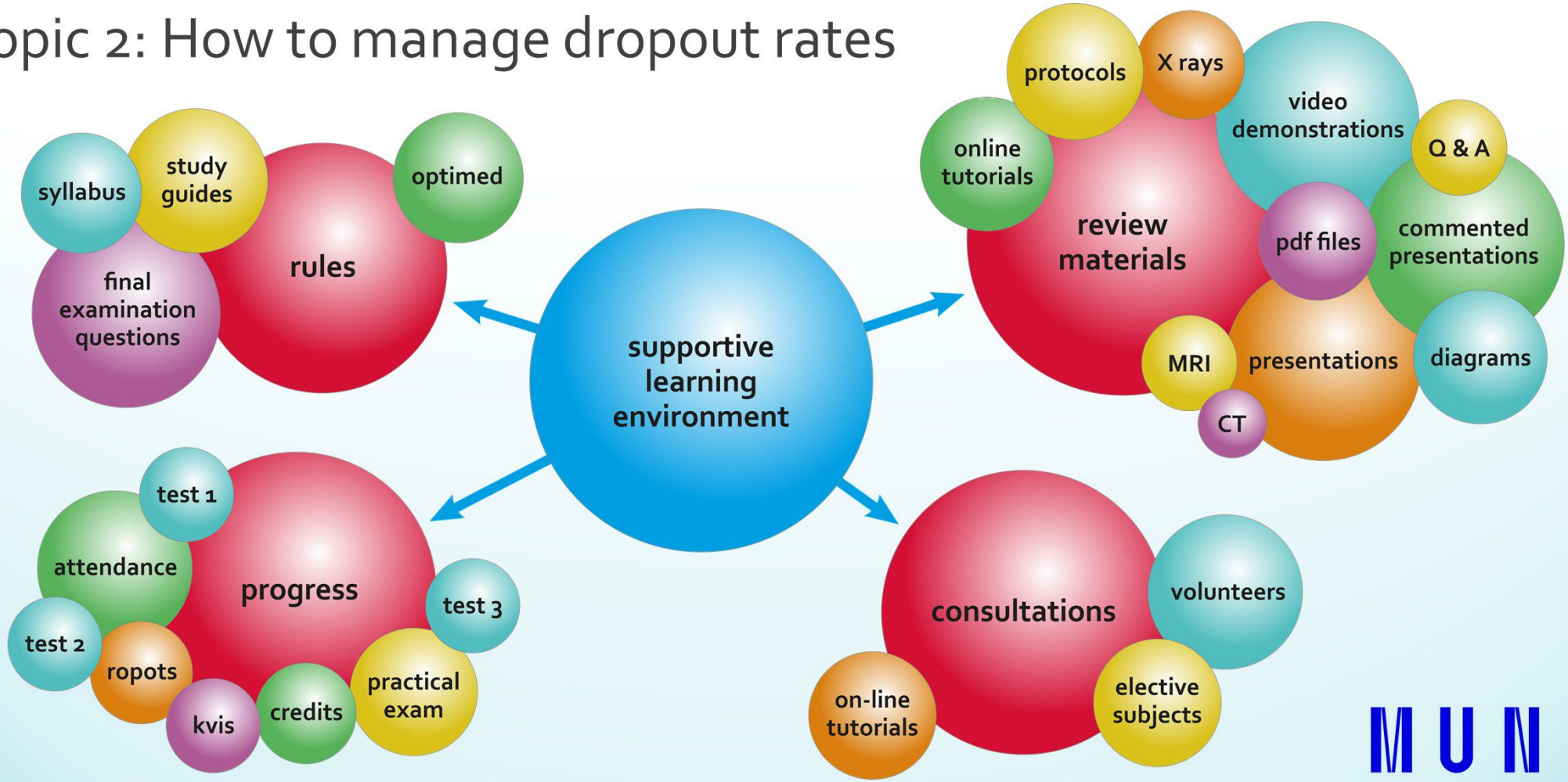
Topic 2: How to manage dropout rates



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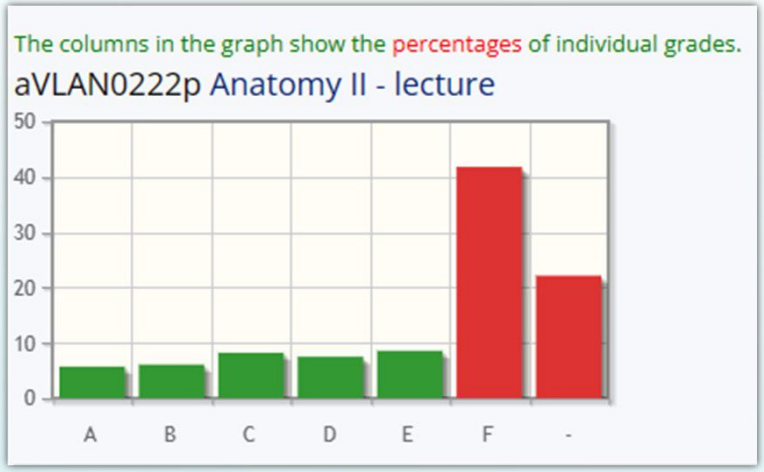
Drop out rates – spring 2021 – general medicine

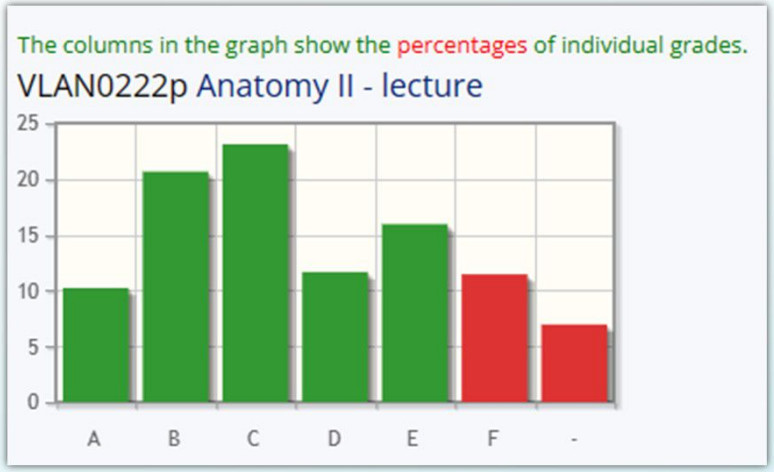
Grades

Course	Total Number of Students	Completed	Average	A	B	C	D	E	F	-
aVLAN0222p	280	46 %	3.12	16	17	23	21	24	117	62



Grades

Course	Total Number of Students	Completed	Average	A	B	C	D	E	F	-
VLAN0222p	489	87 %	2.26	50	101	113	57	78	56	34



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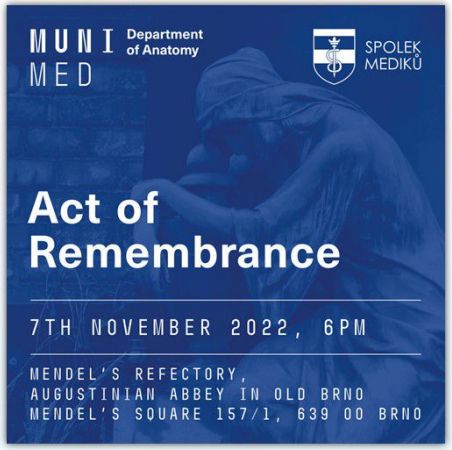
Topic 3: How to manage professional attitude development of students while taking anatomy

1. **Respect and appreciation towards the donors,** strict rules and highlighting of the codes of conduct during the dissection and seminars (whenever they work with human tissue material) (no pictures, no video recording) that build strong ethical background from the very first semester of their study, yearly **Act of Remembrance** ("Pieta")
2. **Teamwork** – mixed international groups, students from different cultural/social/educational backgrounds
3. **Self-discipline** and time **management skills** (vast amount of information to process and learn in a relatively short time)
4. **Dexterity** and **handling** of tools important for surgical training (dissection)
5. **Oral communication skills** (terminology, English!, communication in teams/peer-to-peer, towards the teacher during the seminar and final oral exam)



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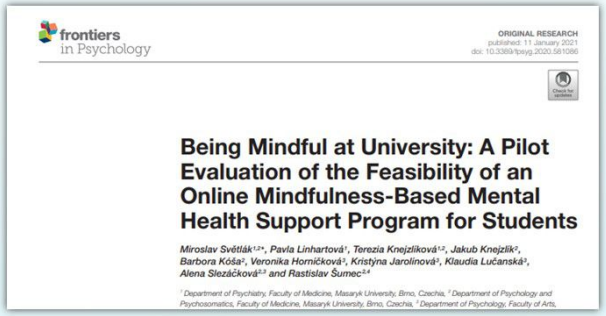
Topic 4: How to manage mental health

- **Essentials of Mental Health and Effective Studying Support for Medical Faculty Students (elective subject)**

The main aim of the course is to introduce students to the scientific essentials of health psychology and its practical application for mental health and effective study support. Students are presented in the science of mental health support, stress management, and effective learning strategies. At the end of the course, students should be able to understand not only the relationships among stress, mental health, and well-being but also understand the importance of the mindset and to its influence on the memory and learning processes. Students have a repertoire of essential knowledge and skills on how to deal with stress during the examination and how to prepare for it.

- **Online Mindfulness-Based Mental Health Support Program for Students**


frontiers in Psychology

ORIGINAL RESEARCH

Being Mindful at University: A Pilot Evaluation of the Feasibility of an Online Mindfulness-Based Mental Health Support Program for Students

M. Světlák *et al.*, „Being Mindful at University: A Pilot Evaluation of the Feasibility of an Online Mindfulness-Based Mental Health Support Program for Students", *Frontiers in Psychology*, roč. 11, 2021, [Online].
Available from: https://www.frontiersin.org/articles/10.3389/fpsyg.2020.581086

- **MUNI Self Care Hub**

The MUNI Selfcare Hub will become a bilingual portal of targeted support and assistance for students of Czech and English study programs of the Faculty of Medicine with the potential to expand into the entire university environment. The vision of supporting students' mental health is based on the initiative of the Student Chamber of the Faculty of Medicine of Masaryk University with the professional guarantee of the Institute of Medical Psychology and Psychosomatics and the Institute of Public Health. **The content focuses on mental health, proper eating and appropriate movement habits during the study.**

SDGs

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