

UNIVERSITY OF SZEGED

Faculty of Medicine

Where knowledge and challenge meet



CURRICULUM
2019/2020

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BRIEF HISTORY OF THE UNIVERSITY OF SZEGED

Before the 12th century, intellectual and scholarly life concentrated in the monasteries. With the growing professionalisation of society in the 12th and 13th centuries, demand increased for educated professionals. The universities appeared in Europe from the 11th-12th century. Medieval universities were established for the study of arts, law, theology and medicine. Universities were not defined by location and space but by individuals banded together as a corporation. The end of the medieval period signalled the arrival of modern universities where teaching and research met.

In **1581**, following the establishment of universities in other regions of Central and Eastern Europe, *István Báthory*, the Prince of Transylvania, issued a founding document for a higher educational institute in Kolozsvár (Cluj-Napoca). The Jesuit Academy (*Societatis Jesu Academia Claudiopolitana*) was organized with two faculties, the Faculty of Philosophy and the Faculty of Theology. The academy was meant to have the rank of a university from the beginning; Prince Báthory endowed the institute with the right to confer baccalaureate and master's degrees on its students. At that time, the university held a unique place in the intellectual activity of Hungary; it was the only institute for higher education in Hungary.

The academy was soon closed due to religious and political turmoil, but the Jesuits re-established it and the institute gained more stability and prestige in the 17th century.

From **1753**, according to a decree passed by the Holy Roman Empress and Queen of Hungary and Bohemia, *Maria Theresia*, the institute functioned as a university, where teaching was carried out in German. She was one of the most significant proponents of enlightened absolutism; her educational reforms were highly lauded. **1774** saw not only the introduction of mandatory education but also the start of change for the University of Kolozsvár. After the Society of Jesus had been abolished, Maria Theresia entrusted the *Piarists* with the reorganization of the institute. As a result of the restructuring—in addition to the Faculties of Theology and Arts—two new faculties were established, the Faculty of Law (1774) and the Faculty of Medicine-Surgery (**1775**).

Later on, these faculties served as the basis for the *Hungarian Royal University of Kolozsvár*, which was founded by King *Francis Joseph I* and the Hungarian Parliament in **1872**. In **1881**, the university was renamed after the king and bore his name until 1940.

In 1919, the university had to leave its founding place and after a brief stay in Budapest, found new home in Szeged. From **1921** until 1940 the *Ferenc József Tudományegyetem* (Francis Joseph University) gained more and more prestige. When in **1940** the university was divided and part of it moved back to Kolozsvár, the remaining staff and students, the laboratories and the library were reorganized. The university took the name of *Miklós Horthy*, who was a former Governor of Hungary. The first rector of this institute was *Albert Szent-Györgyi*, who received the most prestigious award of sciences in 1937, the Nobel-price, for his research conducted at the university.

After World War II the institute assumed the name University of Szeged. In **1951** the Faculty of Medicine formed an independent institution under the name *Medical University of Szeged*. The pharmacy training was started as an independent faculty (separate from the medical faculty) in **1957**, and the Division of Dentistry as part of the Faculty of Medicine in **1962**. The English-Language Program for foreign students was established in **1985**. From **1999** there is also a German-Language Program at the Faculty of Medicine. In **1987** the University assumed the name of its former Biochemistry Professor, Dean of the Faculty of Medicine, Rector, and Nobel Prize Laureate, Albert Szent-Györgyi who was first to isolate vitamin C, extracted from paprika.

In **2000** the Albert Szent-Györgyi Medical University became again an integrated part of the University of Szeged. The Faculty of Medicine and the Faculty of Pharmacy functioned as the *Albert Szent-Györgyi Medical and Pharmaceutical Center* until July 2007. In the year 2004 the English-language dentistry program was launched and the Faculty of Dentistry was founded in January **2007**.

The faculties obtain their basis for education by running a high-level clinical and research work. The task of the faculties is represented by three different fields: education, research-work, prevention-treatment.

The University of Szeged is one of the most distinguished universities in Hungary and is proud to be considered as the intellectual successor of the University of Kolozsvár founded in 1581.

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Psychiatry Unit III.

(III.sz. PSZICHIÁTRIAI OSZTÁLY)

(Szeged, Kálvária sgt. 57.)

Head of Unit: Dr. Ádám Nagy, M.D.

Psychiatry Unit IV.

(IV. sz. PSZICHIÁTRIAI OSZTÁLY)

(Szeged, Kálvária sgt. 57)

Head of Unit: Dr. MAGDOLNA PÁKÁSKI, M.D., PhD.

Psychiatry Unit V. (Psychiatric Rehabilitation Unit)

(V. sz. PSZICHIÁTRIAI OSZTÁLY, PSZICHIÁTRIAI REHABILITÁCIÓS OSZTÁLY)

(Szeged, Leányszállás köz 2/a.)

Head of Unit: Dr. habil István Szendi, Ph.D.

Psychiatry Unit VI. (Psychiatric Outpatient Unit)

(VI. sz. PSZICHIÁTRIAI OSZTÁLY, PSZICHIÁTRIAI JÁRÓBETEG-ELLÁTÁS ÉS GONDOZÁS)

(Szeged, Kálvária sgt. 5.)

Head of Unit: Dr. ANNA KISS-SZŐKE M.D.

Research Laboratory

(Kutatólaboratórium)

(Szeged, Vasas Szent Péter u. 1-3.)

Head of Unit: Dr. ZSOLT LÁSZLÓ DATKI MSc., PhD.

Department of Pulmonology (TÜDŐGYÓGYÁSZATI TANSZÉK)

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Head of Department: Prof. habil ATTILA SOMFAY, M.D., Ph.D.

Department of Radiology (RADIOLÓGIAI KLINIKA)

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Head of Department: Dr. ZSIGMOND TAMÁS KINCSES M.D., Ph.D.

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Head of the Department: Prof. habil. LÁSZLÓ KOVÁCS M.D., Ph.D.

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Head of Department: Prof. habil. GYÖRGY LÁZÁR, M.D., Ph.D., D.Sc.

Transfusiology Section (TRANSZFÚZIOLÓGIAI TANSZÉK)

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Head of Department: Dr. KLÁRA VEZENDI, M.D. Ph.D.

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Head of Department: Prof. habil. ENDRE VARGA M.D., Ph.D.

Department of Urology (UROLÓGIAI KLINIKA)

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Head of Department: Prof. habil. ZOLTÁN BAJORY, M.D., Ph.D.

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(Szeged, Szikra u. 8. Tel.: + 36 62 545-061, Tel./Fax: + 36 62 545-974)

Head Pharmacist: Dr. GABRIELLA JÁNOSI, D.Pharm.

LIST OF EDUCATIONAL ADVISORS AND RESEARCH CONSULTANTS

Research at the bench or on a clinical basis provides a very important perspective for future physicians. It gives the students a chance to pursue common goals with faculty mentors and may give a glimpse into potential careers. Students are strongly encouraged to consider research opportunities. See your scientific research consultant at each department.

FACULTY OF MEDICINE

Department	Educational advisor	Research consultant
Dept. of Anatomy, Histology and Embryology	Dr. Endre Dobó + 36 (62) 544-000/6496 doboe.endre@med.u-szeged.hu	Dr. Annamária Kovács
Dept. of Anesthesiology and Intensive Therapy	Dr. Ágnes Orbán +36 62/545 173 office.aiti@med.u-szeged.hu	Dr. László Praefort
Dept. of Behavioural Sciences	Prof. Dr. Bettina Pikó +36 62/545 968 fuzne.piko.bettina@med.u-szeged.hu	Dr. Oguz Kelemen
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1 st Department of Internal Medicine	Dr. András Rosztóczy +36 62/545 195 rosztoczy.andras@med.u-szeged.hu	Dr. Tamás Takács
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Dr. Beáta Havasi

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Prof. János Tajti

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Dept. of Child and Adolescent Psychiatry	Dr. Enikő Kiss kiss@gyip.szote.u-szeged.hu	
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Dr. Bajory Zoltán

ACADEMIC CALENDAR

2019/2020

ACADEMIC PERIODS

1st (Fall) semester:

Education period:	from September 02 to December 07, 2019
Examination period:	from December 09, 2019 to January 25, 2020
Repeat examination period:	from January 27 to February 01, 2020
Winter break:	from December 23, 2019 to January 01, 2020 (University is closed. No exams.)
Fall break:	from October 30 to November 01, 2019
Holidays:	October 23, November 01, 2019

2nd (Spring) semester:

Education period:	from February 03 to May 16, 2020
Examination period:	from May 18 to June 27, 2020
Repeat Examination period:	from June 29 to July 04, 2020
Spring break:	from April 10 to April 17, 2020
Holidays:	March 15, April 10, April 13, May 01, June 01

For other important dates and deadlines, please check the relevant Info Sheet posted on the website of the Foreign Students' Secretariat.

FEES**1. Tuition fees**

Students are required to pay their tuition fee according to the academic year in which they have started their first year studies at the University of Szeged. More: www.med.u-szeged.hu/fs/tuition-fee

In case the students' academic progress does not follow the suggested study plan, tuition fee is calculated according to the following:

Fee of attending <u>three or more</u> compulsory subjects	100% of one semester's tuition fee*
Fee of attending <u>one or two</u> compulsory subjects	max. 50% reduction of one semester's tuition fee can be requested*
Fee of attending solely compulsory elective / elective / criteria subject	max. 50% reduction of one semester's tuition fee can be requested
Fee of taking subject(s) that do not involve class attendance	max. 80% reduction of one semester's tuition fee can be requested

*Examination course fee / compulsory elective / elective / criteria subjects are included!

Make sure that the exact amount of your tuition fee is credited to the University's account. When transferring your tuition fee, please keep in mind that the bank commission charges have to be paid by the student. In the Remarks/Comments field please indicate your legal name, name of the program and your year.

Payment can be made by transfer to the following bank account:

University of Szeged
IBAN: HU94-10004012-10008016-00220332
Bank name: Hungarian State Treasury
(correspondent: Hungarian National Bank, SWIFT code: MANEHUHB)
Bank address: H-1054 Budapest, Hold u. 4.
Swift code: HUSTHUHB

Fees are subject to change. For updates please check the relevant Info Sheet.

GENERAL GUIDELINES

1.) Registration: Students have to **register for each semester** in order to have an active student status. Students who are not registered properly are not entitled to attend the classes.

Registration requirements:

- **Tuition fee** has to be credited to the University's bank account in full before registration.
- Valid **residence permit**. Please check on the [NEPTUN](#) (under My Data/ Personal Information / Records) whether you have submitted a copy of your valid residence permit. If it was renewed recently, please present the original and a copy to the Secretariat.
- Valid **health insurance** (If it was renewed recently please present the original and a copy at the Secretariat.)
- **Summer practice** evaluation sheet (if required)
- Settled outstanding balance for **youth hostel fees** and **medical treatment costs**
- Valid **medical fitness certificate** (completed medical check-up by the occupational health doctor)

2.) Payment of the tuition fee: The deadline of payment is always specified in the information sheets published to the students before the beginning of the upcoming semester. Proof of payment has to be submitted to the Secretariat. Students have to make sure that the exact amount of the tuition fee is credited to the University's account until the deadline. Late payment is not possible.

3.) Neptun course registration: Students have to sign up for their courses in the NEPTUN (computer-based academic system) each semester. Students failing to meet this requirement are not entitled to attend the classes. The number of course registrations in a subject is limited: one course can be registered 3 times during the period of studies. Make sure you sign up for all your courses (both the lectures and practices, examination courses, physical education -2 semesters required).

4.) Residence permit

<http://www.med.u-szeged.hu/fs/residence-permit/residence-permit-2019>

5.) Health Insurance

All students must have a valid health insurance during their stay in Hungary.

<http://www.med.u-szeged.hu/fs/medical-treatment-of/medical-treatment-of>

6.) Attendance of classes: If the absence does not exceed 15% of the total number of classes, students are not obliged to provide a certificate justifying the absence. If the absence falls between 15% and 25% of the total number of classes, students may only make up for the missed classes if they provide a certificate. The departments have the right to refuse the acceptance of a semester if the student missed more than 25 % of the practicals and did not make up for the absences.

7.) Obligation to report changes to the Secretariat: If there is a change in your personal data (address, e-mail address, telephone number etc.) you are required to *notify the Secretariat and correct the data in the Neptun*. If you have to leave Szeged for a longer period of time during the lecture period due to substantial reasons (hospitalization, extraordinary family issues), you need to request permission in writing. Applications have to be handed in at the Foreign Students' Secretariat.

8.) General information regarding the examinations:

General information before you sign up for your exams:

- All exams including date, time and place is posted in the NEPTUN.
- Exam dates can be postponed before the NEPTUN closes the registration (*usually* 24 hours before the date of the exam. Clicking the course code, one can determine the closing of registration.) However, it is your duty to secure another date and time for your exam when you make changes.
- Students not showing up on an exam will lose one chance unless their absence is justified.
- A successful examination can be improved only in one subject / semester.

Procedures for unsuccessful exams:

- Repeated exam can be scheduled at the earliest by the 3rd working day following the unsuccessful exam.

- Unsuccessful exams can be repeated 2 times during the exam period. Upon request, a repeated exam can be taken before a committee. The exam committee is appointed by the Department Chair. Repeated exams with committee can be scheduled only for exam dates announced in the Neptun.
- 3rd repeat chance can be granted to those who have **only one exam left**. (In these cases the chances should be decreased by one when students sign up for the course for the 3rd time). Requests have to be handed in at the Foreign Students' Secretariat.
- In the repeat examination period only repeated exams can be taken. First examinations – even with a former absent registration – cannot be taken in the repeat examination week!
- In exceptional cases (hospitalization, extraordinary family issues) further examination chances can be requested from the Dean. Examinations granted as an exceptional equity can be taken only till the end of second week following the repeat examination period. Supporting documents must be attached to the application.

Further details are available in the relevant Info Sheet.

EXPRESSIONS

Compulsory Elective Subject (including Behavioral Science Subjects – only for medical students): There is a given number of credit points that has to be acquired in Compulsory Elective Subjects in the certain modules. One can choose freely from the subjects offered, however it is strongly recommended to follow the Suggested Study Plan.

Compulsory Subject: It is obligatory to take the subject in the module given.

Contact hours: Contact hours are the units of time required for a teacher to present subject material and to assess a student's performance. Contact hours include lectures, seminars, practical demonstrations, consultation hours and assessment.

Course requirement: The course requirement defines the precondition of a certain course. The course requirement can either be a **subject** or an **examination requirement**. In case of the *subject requirement* a course can be signed up for only if the examination defined in the course requirement has been completed successfully. In case of the *examination requirement* the examination of a course can only be taken if the examination defined in the course requirement has been completed successfully.

Credit: Credits are standard measurement of a student's accepted study time. One credit equals thirty hours of study time.

Credit transfer: Is a procedure accorded by the University of Szeged Code of Study and Examination Regulations, whereby a partial or full exemption can be given from completing one or more subjects by acknowledging previously completed subjects and thereby award the appropriate number of credit points.

Criteria Subject: Completion of criteria subjects is a precondition for entering the next module or receiving the diploma after finishing the final year (Physical Training, Summer Practices, Hungarian Language). Criteria subjects have no credit allocated to.

Elective Subject: There is a given number of credit points that has to be acquired in the certain modules. One can choose freely from the subjects offered, however it is strongly recommended to follow the Suggested Study Plan.

Examination course: If one cannot pass an examination successfully in the semester given, the examination can be repeated in the next examination period if the Department concerned announces it in the given semester and you get permission from the Dean. This means that the student will be exempted from fulfilling the requirements of the semester (classes do not have to be attended). An examination course can be taken only once in a certain subject.

Suggested study plan: the order and timing of subjects offered to students enabling them to obtain qualification within a specified period of time.

Grading system

Five-grade system

- 5 - excellent
- 4 - good
- 3 - accepted
- 2 - passed
- 1 - failed



Faculty of Medicine

GENERAL INFORMATION REGARDING THE STRUCTURE OF STUDIES AT THE FACULTY OF MEDICINE

I. STRUCTURE OF STUDIES

In the academic year 2019/2020, students follow the curriculum/ suggested study plan of University of Szeged, Faculty of Medicine (9001AK_N_2013) introduced in 2013/2014.

In order to obtain the Doctor of Medicine diploma, students need to acquire a minimum of 360 credits (by fulfilling the study and examination requirements of the subjects listed in the suggested study plan). In the final year, students, furthermore, have to complete the Final (State Board) Examination which consists of writing and defending a thesis, passing a complex written test and an oral patient examination (theoretical and practical part).

The order of taking the courses is set in the suggested study plan which is designed for completing medical studies within 12 semesters (6 years). **It is highly recommended to take the courses according to the Suggested Study Plan.**

Teaching is performed in 3 modules:

- Basic & Pre-Clinical Module (1st, 2nd, 3rd year)
- Clinical Module (4th, 5th year)
- Final Module (6th year)

Types of courses:

- Compulsory Courses
- Compulsory Elective Courses
- Elective Courses
- Criteria Subjects

Credits to be acquired:

	Basic & Pre-Clinical Module (semesters 1-6)	Clinical Module (semesters 7-10)	Final Module (semesters 11-12)
	Credits		
Compulsory Courses	147	109	50
Compulsory Elective Courses	45*		
Elective Courses	18		
Criteria Subjects (no credits)	Physical Education, Hungarian Language, Nursing Practice, Internal Medicine Summer Practice	Hungarian Language, Doctor-Patient Communication, Surgery Summer Practice	

* This number includes 10 credits for the completion of the fifth year courses Thesis Plan I. & II., the completion of which is compulsory for all the fifth year students.

All the requirements of a module have to be fulfilled in order to enter the next module.

II. SPECIAL RULES FOR BEHAVIORAL SCIENCE SUBJECTS

In the fourth year (7th semester), students have to take a final examination which covers the knowledge, skills and attitudes learned during the seven previous semesters. The precondition for taking the examination is the earlier acquisition of 13 credits from the subjects below. However, it is recommended to complete all Behavioral Science Subjects (15 credits).

Recommended schedule for acquiring 13 credits:

- 11 credits for compulsory subjects:

Introduction to Medicine

(2 credits, year 1, fall semester)

Medical Anthropology

(1 credit, year 2, spring semester)

Ethics in Medicine

(3 credits, year 3, spring semester)

Introduction to Psychology, Communication

(2 credits, year 1, spring semester)

Medical Psychology I.

(2 credits, year 3, spring semester)

Medical Psychology II.

(1 credit, year 4, fall semester)

Examination in Behavioural Science

(0 credit, comprehensive exam, year 4, fall semester)

- 4 credits for compulsory elective subjects. You can choose from the following courses:

Medical Sociology

(2 credits, year 2, fall semester)

Gerontology

(2 credits, year 3, spring semester)

- Criteria subject:

Doctor-Patient Communication

(0 credit, **criteria subject**; year 4, fall or spring semester)

SUGGESTED STUDY PLAN - MEDICINE - 2019/2020

Course Code	Course	Department	Head of Department	Theory hrs/week	Practice hrs/week	Seminar hrs/week	Form of exam	Credit	Precondition (SR: subject requirement = completion of the precondition subject(s) in a preceding semester is required; ER: examination requirement = passing the examination of the precondition subject(s) in the same semester is required; P: parallel completion = register for all subjects in the same semester)
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1st (fall) semester (9001AK_N_2013)

BASIC AND PRE-CLINICAL MODULE

Compulsory Subjects									
AOK-KUA011	Anatomy, Histology and Embryology I.	Dept. of Anatomy	Prof. Antal Nógrádi	2	-	-	Examination	5	P: AOK-KUA012: Dissection Practice I., AOK-KUA0131: Introduction to Histology
AOK-KUA012	Dissection Practice I.	Dept. of Anatomy	Prof. Antal Nógrádi	-	3	-	Term Mark(5)	3	P: AOK-KUA011: Anatomy, Histology and Embryology I., AOK-KUA0131: Introduction to Histology
AOK-KUA0131	Introduction to Histology	Dept. of Anatomy	Prof. Antal Nógrádi	-	in total 16	-	Signature	-	P: AOK-KUA011: Anatomy, Histology and Embryology I., AOK-KUA012: Dissection Practice I.
AOK-KUA041	Basic Life Support	Department of Emergency Medicine	Dr. Zoltán Pető	-	2	-	Term Mark(5)	2	-
AOK-KUA507	Medical Physics I.	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	1	-	1	Examination	2	P: AOK-KUA508: Measurements in medical physics I.
AOK-KUA508	Measurements in medical physics I.	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	-	1	-	Term Mark(5)	1	P: AOK-KUA507: Medical Physics I.
AOK-KUA061	Medical Chemistry I.	Dept. of Med. Chemistry	Prof. Tamás Martinek	3	-	-	Examination	6	P: AOK-KUA065: Medical Chemistry I.
AOK-KUA065	Medical Chemistry I.	Dept. of Med. Chemistry	Prof. Tamás Martinek	-	1	-	Signature	-	P: AOK-KUA061: Medical Chemistry I.
AOK-KUA071	Cell Biology and Molecular Genetics I.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	2	-	-	Examination	4	P: AOK-KUA072: Cell Biology and Molecular Genetics I.
AOK-KUA072	Cell Biology and Molecular Genetics I.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	-	2	-	Signature	-	P: AOK-KUA071: Cell Biology and Molecular Genetics I.
AOK-KUA391	Introduction to Medicine	Dept. of Behavioural Sciences	Dr. Oguz Kelemen	1	-	-	Evaluation(5)	2	P: AOK-KUA392: Introduction to Medicine
AOK-KUA392	Introduction to Medicine	Dept. of Behavioural Sciences	Dr. Oguz Kelemen	-	1	-	Signature	-	P: AOK-KUA391: Introduction to Medicine
Criteria Subjects									
AOK-KUA251	Hungarian Language I.*	Dept. for Medical Communication and Translation	Dr. Csilla Keresztes	-	4	-	Term Mark(5)	-	-
AOK-KUA351	Medical Latin Language I.	Dept. for Medical Communication and Translation	Dr. Csilla Keresztes	-	2	-	Signature	-	-
XTD011-PHE	Physical Education (P.E.)**	Sport Center	Andrea Böröcz Hózsóné	-	2	-	Signature	-	-
Compulsory Elective Subjects (Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA1231	Introduction to Medical Chemistry	Dept. of Med. Chemistry	Prof. Tamás Martinek	1	-	-	Evaluation(5)	2	P: AOK-KA1232: Introduction to Medical Chemistry
AOK-KA1232	Introduction to Medical Chemistry	Dept. of Med. Chemistry	Prof. Tamás Martinek	-	1	-	Signature	-	P: AOK-KA1231: Introduction to Medical Chemistry
AOK-KA1311	Basics in Molecular Biology I.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	1	-	-	Evaluation(5)	1	-
AOK-KA1891	Cytomorphology and Microtechnics	Dept. of Cell Biology and Molecular Medicine	Prof. Károly Gulya	2	-	-	Evaluation(5)	2	-
AOK-KA091	Developmental Genetics I.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	1	-	-	Evaluation(5)	1	-
AOK-KA1321	Frontiers of Molecular Biology I.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	2	-	-	Evaluation(5)	2	-
AOK-KA101	Genetic Analysis I.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	1	-	-	Evaluation(5)	1	-
AOK-KA1921	Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions	Dept. of Pharmacology	Prof. István Baczko	2	-	-	Evaluation(5)	2	P: AOK-KA1922: Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions
AOK-KA1922	Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions	Dept. of Pharmacology	Prof. István Baczko	-	6 hours in total	-	Signature	-	P: AOK-KA1921: Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions
AOK-KA081	Introduction to Medical Informatics	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	1	-	-	Evaluation(5)	3	P: AOK-KA082: Introduction to Medical Informatics
AOK-KA082	Introduction to Medical Informatics	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	-	2	-	Signature	-	P: AOK-KA081: Introduction to Medical Informatics
Elective Subjects (Complete 18 credits worth of elective subjects by the end of the fifth year.)									
AOK-KA1931	Clinical Voluntary Work	Departments of the Faculty of Medicine		-	2	-	Term Mark(5)	2	-
AOK-KUA441	Fundamentals of medical physics	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	-	-	16 hours in total	Evaluation(5)	1	-

* The completion of the course is obligatory in the semester given.

** One has to complete 2 semesters of Physical Education until the end of the 5th year.

2nd (spring) semester (9001AK_N_2013)

BASIC AND PRE-CLINICAL MODULE

Compulsory Subjects									
AOK-KUA014	Anatomy, Histology and Embryology II.	Dept. of Anatomy	Prof. Antal Nógrádi	2	-	-	Examination	3	ER: AOK-KUA011: Anatomy, Histology and Embryology I. P: AOK-KUA015: Dissection Practice II., AOK-KUA016: Histology Practice I.
AOK-KUA015	Dissection Practice II.	Dept. of Anatomy	Prof. Antal Nógrádi	-	3	-	Term Mark(5)	3	SR: AOK-KUA012: Dissection Practice I., AOK-KUA013: Anatomy Seminar, P: AOK-KUA014: Anatomy, Histology and Embryology II.
AOK-KUA016	Histology Practice I.	Dept. of Anatomy	Prof. Antal Nógrádi	-	2	-	Term Mark(5)	2	SR: AOK-KUA012: Dissection Practice I., AOK-KUA013: Anatomy Seminar, P: AOK-KUA014: Anatomy, Histology and Embryology II.
AOK-KUA509	Medical Physics II.	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	2	-	1	Examination	3	ER: AOK-KUA507: Medical Physics I. P: AOK-KUA510: Measurements in medical physics II.
AOK-KUA510	Measurements in medical physics II.	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	-	1	-	Term Mark(5)	1	P: AOK-KUA509: Medical physics II.
AOK-KUA505	Medical Statistics	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	1	-	-	Examination	1	P: AOK-KUA506: Medical Statistics
AOK-KUA506	Medical Statistics	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	-	2	-	Term Mark(5)	2	P: AOK-KUA505: Medical Statistics
AOK-KUA063	Medical Chemistry II.	Dept. of Med. Chemistry	Prof. Tamás Martinek	3	-	-	Examination	6	ER: AOK-KUA061: Medical Chemistry I. P: AOK-KUA064: Medical Chemistry II.
AOK-KUA064	Medical Chemistry II.	Dept. of Med. Chemistry	Prof. Tamás Martinek	-	3	-	Signature	-	P: AOK-KUA063: Medical Chemistry II.
AOK-KUA073	Cell Biology and Molecular Genetics II.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	2	-	-	Examination	4	ER: AOK-KUA071: Cell Biology and Molecular Genetics I. P: AOK-KUA074: Cell Biology and Molecular Genetics II.
AOK-KUA074	Cell Biology and Molecular Genetics II.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	-	2	-	Signature	-	P: AOK-KUA073: Cell Biology and Molecular Genetics II.
AOK-KUA083	Introduction to Psychology, Communication	Dept. of Behavioural Sciences	Dr. Oguz Kelemen	1	-	-	Evaluation(5)	2	P: AOK-KUA084: Introduction to Psychology, Communication
AOK-KUA084	Introduction to Psychology, Communication	Dept. of Behavioural Sciences	Dr. Oguz Kelemen	-	1	-	Signature	-	P: AOK-KUA083: Introduction to Psychology, Communication
Criteria Subjects									
AOK-KUA252	Hungarian Language II.*	Dept. for Medical Communication and Translation	Dr. Csilla Keresztes	-	4	-	Term Mark(5)	-	SR: AOK-KUA251: Hungarian Language I.
AOK-KUA352	Medical Latin Language II.	Dept. for Medical Communication and Translation	Dr. Csilla Keresztes	-	2	-	Signature	-	SR: AOK-KUA351: Medical Latin Language I.
XTD011-2PHE	Physical Education (P.E.)**	Sport Center	Andrea Böröcz Hózsóné	-	2	-	Signature	-	-
AOK-KUA211	Nursing Practice*			-	4x30	-	Signature	-	-
Compulsory Elective Subjects (Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA1312	Basics in Molecular Biology II.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	1	-	-	Evaluation(5)	1	-
AOK-KA092	Developmental Genetics II.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	1	-	-	Evaluation(5)	1	-
AOK-KA1322	Frontiers in Molecular Biology II.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	2	-	-	Evaluation(5)	2	-
AOK-KA102	Genetic Analysis II.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	1	-	-	Evaluation(5)	1	-
AOK-KA151	Modern Instrumental Analysis and Separation Methods	Dept. of Med. Chemistry	Prof. Tamás Martinek	1	-	-	Evaluation(5)	1	-
AOK-KA121	Neurocytology	Dept. of Anatomy	Prof. Antal Nógrádi	2	-	-	Evaluation(5)	2	-
AOK-KA161	Steric Structure of Biopolymers	Dept. of Med. Chemistry	Prof. Tamás Martinek	1	-	-	Evaluation(5)	1	-
Elective Subjects (Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA1931	Clinical Voluntary Work	Departments of the Faculty of Medicine		-	2	-	Term Mark(5)	2	-
AOK-KUA261	Chemical Misconceptions	Dept. of Med. Chemistry	Prof. Tamás Martinek	2	-	-	Evaluation(5)	2	-
AOK-KUA381	Medical Hungarian Language - English Program I. year	Dept. for Medical Communication and Translation	Dr. Csilla Keresztes	-	14 hours in total	-	Term Mark(5)	1	-
AOK-KUA431	Medical physics remedial course	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	-	-	14 hours in total	Term Mark(5)	1	-
AOK-KN081	Berufsfelderkundung****	Dept. Of Behav. Sciences	Dr. Oguz Kelemen	-	1	-	Term Mark(5)	1	-

* The completion of the course is obligatory in the semester given. **One has to complete 2 semesters of Physical Education until the end of the 5th year.

**** Supplementary course/examination for students working towards obtaining the "Physikum" certificate. The language of instruction is German. You can take it only if you are fluent in German (advanced, C1 level is required).

SUGGESTED STUDY PLAN - MEDICINE - 2019/2020

Course Code	Course	Department	Head of Department	Theory hrs/ week	Practice hrs/ week	Seminar hrs/ week	Form of exam	Credit	Precondition (SR: subject requirement = completion of the precondition subject(s) in a preceding semester is required; ER: examination requirement = passing the examination of the precondition subject(s) in the same semester is required; P: parallel completion = register for all subjects in the same semester)
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3rd (fall) semester (9001AK_N_2013)

BASIC AND PRE-CLINICAL MODULE

Compulsory Subjects									
AOK-KUA017	Anatomy, Histology and Embryology III.	Dept. of Anatomy	Prof. Antal Nógrádi	2	-	-	Comprehensive Exam	3	SR: AOK-KUA015: Dissection Practice II., AOK-KUA016: Histology Practice I. ER: AOK-KUA014: Anatomy, Histology and Embryology II. P: AOK-KUA018: Dissection Practice III., AOK-KUA019: Histology Practice II. ALSO: ***
AOK-KUA018	Dissection Practice III.	Dept. of Anatomy	Prof. Antal Nógrádi	-	3	-	Term Mark(5)	3	SR: AOK-KUA015: Dissection Practice II., AOK-KUA016: Histology Practice I. P: AOK-KUA017: Anatomy, Histology and Embryology III., AOK-KUA019: Histology Practice II.
AOK-KUA019	Histology Practice II.	Dept. of Anatomy	Prof. Antal Nógrádi	-	2	-	Term Mark(5)	2	SR: AOK-KUA015: Dissection Practice II., AOK-KUA016: Histology Practice I. P: AOK-KUA017: Anatomy, Histology and Embryology III., AOK-KUA018: Dissection Practice III.
AOK-KUA021	Biochemistry I.	Dept. of Biochemistry	Dr. Tamás Csont	4	-	-	Examination	6	SR: AOK-KUA063 & AOK-KUA064 Medical Chemistry II., ER: AOK-KUA073: Cell Biology and Molecular Genetics II. P: AOK-KUA022 ALSO: ***
AOK-KUA022	Biochemistry I.	Dept. of Biochemistry	Dr. Tamás Csont	-	2	-	Signature	-	P: AOK-KUA021: Biochemistry I.
AOK-KUA031	Medical Physiology I.	Dept. of Physiology	Prof. Gyula Sáy	4	-	-	Examination	8	SR: AOK-KUA503 & AOK-KUA504: Medical Physics II., AOK-KUA505 & AOK-KUA506: Medical Statistics, AOK-KUA073 & AOK-KUA074: Cell Biology and Molecular Genetics II., ER: AOK-KUA014: Anatomy, Histology and Embryology II. P: AOK-KUA032: Medical Physiology I. ALSO: ***
AOK-KUA032	Medical Physiology I.	Dept. of Physiology	Prof. Gyula Sáy	-	4	-	Signature	-	P: AOK-KUA031: Medical Physiology I.
Criteria Subjects									
AOK-KUA253	Hungarian Language III.*	Dept. for Medical Communication and Transla	Dr. Csilla Keresztes	-	4	-	Term Mark(5)	-	SR: AOK-KUA252: Hungarian Language II.
XT0011-PHE	Physical Education (P.E.)**	Sport Center	Andrea Böröcz Hézsóné	-	2	-	Signature	-	-
Compulsory Elective Subjects (Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA351N	Medical Physiology (Seminar) I.	Dept. of Physiology	Prof. Gyula Sáy	-	-	4	Evaluation(5)	4	P: AOK-KUA031: Medical Physiology I.
AOK-KA871	Molecular Cytology and Histology	Dept. of Anatomy	Prof. Antal Nógrádi	2	-	-	Evaluation(5)	2	-
AOK-KA631	Medical Sociology	Dept. of Public Health	Dr. Edit Paulik	-	2	-	Examination	2	-
AOK-KA1921	Electrophysiology: ion channels and ion transport mechanisms in the regulatin of cell functions	Dept. of Pharmacology	Prof. István Baczkó	2	-	-	Evaluation(5)	2	P: AOK-KA1922: Electrophysiology: ion channels and ion transport mechanisms in the regulatin of cell functions
AOK-KA1922	Electrophysiology: ion channels and ion transport mechanisms in the regulatin of cell functions	Dept. of Pharmacology	Prof. István Baczkó	-	6 hours in total	-	Signature	-	P: AOK-KA1921: Electrophysiology: ion channels and ion transport mechanisms in the regulatin of cell functions
AOK-KA091	Developmental Genetics I.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	1	-	-	Evaluation(5)	1	-
Elective Subjects (Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA1931	Clinical Voluntary Work	Departments of the Faculty of Medicine		-	2	-	Term Mark(5)	2	-
AOK-KA1771	Body Development and Diseases and a Molecular Biological Background	Dept. of Biochemistry	Dr. Tamás Csont	2	-	-	Evaluation(5)	2	-
AOK-KN091	Einführung in die klinische Medizin****	Dept. Of Surgery	Prof. György Lázár	-	2	-	Term Mark(5)	2	-
AOK-KN511	Terminologie****	Dept. for Medical Communication and Transla	Dr. Csilla Keresztes	-	2	-	Signature	1	-

* The completion of the course is obligatory in the semester given.

** One has to complete 2 semesters of Physical Education until the end of the 5th year.

*** **SR:** AOK-KUA011: Anatomy, Histology and Embryology I., AOK-KUA041: Basic Life Support, AOK-KUA501 & AOK-KUA502: Medical Physics I., AOK-KUA061 & AOK-KUA062: Medical Chemistry I., AOK-KUA071 & AOK-KUA072: Cell Biology and Molecular Genetics I.

**** Supplementary course/examination for students working towards obtaining the "Physikum" certificate. The language of instruction is German. You can take it only if you are fluent in German (advanced, C1 level is required).

4th (spring) semester (9001AK_N_2013)

BASIC AND PRE-CLINICAL MODULE

Compulsory Subjects									
AOK-KUA101	Immunology	Dept. of Med. Microbiology	Dr. Katalin Burián	2	-	-	Examination	2	SR: AOK-KUA014: Anatomy, Histology and Embryology II. AOK-KUA015: Dissection Practice II., AOK-KUA016: Histology I., AOK-KUA503 & AOK-KUA504: Medical Physics II., AOK-KUA505 & AOK-KUA506: Medical Statistics, AOK-KUA063 & AOK-KUA064: Medical Chemistry II. ER: AOK-KUA017: Anatomy, Histology and Embryology III., AOK-KUA073: Cell Biology and Molecular Genetics II.
AOK-KUA111	Basic Surgical Skills	Inst. of Surgical Research	Prof. Mihály Boros	1	-	-	Examination	3	P: AOK-KUA112: Basic Surgical Skills
AOK-KUA112	Basic Surgical Skills	Inst. of Surgical Research	Prof. Mihály Boros	-	2	-	Signature	-	P: AOK-KUA111: Basic Surgical Skills
AOK-KUA023	Biochemistry II.	Dept. of Biochemistry	Dr. Tamás Csont	4	-	-	Comprehensive Exam	6	ER: AOK-KUA021: Biochemistry I., P: AOK-KUA024: Biochemistry II.
AOK-KUA024	Biochemistry II.	Dept. of Biochemistry	Dr. Tamás Csont	-	2	-	Signature	-	P: AOK-KUA023: Biochemistry II.
AOK-KUA033	Medical Physiology II.	Dept. of Physiology	Prof. Gyula Sáy	6	-	-	Comprehensive Exam	10	ER: AOK-KUA031: Medical Physiology I., P: AOK-KUA034: Medical Physiology II.
AOK-KUA034	Medical Physiology II.	Dept. of Physiology	Prof. Gyula Sáy	-	4	-	Signature	-	P: AOK-KUA033: Medical Physiology II.
AOK-KUA411	Medical Anthropology	Dept. of Behavioural Sciences	Dr. Oguz Kelemen	-	-	1	Evaluation(5)	1	SR: AOK-KUA391 & AOK-KUA392: Introduction to Medicine
Criteria Subjects									
AOK-KUA254	Hungarian Language IV.*	Dept. for Medical Communication and Transla	Dr. Csilla Keresztes	-	4	-	Prel.Exam	-	SR: AOK-KUA253: Hungarian Language III
XT0011-2PHE	Physical Education (P.E.)**	Sport Center	Andrea Böröcz Hézsóné	-	2	-	Signature	-	-
Compulsory Elective Subjects (Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KUA271	Human Embryology: Development of the Organ Systems	Dept. of Anatomy	Prof. Antal Nógrádi	2	-	-	Evaluation(5)	2	ER: AOK-KUA017: Anatomy, Histology and Embryology III.
AOK-KA352N	Medical Physiology (Seminar) II.	Dept. of Physiology	Prof. Gyula Sáy	-	-	4	Evaluation(5)	4	P: AOK-KUA033: Medical Physiology II.
AOK-KA1632	Biochemistry: Selected Chapters from Medical Biochemistry	Dept. of Biochemistry	Dr. Tamás Csont	2	-	-	Evaluation(5)	2	P: AOK-KUA023: Biochemistry II.
AOK-KA861	Cardiac Electrophysiology as a Basic Property of Cardiac Function	Dept. of Pharmacology	Prof. István Baczkó	1	-	-	Evaluation(5)	2	P: AOK-KA862: Cardiac Electrophysiology as a Basic Property of Cardiac Function
AOK-KA862	Cardiac Electrophysiology as a Basic Property of Cardiac Function	Dept. of Pharmacology	Prof. István Baczkó	-	1	-	Signature	-	P: AOK-KA861: Cardiac Electrophysiology as a Basic Property of Cardiac Function
AOK-KA881	Molecular Developmental-Biology	Dept. of Biochemistry	Dr. Tamás Csont	2	-	-	Evaluation(5)	2	SR: AOK-KUA073: Cell Biology and Molecular Genetics II.
AOK-KA1221	Biochemical Basics of Preventive Medicine	Dept. of Biochemistry	Dr. Tamás Csont	2	-	-	Evaluation(5)	2	SR: AOK-KUA021: Biochemistry I.
AOK-KA092	Developmental Genetics II.	Dept. of Med. Biology	Prof. Zsolt Boldogkői	1	-	-	Evaluation(5)	1	-
Elective Subjects (Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA1931	Clinical Voluntary Work	Departments of the Faculty of Medicine		-	2	-	Term Mark(5)	2	-
AOK-KUA281	Clinical Anatomy	Dept. of Anatomy	Prof. Antal Nógrádi	-	3	-	Term Mark(5)	3	SR: AOK-KUA018: Dissection Practice III., AOK-KUA019: Histology Practice II.
AOK-KA99051	Mathematical and Statistical Modelling in Medicine Lecture	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	1	-	-	Evaluation(5)	2	SR: AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II., AOK-KUA503 & AOK-KUA504: Medical Physics I., AOK-KUA505 & AOK-KUA506: Medical Statistics
AOK-KA99052	Mathematical and Statistical Modelling in Medicine Practice	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	-	1	-	Signature	-	P: AOK-KA99051: Mathematical and Statistical Modelling in Medicine Lecture
AOK-KUN505	Grundbegriffe in der Psychologie****	Dept. Of Behav. Sciences	Dr. Oguz Kelemen	-	-	-	Comprehensive Exam	2	-
AOK-KUN506	Medizinische Soziologie Rigorosum****	Dept. Of Behav. Sciences	Dr. Oguz Kelemen	-	-	-	Comprehensive Exam	2	-

* The completion of the course is obligatory in the semester given.

** One has to complete 2 semesters of Physical Education until the end of the 5th year.

**** Supplementary course/examination for students working towards obtaining the "Physikum" certificate. The language of instruction is German. You can take it only if you are fluent in German (advanced, C1 level is required).

SUGGESTED STUDY PLAN - MEDICINE - 2019/2020

Course Code	Course	Department	Head of Department	Theory Hrs/week	Practice Hrs/week	Seminar Hrs/week	Form of exam	Credit	Precondition (SR: subject requirement = completion of the precondition subject(s) in a preceding semester is required; ER: examination requirement = passing the examination of the precondition subject(s) in the same semester is required; P: parallel completion = register for all subjects in the same semester)
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5th (fall) semester (9001AK_N_2013)

BASIC AND PRE-CLINICAL MODULE

Compulsory Subjects									
AOK-KUA121	Basic Principles of Internal Medicine (Basics of Haematology)	1st Dept. of Int.Med. / 2nd Dept. of Int.Med.	Prof. Csaba Lengyel/ Dr. Sepp Róbert	2	-	-	Examination	4	see below**
AOK-KUA122	Basic Principles of Internal Medicine (Basics of Haematology)	1st Dept. of Int.Med. / 2nd Dept. of Int.Med.	Prof. Csaba Lengyel/ Dr. Sepp Róbert	-	2	-	Signature	-	P: AOK-KUA121: Basic Principles of Internal Medicine (Basics of Haematology)
AOK-KUA171	Pathophysiology I.	Dept. of Pathophysiology	Prof. Zoltán Rakonczay	3	-	-	Examination	5	see below**
AOK-KUA172	Pathophysiology I.	Dept. of Pathophysiology	Prof. Zoltán Rakonczay	-	2	-	Signature	-	P: AOK-KUA171: Pathophysiology I.
AOK-KUA091	Microbiology I.	Dept. of Med. Microbiology	Dr. Katalin Burián	3	-	-	Examination	5	see below**
AOK-KUA092	Microbiology I.	Dept. of Med. Microbiology	Dr. Katalin Burián	-	2	-	Signature	-	P: AOK-KUA091: Microbiology I.
AOK-KUA131	Basics of Emergency Medicine	Dept. of Anesthesiology and Intensive Therapy	Prof. Babik Barna	1	-	-	Signature	-	see below**
AOK-KUA132	Basics of Emergency Medicine	Dept. of Anesthesiology and Intensive Therapy	Prof. Babik Barna	-	2	-	Term Mark(5)	2	P: AOK-KUA132: Basics of Emergency Medicine
AOK-KUA201	Pathology I.	Dept. of Pathology	Dr. Tibor Hortobágyi	3	-	-	Examination	6	see below**
AOK-KUA202	Pathology I.	Dept. of Pathology	Dr. Tibor Hortobágyi	-	3	-	Signature	-	P: AOK-KUA201: Pathology I.
Criteria Subjects									
AOK-KUA255	Hungarian Language V.*	Dept. for Medical Communication and Transla	Dr. Csilla Keresztes	-	3	-	Term Mark(5)	-	SR: AOK-KUA254: Hungarian Language IV.
Compulsory Elective Subjects (Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA1461	Advanced Surgical Skills	Inst. of Surgical Research	Prof. Mihály Boros	total: 12	-	-	Evaluation(5)	2	SR: AOK-KUA111 & AOK-KUA112: Basic Surgical Skills P: AOK-KA1462: Advanced Surgical Skills
AOK-KA1462	Advanced Surgical Skills	Inst. of Surgical Research	Prof. Mihály Boros	-	total: 12	-	Signature	-	P: AOK-KA1461: Advanced Surgical Skills
AOK-KA1451	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	total: 8	-	-	Evaluation(5)	2	SR: AOK-KUA111 & 112: Basic Surgical Skills P: AOK-KA1452: Microsurgery
AOK-KA1452	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	-	total: 20	-	Signature	-	P: AOK-KA1451: Microsurgery
AOK-KA1011	Molecular Medicine	Dept. of Cell Biology and Molecular Medicine	Prof. Károly Gulya	2	-	-	Evaluation(5)	2	
AOK-KA1611	Pathophysiology of Sepsis at the Bedside	Dept. of Anesthesiology and Intensive Therapy	Prof. Babik Barna	1	-	-	Evaluation(5)	1	SR: AOK-KUA033: Medical Physiology II.
AOK-KA1921	Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions	Dept. of Pharmacology	Prof. István Baczkó	2	-	-	Evaluation(5)	2	P: AOK-KA1922: Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions
AOK-KA1922	Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions	Dept. of Pharmacology	Prof. István Baczkó	-	6 hours in total	-	Signature	-	P: AOK-KA1921: Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions
Elective Subjects (Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA1931	Clinical Voluntary Work	Departments of the Faculty of Medicine		-	2	-	Term Mark(5)	2	-
AOK-KADEM011	Demonstrator Activity	The department where the student's demonstrator activity application was accepted		-	2	-	Evaluation(5)	2	SR: AOK-KUA014: Anatomy, Histology and Embryology II., AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II. or AOK-KUA503 & AOK-KUA504: Medical Physics II. & AOK-KUA505 & AOK-KUA506: Medical Statistics, AOK-KUA063 & AOK-KUA064: Medical Chemistry II., AOK-KUA073 & AOK-KUA074: Cell Biology and Molecular Genetics II., AOK-KUA081 & AOK-KUA082: Communication Skills (2020/21: AOK-KUA083 & AOK-KUA084: Introduction to Psychology, Communication), AOK-KUA111 & AOK-KUA112: Basic Surgical Skills, AOK-KUA211: Nursing Practice
AOK-KA1771	Body Development and Diseases and a Molecular Biological Background	Dept. of Biochemistry	Dr. Tamás Csont	2	-	-	Evaluation(5)	2	-
AOK-KA1027	Cerebral Blood Flow and Metabolism	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	2	-	-	Evaluation(5)	2	-

* The completion of the course is obligatory in the semester given.

** **SR:** AOK-KUA017: Anatomy, Histology and Embryology III., AOK-KUA18: Dissection Practice III., AOK-KUA019: Histology II., AOK-KUA023 & AOK-KUA024: Biochemistry II., AOK-KUA033 & AOK-KUA034: Medical Physiology II., AOK-KUA041: Basic Life Support, AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II. (from 2020/2021: AOK-KUA503 & AOK-KUA504: Medical Physics II., AOK-KUA505 & AOK-KUA506: Medical Statistics), AOK-KUA063 & AOK-KUA064: Medical Chemistry II., AOK-KUA073 & AOK-KUA074: Cell Biology and Molecular Genetics II., AOK-KUA081 & AOK-KUA082: Communication Skills (2020/21: AOK-KUA083 & AOK-KUA084: Introduction to Psychology, Communication), AOK-KUA111 & AOK-KUA112: Basic Surgical Skills, AOK-KUA211: Nursing Practice, AOK-KUA101: Immunology

6th (spring) semester (9001AK_N_2013)

- part 1 -

BASIC AND PRE-CLINICAL MODULE

Compulsory Subjects									
AOK-KUA161	Internal Medicine I.	1st Dept. of Int.Med.	Prof. Csaba Lengyel	3	-	-	Examination	4	ER: AOK-KUA121: Basic Principles of Internal Medicine (Basics of Haematology) SR: AOK-KUA017: Anatomy, Histology and Embryology III., AOK-KUA018: Dissection Practice III., AOK-KUA019: Histology II., AOK-KUA023 & AOK-KUA024: Biochemistry II., AOK-KUA033 & AOK-KUA034: Medical Physiology II., AOK-KUA041: Basic Life Support, AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II. (from 2020/2021: AOK-KUA503 & AOK-KUA504: Medical Physics II., AOK-KUA505 & AOK-KUA506: Medical Statistics), AOK-KUA063 & AOK-KUA064: Medical Chemistry II., AOK-KUA073 & AOK-KUA074: Cell Biology and Molecular Genetics II., AOK-KUA081 & AOK-KUA082: Communication Skills (2020/21: AOK-KUA083 & AOK-KUA084: Introduction to Psychology, Communication), AOK-KUA111 & AOK-KUA112: Basic Surgical Skills, AOK-KUA211: Nursing Practice
AOK-KUA162	Internal Medicine I.	1st Dept. of Int.Med.	Prof. Csaba Lengyel	-	2	-	Signature	-	P: AOK-KUA161: Internal Medicine I.
AOK-KUA173	Pathophysiology II.	Dept. of Pathophysiology	Prof. Zoltán Rakonczay	3	-	-	Comprehensive Exam	5	ER: AOK-KUA171: Pathophysiology I.
AOK-KUA174	Pathophysiology II.	Dept. of Pathophysiology	Prof. Zoltán Rakonczay	-	2	-	Signature	-	P: AOK-KUA173: Pathophysiology II.
AOK-KUA203	Pathology II.	Dept. of Pathology	Dr. Tibor Hortobágyi	2	-	-	Comprehensive Exam	6	ER: AOK-KUA201: Pathology I.
AOK-KUA204	Pathology II.	Dept. of Pathology	Dr. Tibor Hortobágyi	-	4	-	Signature	-	P: AOK-KUA203: Pathology II.
AOK-KUA093	Microbiology II.	Dept. of Med. Microbiology	Dr. Katalin Burián	3	-	-	Comprehensive Exam	5	ER: AOK-KUA091: Microbiology I.
AOK-KUA094	Microbiology II.	Dept. of Med. Microbiology	Dr. Katalin Burián	-	2	-	Signature	-	P: AOK-KUA093: Microbiology II.
AOK-KUA141	Surgical Propedeutics	Dept. of Surgery	Prof. György Lázár	2	-	-	Examination	4	SR: AOK-KUA017: Anatomy, Histology and Embryology III., AOK-KUA018: Dissection Practice III., AOK-KUA019: Histology Practice II., AOK-KUA023 & AOK-KUA024: Biochemistry II., AOK-KUA033 & AOK-KUA034: Medical Physiology II., AOK-KUA041: Basic Life Support, AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II. (from 2019/2020: AOK-KUA503 & AOK-KUA504: Medical Physics II., AOK-KUA505 & AOK-KUA506: Medical Statistics), AOK-KUA063 & AOK-KUA064: Medical Chemistry II., AOK-KUA073 & AOK-KUA074: Cell Biology and Molecular Genetics II., AOK-KUA081 & AOK-KUA082: Communication Skills (2020/21: AOK-KUA083 & AOK-KUA084: Introduction to Psychology, Communication), AOK-KUA111 & AOK-KUA112: Basic Surgical Skills, AOK-KUA211: Nursing Practice
AOK-KUA142	Surgical Propedeutics	Dept. of Surgery	Prof. György Lázár	-	2	-	Signature	-	P: AOK-KUA141: Surgical Propedeutics
AOK-KUA193	Medical Psychology I.	Dept. of Behavioural Sciences	Dr. Oguz Kelemen	1	-	-	Evaluation(5)	2	SR: AOK-KUA017: Anatomy, Histology and Embryology III., AOK-KUA018: Dissection Practice III., AOK-KUA019: Histology Practice II., AOK-KUA023 & AOK-KUA024: Biochemistry II., AOK-KUA033 & AOK-KUA034: Medical Physiology II., AOK-KUA041: Basic Life Support, AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II. (from 2019/2020: AOK-KUA503 & AOK-KUA504: Medical Physics II., AOK-KUA505 & AOK-KUA506: Medical Statistics), AOK-KUA063 & AOK-KUA064: Medical Chemistry II., AOK-KUA073 & AOK-KUA074: Cell Biology and Molecular Genetics II., AOK-KUA081 & AOK-KUA082: Communication Skills (2020/21: AOK-KUA083 & AOK-KUA084: Introduction to Psychology, Communication), AOK-KUA111 & AOK-KUA112: Basic Surgical Skills, AOK-KUA211: Nursing Practice P: AOK-KUA194
AOK-KUA194	Medical Psychology I.	Dept. of Behavioural Sciences	Dr. Oguz Kelemen	-	1	-	Signature	-	P: AOK-KUA193: Medical Psychology I.

SUGGESTED STUDY PLAN - MEDICINE - 2019/2020

Course Code	Course	Department	Head of Department	Theory Hrs/week	Practice Hrs/week	Seminar Hrs/week	Form of exam	Credit	Precondition (SR: subject requirement = completion of the precondition subject(s) in a preceding semester is required; ER: examination requirement = passing the examination of the precondition subject(s) in the same semester is required; P: parallel completion = register for all subjects in the same semester)
6th (spring) semester (9001AK_N_2013)				- part 2 -			BASIC AND PRE-CLINICAL MODULE		
AOK-KUA181	Ethics in Medicine	Dept.of Behavioural Sciences	Dr. Oguz Kelemen	1	-	-	Examination	3	SR: AOK-KUA017: Anatomy, Histology and Embryology III., AOK-KUA118: Dissection Practice III., AOK-KUA019: Histology Practice II. AOK-KUA023 & AOK-KUA024: Biochemistry II., AOK-KUA033 & AOK-KUA034: Medical Physiology II., AOK-KUA041: Basic Life Support, AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II. (from 2020/2021: AOK-KUA503 & AOK-KUA504: Medical Physics II., AOK-KUA505 & AOK-KUA506: Medical Statistics), AOK-KUA063 & AOK-KUA064: Medical Chemistry II., AOK-KUA073 & AOK-KUA074: Cell Biology and Molecular Genetics II., AOK-KUA081 & AOK-KUA082: Communication Skills (2020/21: AOK-KUA083 & AOK-KUA084: Introduction to Psychology, Communication), AOK-KUA111: Basic Surgical Skills, AOK-KUA211: Nursing Practice P: AOK-KUA181
AOK-KUA182	Ethics in Medicine	Dept.of Behavioural Sciences	Dr. Oguz Kelemen	-	2	-	Signature	-	P: AOK-KUA181: Ethics in Medicine
Criteria Subjects									
AOK-KUA256	Hungarian Language VI.*	Dept. for Medical Communication and Translati	Dr. Csilla Keresztes	-	3	-	Term Mark(5)	-	SR: AOK-KUA255: Hungarian Language V.
AOK-KUA221	Internal Medicine Practice*				4x30	-	Signature	-	P: AOK-KUA161: Internal Medicine I. SR: AOK-KUA017: Anatomy, Histology and Embryology III. AOK-KUA018 Dissection Practice III., AOK-KUA019: Histology Practice II., AOK-KUA023 & AOK-KUA024: Biochemistry II., AOK-KUA033 & AOK-KUA034: Medical Physiology II., AOK-KUA041: Basic Life Support, AOK-KUA053 & : Medical Physics and Statistics II. (from 2019/2020: AOK-KUA503: Medical Physics II., AOK-KUA505: Statistics), AOK-KUA063 & AOK-KUA064: Medical Chemistry II., AOK-KUA073 & AOK-KUA074: Cell Biology and Molecular Genetics II., AOK-KUA081: Introduction to Psychology, Basics of Nursing, AOK-KUA082: Communication Skills (2020/21: AOK-KUA083: Introduction to Psychology, Communication), AOK-KUA111: Basic Surgical Skills, AOK-KUA211: Nursing Practice
Compulsory Elective Subjects (Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA1461	Advanced Surgical Skills	Inst. of Surgical Research	Prof. Mihály Boros	1	-	-	Evaluation(5)	2	SR: AOK-KUA111: Basic Surgical Skills
AOK-KA1462	Advanced Surgical Skills	Inst. of Surgical Research	Prof. Mihály Boros	-	1	-	Signature	-	P: AOK-KA1461: Advanced Surgical Skills
AOK-KA881	Molecular Developmental-Biology	Dept. of Biochemistry	Dr. Tamás Csont	2	-	-	Evaluation(5)	2	SR: AOK-KUA073: Cell Biology and Molecular Genetics II.
AOK-KA821	Microbiological Problems in Med. Practice	Dept. of Med. Microbiology	Dr. Katalin Burián	1	-	-	Evaluation(5)	1	P: AOK-KUA091: Developmental Genetics I.
AOK-KA1451	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	total: 8	-	-	Evaluation(5)	2	SR: AOK-KUA111: Basic Surgical Skills
AOK-KA1452	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	-	total: 20	-	Signature	-	P: AOK-KA1451: Microsurgery
AOK-KA831	Pathophysiological Aspects of Laboratory Medicine	Dept. of Laboratory Medicine	Dr. Földesi Imre	2	-	-	Evaluation(5)	2	SR: AOK-KUA171: Pathophysiology I.
AOK-KA671	Gerontology	Dept.of Behavioural Sciences	Dr. Oguz Kelemen	1	-	-	Evaluation(5)	2	SR: AOK-KUA081: Introduction to Psychology, basics of nursing, AOK-KUA082: Communication Skills (from 2020/21: AOK-KUA083 & AOK-KUA084: Introduction to Psychology, Communication) P: AOK-KA672
AOK-KA672	Gerontology	Dept.of Behavioural Sciences	Dr. Oguz Kelemen	-	1	-	Signature	-	P: AOK-KA671: Gerontology
AOK-KUA361	Foundations of Evidence Based Medicine	Department of Public Health	Dr. Edit Paulik	2	-	-	Evaluation(5)	2	SR: AOK-KA631: Medical Sociology, AOK-KUA051 & AOK-KUA052: Medical Physics and Statistics I. (from 2020/21: AOK-KUA501 & AOK-KUA502: Medical Physics I.)
AOK-KA861	Cardiac Electrophysiology as a Basic Property of Cardiac Function	Dept. of Pharmacology	Prof. István Baczkó	1	-	-	Evaluation(5)	2	P: AOK-KA862: Cardiac Electrophysiology as a Basic Property of Cardiac Function
AOK-KA862	Cardiac Electrophysiology as a Basic Property of Cardiac Function	Dept. of Pharmacology	Prof. István Baczkó	-	1	-	Signature	-	P: AOK-KA861: Cardiac Electrophysiology as a Basic Property of Cardiac Function
Elective Subjects (Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA1931	Clinical Voluntary Work	Departments of the Faculty of Medicine		-	2	-	Term Mark(5)	2	-
AOK-KA1023	Basic Immunopathology	Inst. of Surgical Research	Prof. Mihály Boros	1	-	-	Evaluation(5)	1	SR: AOK-KUA091: Microbiology I.
AOK-KA1711	Biotechnology from a Business Perspective	Dept. of Biotechnology	Prof. Kornél Kovács L.	2	-	-	Evaluation(5)	2	SR: AOK-KUA073: Cell Biology and Molecular Genetics II.
AOK-KUA261	Chemical Misconceptions	Dept. of Med. Chemistry	Prof. Tamás Martinek	2	-	-	Evaluation(5)	2	-
AOK-KA99051	Mathematical and Statistical Modelling in Medicine Lecture	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	1	-	-	Evaluation(5)	2	SR: AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II., AOK-KUA503 & AOK-KUA504: Medical Physics I., AOK-KUA505 & AOK-KUA506: Medical Statistics
AOK-KA99052	Mathematical and Statistical Modelling in Medicine Practice	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	-	1	-	Signature	-	P: AOK-KA99051: Mathematical and Statistical Modelling in Medicine Lecture
AOK-KUA291	Introduction to Toxicology	Dept. of Med. Chemistry	Prof. Tamás Martinek	2	-	-	Evaluation(5)	2	SR: AOK-KUA023: Biochemistry II., AOK-KUA033: Medical Physiology II.
AOK-KADEM011	Demonstrator Activity	The department where the student's demonstrator activity application was accepted		-	2	-	Evaluation(5)	2	SR: AOK-KUA014: Anatomy, Histology and Embryology II., AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II. or AOK-KUA503 & AOK-KUA504: Medical Physics II. & AOK-KUA505 & AOK-KUA506: Medical Statistics, AOK-KUA063: Medical Chemistry II., AOK-KUA073: Cell Biology and Molecular Genetics II., AOK-KUA211: Nursing Practice

* The completion of the course is obligatory in the semester given.

SUGGESTED STUDY PLAN - MEDICINE - 2019/2020

Course Code	Course	Department	Head of Department	Theory hrs/ week	Practice hrs/ week	Seminar hrs/ week	Form of exam	Credit	Precondition (SR: subject requirement = completion of the precondition subject(s) in a preceding semester is required; ER: examination requirement = passing the examination of the precondition subject(s) in the same semester is required; P: parallel completion = register for all subjects in the same semester)
7th (fall) semester (9001AK_N_2013)									
CLINICAL MODULE									
Compulsory Subjects									
AOK-KA201	Internal Medicine II.	2nd Dept. of Int.Med.	Dr. Sepp Róbert	5	-	-	Examination	5	SR: Basic and Pre-Clinical Module
AOK-KA202	Internal Medicine II.	2nd Dept. of Int.Med.	Dr. Sepp Róbert	-	2	-	Signature	-	P: AOK-KA201: Internal Medicine II.
AOK-KA231	Pharmacology I.	Dept. of Pharmacology	Prof. István Baczkó	3	-	-	Examination	5	SR: Basic and Pre-Clinical Module
AOK-KA232	Pharmacology I.	Dept. of Pharmacology	Prof. István Baczkó	-	2	-	Signature	-	P: AOK-KA231: Pharmacology I.
AOK-KA271	Public Health and Preventive Medicine I.	Department of Public Health	Dr. Edit Paulik	2	-	-	Examination	3	SR: Basic and Pre-Clinical Module
AOK-KA272	Public Health and Preventive Medicine I.	Department of Public Health	Dr. Edit Paulik	-	2	-	Signature	-	P: AOK-KA271: Public Health and Preventive Medicine I.
AOK-KA291	Orthopedics	Dept. of Orthopedics	Dr. Ferenc Greksa	2	-	-	Examination	3	SR: Basic and Pre-Clinical Module
AOK-KA292	Orthopedics	Dept. of Orthopedics	Dr. Ferenc Greksa	-	2	-	Signature	-	P: AOK-KA291: Orthopedics
AOK-KA311	Pulmonology	Dept. of Pulmonology	Prof. Attila Somfay	1	-	-	Examination	2	SR: Basic and Pre-Clinical Module
AOK-KA312	Pulmonology	Dept. of Pulmonology	Prof. Attila Somfay	-	2	-	Signature	-	P: AOK-KA311: Pulmonology
AOK-KA321	Radiology I.	Dept. of Radiology	Dr. Kincses Zsigmond Tamás	1	-	-	Evaluation(5)	2	SR: Basic and Pre-Clinical Module
AOK-KA322	Radiology I.	Dept. of Radiology	Dr. Kincses Zsigmond Tamás	-	1	-	Signature	-	P: AOK-KA321: Radiology I.
AOK-KA331	Surgery I.	Dept. of Surgery	Prof. György Lázár	2	-	-	Evaluation(5)	3	SR: Basic and Pre-Clinical Module
AOK-KA332	Surgery I.	Dept. of Surgery	Prof. György Lázár	-	2	-	Signature	-	P: AOK-KA331: Surgery I.
AOK-KA351	Obstetrics and Gynaecology I.	Dept. of Obstetrics and G.	Dr. Gábor Németh	3	-	-	Examination	4	SR: Basic and Pre-Clinical Module
AOK-KA352	Obstetrics and Gynaecology I.	Dept. of Obstetrics and G.	Dr. Gábor Németh	-	2	-	Signature	-	P: AOK-KA351: Obstetrics and Gynaecology I.
AOK-KA381	Clinical Oncology	Dept. of Oncology	Prof. Judit Oláh	2	-	-	Examination	2	SR: Basic and Pre-Clinical Module
AOK-KA963	Medical Psychology II.	Dept.of Behavioural Sciences	Dr. Oguz Kelemen	1	-	-	Signature	0	SR: Basic and Pre-Clinical Module
AOK-KA964	Medical Psychology II.	Dept.of Behavioural Sciences	Dr. Oguz Kelemen	-	1	-	Term Mark(5)	1	P: AOK-KA963: Medical Psychology II.
Criteria Subjects									
AOK-KA717	Hungarian Language VII.*	Dept. for Medical Communication and Translation	Dr. Csilla Keresztes	-	3	-	Term Mark(5)	-	SR: Basic and Pre-Clinical Module
AOK-KA681	Doctor-Patient Communication**	Dept.of Behavioural Sciences	Dr. Oguz Kelemen	-	2	-	Signature	-	SR: Basic and Pre-Clinical Module
AOK-KA353	Delivery-Room**	Dept. of Obstetrics and G.	Dr. Gábor Németh	72 hours in total		-	Signature	-	P: AOK-KA351: Obstetrics and Gynaecology I.
AOK-KA591	Examination in Behavioural Sciences	Dept.of Behavioural Sciences	Dr. Oguz Kelemen	-	-	-	Comprehensive Exam	-	SR: Basic and Pre-Clinical Module ER: having completed the required number of Behavioural Science subjects
Compulsory Elective Subjects (Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA431	Basic Biostatistics	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	2	-	-	Evaluation(5)	2	-
AOK-KA1561	Introduction to Aviation and Space Medicine	Dept. of Aviation and Space Medicine	Prof. Sándor Szabó	2	-	-	Evaluation(5)	2	-
AOK-KA451	Medical Informatics I.	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	2	-	-	Evaluation(5)	2	-
AOK-KA1791	Medical Molecular Biology and Genomics	Dept. of Med. Biology	Prof. Zsolt Boldogkői	1	-	-	Evaluation(5)	1	-
AOK-KA1451	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	total 8		-	Evaluation(5)	2	SR: AOK-KUA111 & 112: Basic Surgical Skills P: AOK-KA1452: Microsurgery
AOK-KA1452	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	total 20		-	Signature	-	P: AOK-KA1451: Microsurgery
AOK-KA421	Nuclear Medicine	Dept. of Nuclear Med.	Prof. László Pávics	1	-	-	Evaluation(5)	1	-
AOK-KA1061	Pharmacology Cases I.	Dept. of Pharmacology	Prof. István Baczkó	-	2	-	Term Mark(5)	2	-
AOK-KA1581	The Language of Effective Doctor-Patient Communication I.	Dept. for Medical Communication and Translation	Dr. Csilla Keresztes	-	2	-	Term Mark(5)	2	-
AOK-KA1921	Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions	Dept. of Pharmacology	Prof. István Baczkó	2	-	-	Evaluation(5)	2	P: AOK-KA1922: Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions
AOK-KA1922	Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions	Dept. of Pharmacology	Prof. István Baczkó	-	6 hours in total	-	Signature	-	P: AOK-KA1921: Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions
Elective Subjects (Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KUA341	Self management support for patients with chronic conditions	Dept. Of Medical Rehabilitation and Physical Medicine	Dr. István Kósa	2	-	-	Evaluation(5)	2	SR: AOK-KUA121 & AOK-KUA122: Basic Principles of Internal Medicine
AOK-KA1931	Clinical Voluntary Work	Departments of the Faculty of Medicine		-	2	-	Term Mark(5)	2	-
	Demonstrator Activity	The department where the student's demonstrator activity application was accepted		-	2	-	Evaluation(5)	2	SR: AOK-KUA014: Anatomy, Histology and Embryology II., AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II. or AOK-KUA503 & AOK-KUA504: Medical Physics II. & AOK-KUA505 & AOK-KUA506: Medical Statistics, AOK-KUA063: Medical Chemistry II., AOK-KUA073: Cell Biology and Molecular Genetics II., AOK-KUA211: Nursing Practice
AOK-KATDK101	Scientific Circle	The department where the student's scientific circle application was accepted		-	2	-	Evaluation(5)	2	-
AOK-KA1881	Esthetics of the Face	Department of Operative and Esthetic Dentistry	Dr. Márk Antal	1	-	-	Evaluation(5)	1	-
AOK-KA1831	Illicit Drug Use	Dept. Of Psychiatry	Prof. János Kálmán	2	-	-	Evaluation(5)	2	-
AOK-KA1691	Tropical Medicine	Department of Psychiatry	Prof. János Kálmán	2	-	-	Evaluation(5)	2	-

* The completion of the course is obligatory in the semester given.

**Only half of the 4th year students can register in each semester.

SUGGESTED STUDY PLAN - MEDICINE - 2019/2020

Course Code	Course	Department	Head of Department	Theory hrs/week	Practice hrs/week	Seminar hrs/week	Form of exam	Credit	Precondition (SR: subject requirement = completion of the precondition subject(s) in a preceding semester is required; ER: examination requirement = passing the examination of the precondition subject(s) in the same semester is required; P: parallel completion = register for all subjects in the same semester)
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8th (spring) semester (9001AK_N_2013)

CLINICAL MODULE

Compulsory Subjects									
AOK-KA203	Internal Medicine III.	1st Dept. of Internal Med.	Prof. Csaba Lengyel	5	-	-	Examination	5	ER: AOK-KA201: Internal Medicine II. SR: AOK-KA202: Internal Medicine II.
AOK-KA204	Internal Medicine III.	1st Dept. of Internal Med.	Prof. Csaba Lengyel	-	2	-	Signature	-	P: AOK-KA203: Internal Medicine III.
AOK-KA233	Pharmacology II.	Dept. of Pharmacology	Prof. István Baczkó	4	-	-	Comprehensive Exam	5	ER: AOK-KA231: Pharmacology I.
AOK-KA234	Pharmacology II.	Dept. of Pharmacology	Prof. István Baczkó	-	2	-	Signature	-	P: AOK-KA233: Pharmacology II.
AOK-KA273	Public Health and Preventive Medicine II.	Department of Public Health	Dr. Edit Paulik	2	-	-	Comprehensive Exam	3	ER: AOK-KA271: Public Health and Preventive Medicine I.
AOK-KA274	Public Health and Preventive Medicine II.	Department of Public Health	Dr. Edit Paulik	-	2	-	Signature	-	P: AOK-KA273: Public Health and Preventive Medicine II.
AOK-KA323	Radiology II.	Dept. of Radiology	Dr. Kincses Zsigmond Tamás	1	-	-	Examination	2	ER: AOK-KA321: Radiology I.
AOK-KA324	Radiology II.	Dept. of Radiology	Dr. Kincses Zsigmond Tamás	-	1	-	Signature	-	P: AOK-KA323: Radiology II.
AOK-KA333	Surgery II.	Dept. of Surgery	Prof. György Lázár	2	-	-	Examination	3	ER: AOK-KA331: Surgery I.
AOK-KA334	Surgery II.	Dept. of Surgery	Prof. György Lázár	-	2	-	Signature	-	P: AOK-KA333: Surgery II.
AOK-KA354	Obstetrics and Gynaecology II.	Dept. of Obstetrics and G.	Dr. Gábor Németh	3	-	-	Evaluation(5)	4	ER: AOK-KA351: Obstetrics and Gynaecology I.
AOK-KA355	Obstetrics and Gynaecology II.	Dept. of Obstetrics and G.	Dr. Gábor Németh	-	2	-	Signature	-	P: AOK-KA354: Obstetrics and Gynaecology II.
Criteria Subjects									
AOK-KA4718	Hungarian Language VIII.*	Dept. for Medical Communication and Transla	Dr. Csilla Keresztes	-	3	-	Comprehensive Exam	-	SR: AOK-KA4717: Hungarian Language VII.
AOK-KA681	Doctor-Patient Communication**	Dept. of Behavioural Sciences	Dr. Oguz Kelemen	-	-	2	Signature	-	SR: Basic and Pre-Clinical Module
AOK-KA356	Delivery-Room**	Dept. of Obstetrics and G.	Dr. Gábor Németh	72 hours in total		-	Signature	-	P: AOK-KA354: Obstetrics and Gynaecology II.
AOK-KA701	Surgery Summer Practice			-	4x30	-	Signature	-	SR: Basic and Pre-Clinical Module
Compulsory Elective Subjects (Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA4321	Advanced Biostatistics	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	2	-	-	Evaluation(5)	2	SR: AOK-KA431: Basic Biostatistics
AOK-KA1461	Advanced Surgical Skills	Inst. of Surgical Research	Prof. Mihály Boros	1	-	-	Evaluation(5)	2	SR: AOK-KUA111 & AOK-KUA112: Basic Surgical Skills P: AOK-KA1462: Advanced Surgical Skills
AOK-KA1462	Advanced Surgical Skills	Inst. of Surgical Research	Prof. Mihály Boros	-	1	-	Signature	-	P: AOK-KA1461: Advanced Surgical Skills
AOK-KA211	Child and Adolescent Psychiatry, Mentalhygiene	Dept. Of Child and Adolescent Psychiatry	Dr. Krisztina Kapornai	2	-	-	Evaluation(5)	2	-
AOK-KA491	Clinical Immunology	Dept. of Dermatology	Prof. Lajos Kemény	2	-	-	Evaluation(5)	2	-
AOK-KA501	Laboratory Diagnostics: Use of Laboratory Tests in Practice	Dept. of Laboratory Medicine	Dr. Földesi Inre	2	-	-	Evaluation(5)	2	-
AOK-KA1451	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	total 8		-	Evaluation(5)	2	SR: AOK-KUA111 & 112: Basic Surgical Skills P: AOK-KA1452: Microsurgery
AOK-KA1452	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	-	total 20		Signature	-	P: AOK-KA1451: Microsurgery
AOK-KA881	Molecular Developmental-Biology	Dept. of Biochemistry	Dr. Tamás Csont	2	-	-	Evaluation(5)	2	-
AOK-KA1062	Pharmacology Cases II.	Dept. of Pharmacology	Prof. István Baczkó	-	2	-	Evaluation(5)	2	-
AOK-KA981	Social and Health Policy	Dept. of Public Health	Dr. Edit Paulik	2	-	-	Evaluation(5)	2	-
AOK-KA1571	The Clinical Basics of Aviation and Space Medicine	Dept. of Aviation and Space Medicine	Prof. Sándor Szabó	2	-	-	Evaluation(5)	2	-
AOK-KA1582	The Language of Effective Doctor-Patient Communication II.	Dept. for Medical Communication and Transla	Dr. Csilla Keresztes	-	2	-	Term Mark(5)	2	-
AOK-KA1211	Tropical Diseases	Department of Clinical Microbiology	Dr. habil Edit Urbán	2	-	-	Evaluation(5)	2	-
AOK-KA861	Cardiac Electrophysiology as a Basic Property of Cardiac Function	Dept. of Pharmacology	Prof. István Baczkó	1	-	-	Evaluation(5)	2	P: AOK-KA862: Cardiac Electrophysiology as a Basic Property of Cardiac Function
AOK-KA862	Cardiac Electrophysiology as a Basic Property of Cardiac Function	Dept. of Pharmacology	Prof. István Baczkó	2	-	-	Evaluation(5)	3	P: AOK-KA862: Cardiac Electrophysiology as a Basic Property of Cardiac Function
AOK-KUA301	Sports Medicine	Dept. Of Sports Medicine	Dr. László Török	2	-	-	Evaluation(5)	2	-
AOK-KUA361	Foundations of Evidence Based Medicine	Department of Public Health	Dr. Edit Paulik	2	-	-	Evaluation(5)	2	SR: AOK-KA631: Medical Sociology, AOK-KUA051 & AOK-KUA052: Medical Physics and Statistics I. (or AOK-KUA501 & AOK-KUA502: Medical Physics I.)
Elective Subjects (Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA1931	Clinical Voluntary Work	Departments of the Faculty of Medicine		-	2	-	Term Mark(5)	2	-
AOK-KADEM011	Demonstrator Activity	The department where the student's demonstrator activity application was accepted		-	2	-	Evaluation(5)	2	SR: AOK-KUA014: Anatomy, Histology and Embryology II., AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II. or AOK-KUA503 & AOK-KUA504: Medical Physics II. & AOK-KUA505 & AOK-KUA506: Medical Statistics, AOK-KUA063: Medical Chemistry II., AOK-KUA073: Cell Biology and Molecular Genetics II., AOK-KUA211: Nursing Practice
AOK-KATDK101	Scientific Circle	The department where the student's scientific circle application was accepted		-	2	-	Evaluation(5)	2	-
AOK-KA1221	Biochemical Basics of Preventive Medicine	Dept. Of Biochemistry	Dr. Tamás Csont	2	-	-	Evaluation(5)	2	-
AOK-KA1621	Clinical Aspects of Tropical Diseases	Dept. Of Psychiatry	Prof. János Kálmán	2	-	-	Evaluation(5)	2	-
AOK-KA1831	Illicit Drug Use	Dept. Of Psychiatry	Prof. János Kálmán	2	-	-	Evaluation(5)	2	-
AOK-KA1851	Modern Complex Therapy of Malignant Diseases in Clinical Practice	Dept. of Oncology	Prof. Judit Oláh	2	-	-	Term Mark(5)	2	SR: AOK-KA381: Clinical Oncology
AOK-KA1911	Chemical Misconceptions	Dept. of Medical Chemistry	Prof. Tamás Martinek	2	-	-	Evaluation(5)	2	-
AOK-KUA291	Introduction to Toxicology	Dept. of Med. Chemistry	Prof. Tamás Martinek	2	-	-	Evaluation(5)	2	SR: AOK-KUA023: Biochemistry II., AOK-KUA033: Medical Physiology II.
AOK-KUA311	Physics in Radiotherapy	Dept. of Oncology	Prof. Judit Oláh	-	1	-	Evaluation(5)	1	SR: AOK-KA381: Clinical Oncology
AOK-KUA371	Travel Medicine	Dept. Of Aviation and Space Medicine	Prof. Sándor Szabó	total 30		-	Evaluation(5)	1	SR: Basic and Pre-Clinical Module

* The completion of the course is obligatory in the semester given.

** Only half of the 4th year students can register in each semester.

SUGGESTED STUDY PLAN - MEDICINE - 2019/2020

Course Code	Course	Department	Head of Department	Theory hrs/week	Practice hrs/week	Seminar hrs/week	Form of exam	Credit	Precondition (SR: subject requirement = completion of the precondition subject(s) in a preceding semester is required; ER: examination requirement = passing the examination of the precondition subject(s) in the same semester is required; P: parallel completion = register for all subjects in the same semester)
9th (fall) semester (9001AK_N_2013)									
CLINICAL MODULE									
Compulsory Subjects									
AOK-KA191	Anesthesiology and Intensive Therapy I.	Dept. of Anesthesiology and Intensive Therapy	Prof. Babik Barna	2	-	-	Evaluation(5)	1	ER: AOK-KA233: Pharmacology II.
AOK-KA192	Anesthesiology and Intensive Therapy I.	Dept. of Anesthesiology and Intensive Therapy	Prof. Babik Barna	-	1	-	Signature	-	P: AOK-KA191: Anesthesiology and Intensive Therapy I.
AOK-KA205	Internal Medicine IV. Practice	1st Dept. of Int.Med. / 2nd Dept. of Int.Med.	Prof. Csaba Lengyel / Dr. Sepp Róbert	-	2	-	Signature	0	P: AOK-KA0211: Infectology - Infectious Diseases
AOK-KA0211	Infectology - Infectious Diseases	1st Dept. of Int.Med.	Prof. Csaba Lengyel	2	-	-	Examination	3	ER: AOK-KA233: Pharmacology II., P: AOK-KA205: Internal Medicine IV. Practice
AOK-KA335	Surgery III.	Department of Surgery	Prof. György Lázár	1	-	-	Evaluation(5)	2	ER: AOK-KA335: Surgery II.
AOK-KA336	Surgery III.	Department of Surgery	Prof. György Lázár	-	1	-	Signature	-	P: AOK-KA335: Surgery III.
AOK-KA257	Pediatrics I. Lecture	Department of Pediatrics	Dr. Csaba Bereczki	1	-	-	Signature	-	P: AOK-KA255: Pediatrics I. Practice, AOK-KA256: Pediatrics I. Seminar
AOK-KA256	Pediatrics I. Seminar	Department of Pediatrics	Dr. Csaba Bereczki	-	-	2	Term Mark(5)	5	ER: AOK-KA233: Pharmacology II., AOK-KA203: Internal Medicine III. P: AOK-KA255: Pediatrics I. Practice, AOK-KA257: Pediatrics I. Lecture
AOK-KA255	Pediatrics I. Practice	Department of Pediatrics	Dr. Csaba Bereczki	-	2	-	Signature	-	P: AOK-KA257: Pediatrics I. Lecture, AOK-KA256: Pediatrics I. Seminar
AOK-KA281	Neurology I.	Department of Neurology	Prof. Péter Klivényi	1	-	-	Examination	3	ER: AOK-KA203: Internal Medicine III., AOK-KA233: Pharmacology II.
AOK-KA282	Neurology I.	Department of Neurology	Prof. Péter Klivényi	-	2	-	Signature	-	P: AOK-KA281: Neurology I.
AOK-KA301	Psychiatry I.	Department of Psychiatry	Prof. János Kálmán	1	-	-	Signature	-	P: AOK-KA302: Psychiatry I.
AOK-KA302	Psychiatry I.	Department of Psychiatry	Prof. János Kálmán	-	1	-	Term Mark(5)	2	ER: AOK-KA203: Internal Medicine III., AOK-KA233: Pharmacology II.
AOK-KA261	Forensic Medicine I.	Department of Forensic Medicine	Dr. Éva Kereszty	1	-	-	Examination	3	ER: AOK-KA203: Internal Medicine III.
AOK-KA262	Forensic Medicine I.	Department of Forensic Medicine	Dr. Éva Kereszty	-	2	-	Signature	-	P: AOK-KA261: Forensic Medicine I.
AOK-KUA151	Oral and Maxillofacial Surgery, Stomatology lecture	Department of Oral and Maxillofacial Surgery	Prof. József Piffkó	1	-	-	Examination	2	SR: Basic and Pre-Clinical Module, AOK-KA203: Internal Medicine III.
AOK-KUA152	Oral and Maxillofacial Surgery, Stomatology seminar	Department of Oral and Maxillofacial Surgery	Prof. József Piffkó	-	-	1	Signature	-	P: AOK-KUA151: Stomatology and Oral Surgery
AOK-KA221*	Dermatology	Department of Dermatology	Prof. Lajos Kemény	2	-	-	Examination	4	ER: AOK-KA203: Internal Medicine III.
AOK-KA222*	Dermatology	Department of Dermatology	Prof. Lajos Kemény	-	3	-	Signature	-	P: AOK-KA221: Dermatology
AOK-KA341*	Ophthalmology	Department of Ophthalmology	Dr. Edit Tóth-Molnár	2	-	-	Examination	3	ER: AOK-KA203: Internal Medicine III.
AOK-KA342*	Ophthalmology	Department of Ophthalmology	Dr. Edit Tóth-Molnár	-	2	-	Signature	-	P: AOK-KA341: Ophthalmology
AOK-KA241**	Oto-Rhino-Laryngology	Department of Oto-Rhino-Laryngology	Dr. László Rovó	2	-	-	Examination	4	ER: AOK-KA203: Internal Medicine III.
AOK-KA242**	Oto-Rhino-Laryngology	Department of Oto-Rhino-Laryngology	Dr. László Rovó	-	3	-	Signature	-	P: AOK-KA241: Oto-Rhino-Laryngology
AOK-KA371**	Urology	Department of Urology	Dr. Zoltán Bajory	1	-	-	Examination	2	ER: AOK-KA203: Internal Medicine III.
AOK-KA372**	Urology	Department of Urology	Dr. Zoltán Bajory	-	2	-	Signature	-	P: AOK-KA371: Urology
AOK-KASZD204***	Thesis plan I.	Faculty of Medicine		-	-	2	Term Mark(5)	5***	SR: Basic and Pre-Clinical Module
Compulsory Elective Subjects (Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA431	Basic Biostatistics	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	2	-	-	Evaluation(5)	2	-
AOK-KA481	How to use microbiology laboratory results to diagnose and treat infectious diseases; interactive; problem-based case	Department of Clinical Microbiology	Dr. habil Edit Urbán	2	-	-	Evaluation(5)	2	-
AOK-KA1561	Introduction to Aviation and Space Medicine	Dept. of Aviation and Space Medicine	Prof. Sándor Szabó	2	-	-	Evaluation(5)	2	-
AOK-KA451	Medical Informatics I.	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	2	-	-	Evaluation(5)	2	-
AOK-KA1791	Medical Molecular Biology and Genomics	Dept. of Med. Biology	Prof. Zsolt Boldogkői	1	-	-	Evaluation(5)	1	-
AOK-KA1451	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	total 8	-	-	Evaluation(5)	2	SR: AOK-KUA111 & 112: Basic Surgical Skills P: AOK-KA1452: Microsurgery
AOK-KA1452	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	-	total 20	-	Signature	-	P: AOK-KA1451: Microsurgery
AOK-KA421	Nuclear Medicine	Dept. of Nuclear Med.	Prof. László Pávics	1	-	-	Evaluation(5)	1	-
AOK-KA1061	Pharmacology Cases I.	Dept. of Pharmacology	Prof. István Baczkó	-	2	-	Term Mark(5)	2	-
AOK-KA1581	The Language of Effective Doctor-Patient Communication	Dept. for Medical Communication and Translation	Dr. Csilla Keresztes	-	2	-	Term Mark(5)	2	-
AOK-KA531	Rheumatology	Department of Rheumatology and Immunology	Prof. László Kovács	2	-	-	Evaluation(5)	2	-
AOK-KA1921	Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions	Dept. of Pharmacology	Prof. István Baczkó	2	-	-	Evaluation(5)	2	P: AOK-KA1922: Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions
AOK-KA1922	Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions	Dept. of Pharmacology	Prof. István Baczkó	-	6 hours in total	-	Signature	-	P: AOK-KA1921: Electrophysiology: ion channels and ion transport mechanisms in the regulation of cell functions
Elective Subjects (Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KUA341	Self management support for patients with chronic conditions	Dept. Of Medical Rehabilitation and Physical Medicine	Dr. István Kósa	2	-	-	Evaluation(5)	2	SR: AOK-KUA121 & AOK-KUA122: Basic Principles of Internal Medicine
AOK-KA1931	Clinical Voluntary Work	Departments of the Faculty of Medicine		-	2	-	Term Mark(5)	2	-
AOK-KADEM011	Demonstrator Activity	The department where the student's demonstrator activity application was accepted		-	2	-	Evaluation(5)	2	SR: AOK-KUA014: Anatomy, Histology and Embryology II., AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II. or AOK-KUA503 & AOK-KUA504: Medical Physics II. & AOK-KUA505 & AOK-KUA506: Medical Statistics, AOK-KUA063: Medical Chemistry II., AOK-KUA073: Cell Biology and Molecular Genetics II., AOK-KUA211: Nursing Practice
AOK-KATDK101	Scientific Circle	The department where the student's scientific circle application was accepted		-	2	-	Evaluation(5)	2	-
AOK-KA1521	Biophysics of Hearing. Objective and Subjective Audiometry	Department of Oto-Rhino-Laryngology	Dr. László Rovó	1	-	-	Evaluation(5)	1	-
AOK-KA1671	Diseases of the Temporomandibular System	Department of Prosthodontics and Oral Biology	Dr. Márta Radnai	1	-	-	Evaluation(5)	2	P: AOK-KA1672: Diseases of the Temporomandibular System
AOK-KA1672	Diseases of the Temporomandibular System	Department of Prosthodontics and Oral Biology	Dr. Márta Radnai	-	1	-	Signature	-	P: AOK-KA1671: Diseases of the Temporomandibular System
AOK-KA1831	Illicit Drug Use	Dept. Of Psychiatry	Prof. János Kálmán	2	-	-	Evaluation(5)	2	-
AOK-KA1191	Sexual Disorders - Gynecological Aspects	Dept. of Obstetrics and G.	Dr. Gábor Németh	1	-	-	Evaluation(5)	1	-
AOK-KA1691	Tropical Medicine	Department of Psychiatry	Prof. János Kálmán	2	-	-	Evaluation(5)	2	-
AOK-KA1201	Modern Approach of the Gynecological Laparoscopy	Dept. of Obstetrics and G.	Dr. Gábor Németh	1	-	-	Evaluation(5)	1	-
AOK-KA1841	Medical History Taking in Hungarian I.	Dept. for Medical Communication and Translation	Dr. Csilla Keresztes	-	2	-	Term Mark(5)	2	SR: AOK-KA4718: Hungarian Language VIII.

*For groups 1, 2, 3 ** for groups 4,5,6

*** The credits for the completion of AOK-KASZD204 Thesis Plan I. count towards the "compulsory elective" subject category.

SUGGESTED STUDY PLAN - MEDICINE - 2019/2020

Course Code	Course	Department	Head of Department	Theory hrs/week	Practice hrs/week	Seminar hrs/week	Form of exam	Credit	Precondition (SR: subject requirement = completion of the precondition subject(s) in a preceding semester is required; ER: examination requirement = passing the examination of the precondition subject(s) in the same semester is required; P: parallel completion = register for all subjects in the same semester)
10th (spring) semester (9001AK_N_2013)									
CLINICAL MODULE									
Compulsory Subjects									
AOK-KA193	Anesthesiology and Intensive Therapy II.	Dept. of Anesthesiology and Intensive Therapy	Prof. Babik Barna	2	-	-	Examination	2	ER: AOK-KA191: Anesthesiology and Intensive Therapy I.
AOK-KA194	Anesthesiology and Intensive Therapy II.	Dept. of Anesthesiology and Intensive Therapy	Prof. Babik Barna	-	1	-	Signature	-	P: AOK-KA193: Anesthesiology and Intensive Therapy II.
AOK-KA207	Internal Medicine V.	1st Dept. of Int.Med. / 2nd Dept. of Int.Med.	Prof. Csaba Lengyel / Dr. Sepp Róbert	2	-	-	Examination	3	ER: AOK-KA233: Pharmacology II.
AOK-KA208	Internal Medicine V.	1st Dept. of Int.Med. / 2nd Dept. of Int.Med.	Prof. Csaba Lengyel / Dr. Sepp Róbert	-	16 in total	-	Signature	-	P: AOK-KA207: Internal Medicine V.
AOK-KA258	Pediatrics II. Practice	Department of Pediatrics	Dr. Csaba Berecki	-	2	-	Signature	0	P: AOK-KA259: Pediatrics II. Seminar
AOK-KA259	Pediatrics II. Seminar	Department of Pediatrics	Dr. Csaba Berecki	-	-	2	Term Mark(5)	4	SR: AOK-KA257: Pediatrics I. Lecture, AOK-KA256: Pediatrics I. Seminar
AOK-KA283	Neurology II.	Department of Neurology	Prof. Péter Klivényi	1	-	-	Signature	2	P: AOK-KA284: Neurology II.
AOK-KA284	Neurology II.	Department of Neurology	Prof. Péter Klivényi	-	1	-	Term Mark(5)	-	ER: AOK-KA281: Neurology I.
AOK-KA303	Psychiatry II.	Department of Psychiatry	Prof. János Kálmán	2	-	-	Examination	3	ER: AOK-KA301: Psychiatry I.
AOK-KA304	Psychiatry II.	Department of Psychiatry	Prof. János Kálmán	-	1	-	Signature	-	P: AOK-KA303: Psychiatry II.
AOK-KA263	Forensic Medicine II.	Department of Forensic Medicine	Dr. Éva Kereszty	1	-	-	Examination	3	ER: AOK-KA261: Forensic Medicine I.
AOK-KA264	Forensic Medicine II.	Department of Forensic Medicine	Dr. Éva Kereszty	-	2	-	Signature	-	P: AOK-KA263: Forensic Medicine II.
AOK-KUA421	Clinical Genetics and Genomics	Department of Medical Genetics	Prof. Márta Széll	1	-	-	Evaluation(5)	1	SR: Basic and Pre-Clinical Module
AOK-KA221**	Dermatology	Department of Dermatology	Prof. Lajos Kemény	2	-	-	Examination	4	ER: AOK-KA203: Internal Medicine III.
AOK-KA222**	Dermatology	Department of Dermatology	Prof. Lajos Kemény	-	3	-	Signature	-	P: AOK-KA221: Dermatology
AOK-KA341**	Ophthalmology	Department of Ophthalmology	Dr. Edit Tóth-Molnár	2	-	-	Examination	3	ER: AOK-KA203: Internal Medicine III.
AOK-KA342**	Ophthalmology	Department of Ophthalmology	Dr. Edit Tóth-Molnár	-	2	-	Signature	-	P: AOK-KA341: Ophthalmology
AOK-KA241*	Oto-Rhino-Laryngology	Department of Oto-Rhino-Laryngology	Dr. László Rovó	2	-	-	Examination	4	ER: AOK-KA203: Internal Medicine III.
AOK-KA242*	Oto-Rhino-Laryngology	Department of Oto-Rhino-Laryngology	Dr. László Rovó	-	3	-	Signature	-	P: AOK-KA241: Oto-Rhino-Laryngology
AOK-KA371*	Urology	Department of Urology	Dr. Zoltán Bajory	1	-	-	Examination	2	ER: AOK-KA203: Internal Medicine III.
AOK-KA372*	Urology	Department of Urology	Dr. Zoltán Bajory	-	2	-	Signature	-	P: AOK-KA371: Urology
AOK-KA361	Traumatology	Department of Traumatology	Prof. Endre Varga	2	-	-	Examination	3	ER: AOK-KA335: Surgery III.
AOK-KA362	Traumatology	Department of Traumatology	Prof. Endre Varga	-	2	-	Signature	-	P: AOK-KA361: Traumatology
AOK-KUA401	Neurosurgery	Department of Neurosurgery	Prof. Pál Barzó	1	-	-	Evaluation(5)	2	SR: AOK-KA335: Surgery III. P: AOK-KUA402: Neurosurgery
AOK-KUA402	Neurosurgery	Department of Neurosurgery	Prof. Pál Barzó	-	1	-	Signature	-	P: AOK-KUA401: Neurosurgery
AOK-KASZD205***	Thesis Plan II.	Faculty of Medicine		-	-	2	Term Mark(5)	5***	SR: AOK-KASZD204: Thesis plan I.
Compulsory Elective Subjects (Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA4321	Advanced Biostatistics	Dept. of Med. Physics and Informatics	Prof. Ferenc Peták	2	-	-	Evaluation(5)	2	SR: AOK-KA431: Basic Biostatistics
AOK-KA1461	Advanced Surgical Skills	Inst. of Surgical Research	Prof. Mihály Boros	1	-	-	Evaluation(5)	2	SR: AOK-KUA111 & AOK-KUA112: Basic Surgical Skills P: AOK-KA1462: Advanced Surgical Skills
AOK-KA1462	Advanced Surgical Skills	Inst. of Surgical Research	Prof. Mihály Boros	-	1	-	Signature	-	P: AOK-KA1461: Advanced Surgical Skills
AOK-KA861	Cardiac Electrophysiology as a Basic Property of Cardiac Function	Dept. of Pharmacology	Prof. István Baczkó	1	-	-	Evaluation(5)	2	P: AOK-KA862: Cardiac Electrophysiology as a Basic Property of Cardiac Function
AOK-KA862	Cardiac Electrophysiology as a Basic Property of Cardiac Function	Dept. of Pharmacology	Prof. István Baczkó	-	1	-	Signature	-	P: AOK-KA861: Cardiac Electrophysiology as a Basic Property of Cardiac Function
AOK-KA481	How to use microbiology laboratory results to diagnose and treat infectious diseases; interactive; problem-based case discussions	Department of Clinical Microbiology	Dr. habil Edit Urbán	2	-	-	Evaluation(5)	2	-
AOK-KA211	Child and Adolescent Psychiatry, Mentalhygiene	Dept. Of Child and Adolescent Psychiatry	Dr. Krisztina Kapornai	2	-	-	Evaluation(5)	2	-
AOK-KA491	Clinical Immunology	Dept. of Dermatology	Prof. Lajos Kemény	2	-	-	Evaluation(5)	2	-
AOK-KA501	Laboratory Diagnostics: Use of Laboratory Tests in Practice	Dept. of Laboratory Medicine	Dr. Földesi Imre	2	-	-	Evaluation(5)	2	-
AOK-KA1451	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	total 8	-	-	Evaluation(5)	2	SR: AOK-KUA111 & 112: Basic Surgical Skills P: AOK-KA1452: Microsurgery
AOK-KA1452	Microsurgery	Inst. of Surgical Research	Prof. Mihály Boros	-	total 20	-	Signature	-	P: AOK-KA1451: Microsurgery
AOK-KA881	Molecular Developmental-Biology	Dept. of Biochemistry	Dr. Tamás Csont	2	-	-	Evaluation(5)	2	-
AOK-KA1062	Pharmacology Cases II.	Dept. of Pharmacology	Prof. István Baczkó	-	2	-	Evaluation(5)	2	-
AOK-KA981	Social and Health Policy	Dept. of Public Health	Dr. Edit Paulik	2	-	-	Evaluation(5)	2	-
AOK-KA1571	The Clinical Basics of Aviation and Space Medicine	Dept. of Aviation and Space Medicine	Prof. Sándor Szabó	2	-	-	Evaluation(5)	2	-
AOK-KA1582	The Language of Effective Doctor-Patient Communication II.	Dept. for Medical Communication and Transla	Dr. Csilla Keresztes	-	2	-	Term Mark(5)	2	-
AOK-KA1211	Tropical Diseases	Department of Clinical Microbiology	Dr. habil Edit Urbán	2	-	-	Evaluation(5)	2	-
AOK-KUA301	Sports Medicine	Dept. Of Sports Medicine	Dr. László Török	2	-	-	Evaluation(5)	2	-
AOK-KUA331	Medical Rehabilitation and Physical Medicine	Dept. Of Medical Rehabilitation and Physical Medicine	Dr. István Kósa	2	-	-	Evaluation(5)	2	SR: AOK-KUA121: Basic Principles of Internal Medicine (Basics of Haematology), AOK-KUA131: Basics of Emergency Medicine
AOK-KUA361	Foundations of Evidence Based Medicine	Department of Public Health	Dr. Edit Paulik	2	-	-	Evaluation(5)	2	SR: AOK-KA631: Medical Sociology, AOK-KUA051 & AOK-KUA052: Medical Physics and Statistics I. (Or AOK-KUA501 & AOK-KUA502: Medical Physics I.)
Elective Subjects (Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)									
AOK-KA1931	Clinical Voluntary Work	Departments of the Faculty of Medicine		-	2	-	Term Mark(5)	2	-
AOK-KADEM011	Demonstrator Activity	The department where the student's demonstrator activity application was accepted		-	2	-	Evaluation(5)	2	SR: AOK-KUA014: Anatomy, Histology and Embryology II., AOK-KUA053 & AOK-KUA054: Medical Physics and Statistics II. or AOK-KUA503 & AOK-KUA504: Medical Physics II. & AOK-KUA505 & AOK-KUA506: Medical Statistics, AOK-KUA063: Medical Chemistry II., AOK-KUA073: Cell Biology and Molecular Genetics II., AOK-KUA211: Nursing Practice
AOK-KATDK101	Scientific Circle	The department where the student's scientific circle application was accepted		-	2	-	Evaluation(5)	2	-
AOK-KA1221	Biochemical Basics of Preventive Medicine	Dept. Of Biochemistry	Dr. Tamás Csont	2	-	-	Evaluation(5)	2	-
AOK-KA1621	Clinical Aspects of Tropical Diseases	Dept. Of Psychiatry	Prof. János Kálmán	2	-	-	Evaluation(5)	2	-
AOK-KA1831	Illicit Drug Use	Dept. Of Psychiatry	Prof. János Kálmán	2	-	-	Evaluation(5)	2	-
AOK-KA1842	Medical History Taking in Hungarian II.	Dept. for Medical Communication and Transla	Dr. Csilla Keresztes	-	2	-	Term Mark(5)	2	SR: AOK-KA4718: Hungarian Language VIII.
AOK-KA1851	Modern Complex Therapy of Malignant Diseases in Clinical Practice	Dept. of Oncology	Prof. Judit Oláh	2	-	-	Term Mark(5)	2	SR: AOK-KA381: Clinical Oncology
AOK-KA1911K	Chemical Misconceptions	Dept. of Medical Chemistry	Prof. Tamás Martinek	2	-	-	Evaluation(5)	2	-
AOK-KA1331	Multidisciplinary Care of Breast Cancer	Dept. of Oncology	Prof. Judit Oláh	2	-	-	Evaluation(5)	2	-
AOK-KUA371	Travel Medicine	Dept. Of Aviation and Space Medicine	Prof. Sándor Szabó	total 30	-	-	Evaluation(5)	1	SR: Basic and Pre-Clinical Module
AOK-KUA291	Introduction to Toxicology	Dept. of Med. Chemistry	Prof. Tamás Martinek	2	-	-	Evaluation(5)	2	SR: AOK-KUA023: Biochemistry II., AOK-KUA033: Medical Physiology II.

* For groups 1, 2, 3 ** For groups 4, 5, 6,

*** the credits for the completion of AOK-KASZD205 Thesis Plan II. count towards the "compulsory elective" subject category.

SUGGESTED STUDY PLAN - MEDICINE - 2019/2020

Course Code	Course	Department	Head of Department	Theory hrs/week	Practice hrs/week	Seminar hrs/week	Form of exam	Credit	Precondition (SR: subject requirement = completion of the precondition subject(s) in a preceding semester is required; ER: examination requirement = passing the examination of the precondition subject(s) in the same semester is required; P: parallel completion = register for all subjects in the same semester)
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(9001AK_N_2013)

FINAL MODULE

Compulsory Subjects									
AOK-KA901	Internal Medicine	1st and 2nd Departments of Internal Medicine	Prof. Csaba Lengyel / Dr. Sepp Róbert	9 weeks*	Comprehensive Exam	10	Clinical Module		
AOK-KA902	General Practice			1 week*	Signature	-	Clinical Module		
AOK-KA941	Surgery	Department of Surgery	Prof. György Lázár	7 weeks*	Comprehensive Exam	9	Clinical Module		
AOK-KA942	Emergency Medicine	Department of Emergency Medicine	Dr. Zoltán Pető	1 week*	Signature	-	Clinical Module		
AOK-KA943	Traumatology	Department of Traumatology	Prof. Endre Varga	1 week*	Signature	-	Clinical Module		
AOK-KA921	Neurology	Department of Neurology	Prof. Péter Klivényi	4 weeks*	Comprehensive Exam	4	Clinical Module		
AOK-KA931	Psychiatry	Department of Psychiatry	Prof. János Kálmán	4 weeks*	Comprehensive Exam	4	Clinical Module		
AOK-KA951	Obstetrics and Gynaecology	Department of Obstetrics and Gynaecology	Dr. Gábor Németh	5 weeks*	Comprehensive Exam	5	Clinical Module		
AOK-KA911	Pediatrics	Department of Pediatrics	Dr. Csaba Berecki	7 weeks*	Comprehensive Exam	8	Clinical Module		
AOK-KA912	District Pediatric Consultation			1 week*	Signature	-	Clinical Module		
AOK-KASZD203	Preparation of the Thesis	Faculty of Medicine		2 hrs/ week in the 1st semester	Signature	0	Clinical Module		

*1 week = 30 hours

**6th year (11th and 12th semester)
Academic year 2019/2020**

The internships should be accomplished principally at the clinics and hospitals of the University; however, they can be also accomplished abroad, provided the students submit the acceptance letter of the clinic/hospital and have the permission of the department concerned before starting the practice. The accomplishment of the practices must be verified officially to the Secretariat as the precondition for starting the next practice.

Two practices can be accomplished continuously and the final examinations can be taken in the week following the accomplishment of the practices. In the sixth year interns can be assigned to duty service as physicians.

If the student fails an examination, it must be repeated together with the half of the practice period.

If the student fails to submit the thesis by the deadline given - or fails to submit it by the deadline of postponement, his/her internships and examinations must be suspended.

The State Board Examination consists of: Thesis defence, Test (Multiple Choice Questions), Oral examination (theory) and Practical examination (bedside examination).

Further details are available in the relevant Internship Guide.

COMPULSORY PRACTICES IN SUMMER

Summer practice:

1st, 3rd and 4th year students are required to complete a four-week compulsory summer practice in a hospital or clinic which must be accredited by the country concerned. At the completion of the practice an "Evaluation form" should be filled in, signed, stamped and sent directly from the hospital/clinic or submitted by the student in a sealed envelope. (The form can be downloaded from our website). A "Letter of Acceptance" issued by the hospital/clinic, furthermore a certificate that the hospital/clinic is accredited by the country concerned has to be presented at the Foreign Students' Secretariat **until May 2020. Please check the relevant Info Sheet for the exact date.**

Students should register for completing a practice at least one month before its beginning. Practice fee must be paid before starting the practice.

1st year medical students have to perform a four-week Nursing practice.

Departments at the University of Szeged:

1st Department of Internal Medicine
2nd Department of Internal Medicine
Obstetrics and Gynecology Department
Department of Surgery
Neurosurgery Department
Neurology Department
Psychiatry Department
Pediatrics Department
Ophthalmology Department
Oto-Rhino-Laryngology and Head-Neck Surgery Department
Urology Department
Pulmonology Department
Traumatology Department

3rd year medical students have to perform a four-week Internal Medicine practice.

Departments at the University of Szeged:

1st Department of Internal Medicine
Division of Endocrinology
2nd Department of Internal Medicine

4th year medical students have to perform a four-week General Surgery practice.

Departments at the University of Szeged:

Department of Surgery

INTERIM PRACTICE

4th year medical students have to complete a three-day Obstetrics and Gynaecology Delivery-Room Practice in one semester.

EXTRACURRICULAR SCIENTIFIC ACTIVITY

Department of Anatomy, Histology and Embryology Department

1. Gene expression in the mammalian central nervous system.

Prof. Dr. Andras Mihaly

2. Role of animal experiments in research of diseases of the central nervous system

Dr. Endre Dobo, PhD

Department of Nuclear Medicine

1. Up to date Nuclear Medicine investigations in neurology and psichiatry Dr. László Pávics Professor of Nuclear Medicine
2. Experimental validation of new radiopharmaceuticals Dr. László Pávics Professor of Nuclear Medicine
3. Radiation safety in Nuclear Medicine Dr. Teréz Séra physicist
4. New Nuclear Medicine investigations in oncology Dr. Besenyi Zsuzsanna

Department of Clinical Microbiology

1. *Clostridium difficile* infection (diagnosis and typing).

Dr. Edit Urbán

2. The use of MALDI-TOF in clinical microbiology.

Dr. Edit Urbán

3. The role of anaerobic bacteria in human infections.

Dr. Edit Urbán

4. Climatic changes and emerging viral infections.

Prof. Dr. Judit Deák

5. Genetic analysis of *Bacteroides* spp.

Dr. József Sóki

6. Antibiotic resistance mechanisms of anaerobic bacteria

Dr. József Sóki

7. ESBL-producing bacteria in clinical practice.

Dr. Andrea Lázár

8. NTB mycobacteria in human infections.

Dr. Gabriella Terhes

9. Laboratory diagnosis of arthropod-borne infections.

Dr. Gabriella Terhes

10. Epidemiology of viral respiratory tract infections.

Dr. Péter K. Sárvári

11. Fungal infections in the ICU.

Mrs Csányiné Dr. Ilona Dóczy

Department of Otolaryngology and Head & Neck Surgery

- 1. Pathogenesis and treatment of laryngeal tumors**
- 2. Pathophysiology and treatment of vocal cord functional disorders**

Department of Behavioural Sciences

- 1. The role of culture in reactions to disease**
Prof. Bettina Pikó MD. Dsc.

Department of Oto-Rhino Laryngology and Head & Neck Surgery

Biophysics of hearing. Objective and subjective audiometry
Dr. Kiss József Géza

Surgical treatment for laryngeal carcinoma and quality of life (QOL)
1st semester, years 4-5
Prof. Czigler Jenő

Department of Forensic Medicine

- 1. Illegal drug use**
Éva Sija PhD., Katalin Kovács MD.
- 2. Laboratory investigation of drug abuse**
László Institóris Phar.D, PhD.
- 3. Drunk driving**
Éva Kereszty MD.
- 4. Heart-brain crosstalk in cranial injuries**
Beáta Havasi MD.
- 5. Thanatochemistry (*postmortem detection of metabolic disorders; estimation time of death*)**
Beáta Havasi MD., Éva Sija PhD
- 6. Forensic histopathology**
Roland Weiczner MD. PhD
- 7. Evaluation of permanent disability**
Beáta Havasi MD.
- 8. Fitness to drive**
Beáta Havasi MD
- 9. Problems of the health legislation**
Éva Kereszty MD.
- 10. Death detection in the clinical practice**
Éva Kereszty MD.
- 11. Sudden cardiac death**
Alíz Hernádi MD.
- 12. Identification**
Árpád Szabó MD.
- 13. Unnatural death (*e.g. traffic accidents, suicide, family violence, drowning*)**
Árpád Szabó MD., Katalin Kovács MD. Beáta Havasi MD.

14. Medical law (e.g. informed consent, assisted suicide, malpractice)

Éva Kereszty Dr., Máté Julesz Dr.

2nd Department of Internal Medicine

Prognostic factors in multiple myeloma

Szabolcs Modok, MD, PhD

Pharmacologic and interventional treatment of atrial fibrillation

Dr. Róbert Pap

Atrial flutter after open heart surgery

Dr. Attila Makai

Long-term efficacy of slow pathway ablation for atrioventricular nodal reentrant tachycardia

Dr. László Ságghy

Heart failure and pacemaker therapy

Dr. Gábor Bencsik

1st Department of Internal Medicine

Dr. Péter Hegyi and Dr. Zoltán Rakonczay

1. The regulation of pancreatic ductal HCO₃⁻ secretion. 2
2. The role of pancreatic ducts in the process of acute pancreatitis.
3. Acid secretion from human gastric glands.
4. The regulation of human intestinal ion secretion.
5. Characterisation of lacrimal gland epithelial cells.
6. Viral transfection of epithelial cells.

Department of Pharmacology and Pharmacotherapy

1. Dr. András Varró MD, DSc

The mechanisms of action of antiarrhythmic drugs. Cellular electrophysiology of the cardiac muscle.

2. Dr. Ágnes Végh DSc

Mechanism of the antiarrhythmic effect of preconditioning. Role of endogenous substances.

3. Dr. István Leprán DSc

Investigation of antiarrhythmic mechanisms in rat models

4. Dr. István Baczkó MD PhD

Cellular pathomechanisms of congestive heart failure

5. Dr. István Koncz MD PhD

Mechanisms of cardiac arrhythmias.

Antiarrhythmic drugs.

Electrical diseases of the heart. Cardiac electrophysiology.

6. Dr. László Virág PhD and Dr. Norbert Iost PhD

Cellular electrophysiological techniques

7. Dr. András Tóth PhD

Regulation of the Ca²⁺ homeostasis in isolated cardiac cells Cellular mechanism leading to ischemia/reperfusion injury in cardiac tissue

8. Dr. Ricza Tamásné Dr. Viktória Venglovecz PhD

Role of aquaporins in acute pancreatitis

9. Dr. Balázs Ördög PhD

Molecular biology of cardiac ion channels

10. Dr. Norbert Nagy PhD

Investigation of the cardiac Na⁺/Ca²⁺ exchanger mechanism in hypokalaemia induced arrhythmias.

Investigation of the Na⁺/Ca²⁺ exchanger mechanism in the pacemaker function of the sinus node.

The inotropic effect of selective Na⁺/Ca²⁺ exchanger inhibition in cardiac muscle.

11. Dr. Andrea Orosz MD PhD

Electrocardiographical investigation of cardiac ventricular repolarization parameters

12. Dr. János Prorok PhD

Investigation of antiarrhythmic drugs in isolated heart model

Investigation of the role of NCX in the genesis of cardiac arrhythmias

Department of Medical Physics and Informatics

1. Lung mechanical changes in animal models of respiratory disorders

Prof Ferenc Peták

2. Assessment of capnography shape factors and dead space indices in laboratory animals

Prof Ferenc Peták

3. Pre-clinical pharmacological treatment strategies of cerebrovascular disorders

Prof Ferenc Bari

4. Informatical tools for cerebrovascular research

Prof Ferenc Bari

5. The regulation of cerebral blood flow

Dr Eszter Farkas

6. The pathophysiology of ischemic stroke

Dr Eszter Farkas

7. Astrocyte dysfunction in acute brain injury

Dr Ákos Menyhárt

8. Investigation of the role of environmental factors in aetiology of childhood cancers

Dr Tibor Nyári

9. Seasonality in mortality rates

Dr Tibor Nyári

10. Application of biostatistical methods to medical data

Dr Krisztina Boda

Institute of Surgical Research

1. Pathomechanism of small bowel ischemia-reperfusion. Monitoring of microcirculatory changes with intravital videomicroscopy and OPS technique

Prof. Mihály Boros, M.D., Ph.D., D.Sc.

2. Biological activity of phospholipids in inflammatory diseases

Prof. Mihály Boros, M.D., Ph.D., D.Sc.

3. Protective effects of biological gases in circulatory disorders

Prof. Mihály Boros, M.D., Ph.D., D.Sc.

Dr. József Kaszaki, Ph.D.

4. Neuroprotection in the enteral nervous system

Dr. József Kaszaki, Ph.D.

5. Examination of microcirculation under septic conditions

Dr. József Kaszaki, Ph.D.

6. Assessment of hemodynamic and biochemical consequences of experimental pericardial tamponade

Dr. József Kaszaki, Ph.D.

7. Examination of macro- and microhemodynamic consequences of volume therapy in circulatory shock

Dr. József Kaszaki, Ph.D.

8. Examination of mechanical parameters of the lung under normal and pathologic conditions

Dr. József Kaszaki, Ph.D.

Prof. Zoltán Hantos, Ph.D., D.Sc., Department of Medical Physics and Informatics

9. Assessment of biochemical and microcirculatory consequences of disorders of the locomotor system using intravital videomicroscopy and OPS technique

Dr. Andrea Szabó, M.D., Ph.D.

10. Assessment and treatment of biochemical and microcirculatory consequences of urogenital diseases

Dr. Andrea Szabó, M.D., Ph.D.

11. Assessment and treatment of the oral surgical complications of chronic bisphosphonate exposure

Dr. Andrea Szabó, M.D., Ph.D.

Department of Pathophysiology

Student research program consultant: Prof. Dr. Zoltán Rakonczay, MD, PhD, DSc

telephone number: 62-545-200

E-mail: rakonczay.zoltan@med.u-szeged.hu

Thesis & scientific circle Topics (TDK)	
Tutor	Topic
Júlia Szakács M.D., Ph.D. Gyula Szabó, MD, Ph.D., DSc.	Study of the behavioral effects of neuropeptides
Zsófia Mezei, M.D., Ph.D.	Role of platelets in the pathophysiological processes
	Role of human platelets in the pathomechanism of neurological disorders
	Examination of intracellular processes in diabetic rat platelets
	Examination of intracellular processes in platelets of rats with heart failure
Miklós Jászberényi, M.D., Ph.D., D.Sc. Gyula Telegdy, MD, PhD., D.Sc., O.M. HAS	The pathophysiology of Alzheimer's Disease
	The role of neuropeptide mediators in the control of affective, emotional and cognitive processes
	The effect of neuropeptides on the

	hypothalamus-pituitary-adrenal system
Zsolt Bagosi, M.D., Ph.D.	The role of CRF and urocortins in social interaction
	The role CRF and urocortins in drug addiction
	The effects of neuropeptides on hypothalamic neurohormones
	The effects of neuropeptides on extra-hypothalamic neurotransmitters
Krisztina Anna Csabafi, M.D., Ph.D.	The effect of kisspeptin on amyloid-beta neurotoxicity
	Effect of kisspeptins on carbohydrate metabolism
	Effect of neuropeptides on nociception and morphine induced analgesia, tolerance
Krisztina Anna Csabafi, M.D., Ph.D. Katalin Eszter Ibos, M.D.	Role of neuropeptides in anxiety and the development of anxious phenotype
Zoltán Rakonczay, M.D., Ph.D., D.Sc. Lóránd Kiss Ph.D.	The pathomechanism of experimental acute pancreatitis and therapeutic investigations

Recommended textbooks for first year medical students
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It is recommended to purchase the latest edition of the following textbooks!

ANATOMY, HISTOLOGY AND EMBRYOLOGY

- Richard L. Drake, A. Wayne Vogl, Adam W. M. Mitchell: Gray's Anatomy For Students (ELSEVIER, 14th Edition, 2020) ISBN: 978-0-323-39304-1
- Leslie P. Gartner, James L. Hiatt: Concise Histology (SAUNDERS ELSEVIER, 2011) ISBN: 978-0-702031114-4
- F. Hajdu, Gy. Somogyi: Histology - Practical Manual (Semmelweis Publisher, 5th Corrected Edition, 2014) ISBN 978-963-331-244-5
- T.W. Sadler: Langman's Medical Embryology (Williams & Wilkins, 13th Edition) ISBN-13: 978-1451191646
- M. Schuenke, E. Schulte, Udo Schumacher: Thieme Atlas of Anatomy: General Anatomy and Musculoskeletal System, Head and Neuroanatomy, Internal Organs (Thieme)

CELL BIOLOGY AND MOLECULAR GENETICS

- William K. Purves, Gordon H. Orians: Life: The Science of Biology, W.H. Freeman and Company, New York
- J. Darnell H. Lodish D. Baltimore: Molecular Cell Biology, W.H. Freeman and Company, New York
- B. Alberts, D.B.J. Lewis, M. Raff. K. Roberts, J.D. Watson: Molecular Biology of the Cell, Garland Publishing, Inc. New York

BASIC LIFE SUPPORT

- Brent, Karren: First Aid for Colleges and Universities, Brady Morton Series

INTRODUCTION TO MEDICINE

- Bettina Pikó : Introduction to Medicine. Basic Principles of Behavioral Sciences and, Preventive Medicine. University of Szeged

INTRODUCTION TO PSYCHOLOGY, COMMUNICATION

- Nolen-Hoeksema S., Fredrickson B.L., Loftus G.R., Wagenaar W.A.: *Atkinson and Hilgard's Introduction to Psychology*. Cengage Learning EMEA, 2009.
- János Pilling (ed): *Medical Communication*. Medicina, 2011

MEDICAL CHEMISTRY

Obligatory:

- Ebbing-Hart: General Chemistry /Organic Chemistry, Houghton Mifflin Company

Recommended:

- Harold Hart: Organic Chemistry (A Short Course), Houghton Mifflin Company, Boston
- P. Gergely: Organic and Bioorganic Chemistry for Medical Students, University Medical School of Debrecen,
- John McMurry: Fundamentals of Organic Chemistry, Brooks/Cole Publishing Company, ITP, An International Thomson Publishing Company

MEDICAL PHYSICS

- S Damjanovich, J Fidy and J Szöllősi (eds): Medical Biophysics. Medicina, 2009.
- Paul Davidovits: Physics in Biology and Medicine. Fourth edition. Academic Press, 2013.

MEDICAL STATISTICS

Students can download course material (handouts, lecture notes, R scripts) from <http://www2.szote.u-szeged.hu/dmi/eng> or from the Coospace.

Suggested textbook:

- Michael J. Campbell – David Machin – Stephen J. Walters: Medical Statistics. A Textbook for the Health Sciences (2012) ISBN: 978-1-118-30061-9

MEDICAL DICTIONARIES

- Mosbey's: Mosbey's Medical, Nursing and Allied Health, Mosbey
- Stedmans: Medical Dictionary, Williams and Wilkins

HUNGARIAN LANGUAGE

- Erzsébet Balogh & Margit Skadra: Multikulti Magyar nyelv külföldieknek – Hungarian for foreigners. ISBN: 978 963 226 599 5. Medicina, 2016

Recommended textbooks for second year medical students

ANATOMY, HISTOLOGY AND EMBRYOLOGY

I. Obligatory textbooks:

- K. Won Chung: **Gross Anatomy**, Lippincott Williams & Wilkins
- Douglas J. Gould; James D. Fix: **BRS Neuroanatomy 5th**; Lippincott Williams & Wilkins **ISBN 13: 9781451176094**
- Crossman & Neary: **Neuroanatomy: an Illustrated Colour Text**; *ELSEVIER*
- Mtui, Gruener & Dockery: Fitzgerald's **Clinical Neuroanatomy and Neuroscience**; *ELSEVIER*
- **Sobotta Atlas of Human Anatomy: Volume 1, 15th ed., English**; *ELSEVIER*
- **Sobotta Atlas of Human Anatomy: Volume 2, 15th ed., English**; *ELSEVIER*
- **Sobotta Atlas of Human Anatomy: Volume 3, 15th ed., English**; *ELSEVIER*
- M. Loukas, B. Benninger, R. S. Tubbs : **Gray's Clinical Photographic Dissector of the Human Body**; *ELSEVIER*
- L. P. Gartner, J. L. Hiatt: **Concise Histology**; *ELSEVIER*
- K. Moore & T. V. N. Persaud: **The Developing Human**; *ELSEVIER*

II. Recommended textbooks:

- W. Platzer: **Color Atlas of Human Anatomy, Volume 1: Locomotor System**; *THIEME*
- H. Fritsch, W. Kuehnelt: **Color Atlas of Human Anatomy, Volume 2: Internal Organs**; *THIEME*
- W. Kahle, M. Frotscher: **Color Atlas of Human Anatomy, Volume 3: Nervous System and Sensory Organs**; *THIEME*
- M. Schuenke, E. Schulte, U. Schumacher: **THIEME Atlas of Anatomy, Head and Neuroanatomy**; *THIEME*
- M. Schuenke, E. Schulte, U. Schumacher: **THIEME Atlas of Anatomy, General Anatomy and Musculoskeletal System**; *THIEME*
- M. Schuenke, E. Schulte, U. Schumacher: **THIEME Atlas of Anatomy, Neck and Internal Organs**; *THIEME*
- Junqueira, Carneiro, Kelley: **Basic Histology**, Prentice Hall, International Student Edition, Mc Graw-Hill
- Netter, Frank H.: **Atlas of Human Anatomy**, Icon Learning Systems; *ELSEVIER*
- L. R. Cochard: **Netter's Atlas of Human Embryology**; *ELSEVIER*
- Sadler: **Langman's Medical Embryology**, with Simbryo CD, *Lippincott Williams & Wilkins*
- Moore, Persaud & Torchia: **Before We Are Born**, Essentials of Embryology and Birth Defects; *ELSEVIER*
- Cochard: **Netter's Atlas of Human Embryology**; *ELSEVIER*

BIOCHEMISTRY, BIOCHEMISTRY SEMINAR

Obligatory:

- Robert K. Murray, Daryl K. Ganner, Peter A. Mayers, Vicot W. Rodwell: Harper's Illustrated Biochemistry 29th Edition 2012 ISBN: 978-0-07-176576-3

Recommended for 1st semester:

- W. J. Marshall, S. K. Bangert
Clinical Chemistry
6th Edition 2008
ISBN: 9780723434559

- P.C. Champe, R. A. Harvey
Lippincott's Illustrated Reviews Biochemistry
4th Edition 2008
ISBN-13: 978-07817-6960-0
- J.W. Baynes, M. H. Dominiczak
Medical Biochemistry
4th Edition, 2014-06-04 ISBN: 978-1-4557-4580-7

BIOCHEMICAL BASICS OF PREVENTIVE MEDICINE

- Janet Christian and Janet Greger: Nutrition for Living, Addison-Wesley

CARDIAC ELECTROPHYSIOLOGY AS A BASIC PROPERTY OF CARDIAC FUNCTION

- Macfarlane PW, van Oosterom A, Janse MJ, Camm J, Kligfield P, Pahlm O, eds. Comprehensive Electrocardiology, 2nd Ed. Springer, London

IMMUNOLOGY

- Abbas et al., Cellular and Molecular Immunology, Sanders, Elsevier; 8th Edition, 2015
- Janeway's Immunobiology 9th Edition, 2007

MATHEMATICAL AND STATISTICAL MODELLING IN MEDICINE

- Mark Woodward: Epidemiology –Study design and Data analysis, Chapman & Hall/CRC 1999
- Interesting mathematical problems in every-day life. Electronic handout in Teaching Mathematics and Statistics in Sciences HU-SRB/0901/221/088

MEDICAL ANTHROPOLOGY

- C.G.Helman: Culture, Health and Illness, Oxford University Press

MEDICAL PHYSIOLOGY

- Arthur C.Guyton, John E. Hall: Textbook of Medical Physiology, Elsevier Science
- Kim Barrett, Heddwen Brooks, Scott Biotano, Susan Barman: Ganong's Review of Medical Physiology, McGraw Hill Publishers
- Walter F. Boron, Emile L. Boulpaep: Medical Physiology, Saunders Elsevier
- William F. Ganong: Review of Medical Physiology by The McGraw-Hill Companies Inc.
- Fonyó Attila: Principles of Medical Physiology, Medicina Kiadó Zrt.
- Albert Szent-Györgyi Medical University, Department of Physiology, Physiology Laboratory Manual, (handout)
- Linda S Costanzo Physiology Elsevier

MEDICAL SOCIOLOGY

- A. Giddens: Sociology 2009. Cambridge, Polity Press UK
- W.C. Cockerham: Medical Sociology. 2016. University of Alabama at Birmingham, Routledge.
- A. Rogers, D. Pilgrim: A sociology of mental Health and illness. 4th Edition. Open University Press 2010.
- G. L. Weiss, L.E. Lonnquist: The sociology of Health, Healing and Illness 8th ed. 2015

HUNGARIAN LANGUAGE

- Erzsébet Balogh & Margit Skadra: Multikulti Magyar nyelv külföldieknek – Hungarian for foreigners. ISBN: 978 963 226 599 5. Medicina, 2016

Recommended textbooks for third year medical students

HUNGARIAN LANGUAGE

- GYÓRFFY, Mária: Mi a panasz? Idioma Bt. Pécs, 1999, ISBN 963 04 8860 4
- HILD, Gabriella et al. Listening Tasks For Students of Hungarian for Medical Purposes – Doctor–Patient Dialogues. University of Pécs, 2018. ISBN 978-963-429-215-9

INTERNAL MEDICINE (CLINICAL DIAGNOSTICS)

Obligatory:

- Barbara Bates': A Guide to Physical Examination and History Taking, 8th ed. with bonus CD, Lippincott Williams & Wilkins, ISBN: 078175819X

or

- Bates' Guide to Physical Examination and History Taking, Authors: Lynn S. Bickley, M.D. , Barbara Bates, Peter G. Szilagy, Peter Gabor Szilagy, Publication Date: December 2005., ISBN: 0781767180

Recommended:

- Harrison's Principles of Internal Medicine, Authors: Kasper, Dennis L. Braunwald, Eugene Fauci, Anthony Hauser, Stephen Longo, Dan Jameson, J. Larry, ISBN: 0071391401, Publication Date: 2004-07-27, Edition:16
- Te-Chuan Chou: Chou's Electrocardiography Clinical Practice, 5th ed., W.B. Saunders, 2001., ISBN: 0721686974
- Brostoff: Clinical Immunology – An Illustrated Outline, Mosby, 1994, ISBN: 1563756641
- Kumar, Parveen, Clark, Michael: Clinical Medicine, 5th ed., W. B. Saunders, 2002, ISBN: 0702025798
- Current Medical Diagnosis and Treatment 2006, Author(s): Lawrence M. Tierney, Jr., MD; Stephen J. McPhee, MD; Maxine A. Papadakis, MD, ISBN: 0071454101, Publication date: 2005, Edition 45th
- Stone: Current Emergency Diagnosis & Treatment, 5th ed., Appleton & Lange, 2004., ISBN: 0071219757

MICROBIOLOGY

- Greenwood et al., Medical Microbiology; 18th Edition, 2012
- Murray et al., Medical Microbiology, Elsevier, Mosby; 8th Edition, 2015
- Practical Notes (Edited by R. Pusztai, University of Szeged, 2002)

MICROSURGERY

- Szabó, A., Vass, G., Zádor, Z., Boros, M.: Basics of Microsurgery. Manual for Medical Students, Szeged, 2004. (handout)

PATHOLOGY

- Kumar, Abbas, Aster: Robbins Basic Pathology, 10th edition. Elsevier, 2018. ISBN: 9780323353175

PATHOPHYSIOLOGY

Textbook

- McPhee, Hammer: Pathophysiology of Disease 6th ed., McGraw-Hill Medical, 2009, ISBN- 0071621679/9780071621670

MEDICAL PSYCHOLOGY

- *Lecture handouts* (will be posted on the homepage of the Behavioral Sciences Institute)
- Márta Csabai – Péter Molnár: *Health, Illness, and Care. A textbook of medical psychology.* Budapest, 2000. Springer (available in the library of the Behavioral Sciences Institute)
- Suls J.M. – Davidson, K. – Kaplan, R.M. (eds): *Handbook of Health Psychology and Behavioral Medicine.* The Guilford Press, 2010. (available in the library of the Behavioral Sciences Institute)
- János Pilling (ed): *Medical Communication.* Budapest, 2011. Medicina (available in the library of the Behavioral Sciences Institute)

SURGERY (CLINICAL DIAGNOSTICS)

- Ed.: Norton, Barie, Bollinger, Chang, Lowry, Mulvihill, Pass, Thompson, Shirazi: Surgery: Basic Science and Clinical Evidence (Book with CD-ROM), Springer, 2000., ISBN: 038798447X

BASICS OF EMERGENCY MEDICINE

- Boros, M. (Ed.): Monitoring in Medical Practice. Basic Medical Skills. Innovariant Ltd., Szeged, 2007. ISBN 963-482-787-X
- Boros, M. (Ed.): Practical Skills Syllabus. Innovariant Ltd., Szeged, 2007. ISBN 978-963-482-840-2

MICROSURGERY

- Szabó, A., Vass, G., Zádor, Z., Boros, M.: Basics of Microsurgery. Manual for Medical Students. Szeged, 2004. (handout)

BASIC SURGICAL SKILLS, ADVANCED SURGICAL SKILLS

- Boros, M. (Ed.): Surgical Techniques. Medicina, Budapest, 2009. ISBN 978-963-226-256-7
- Boros, M. (Ed.): Practical Skills Syllabus. Innovariant Ltd., Szeged, 2007. ISBN 978-963-482-840-2
- Kirk, R. M.: Basic Surgical Techniques, 6th Edition. Churchill Livingstone, 2010. ISBN: 978-0-7020-3390-2

BASIC IMMUNOPATHOLOGY

- Abbas, A. K., Lichtman, A. H., Pillai, S: Cellular and Molecular Immunology. 7th Edition. Elsevier, Saunders, Philadelphia, 2011. ISBN: 978-0-8089-2425-8

LABORATORY MEDICINE

- William J. Marshall: Clinical Chemistry, 4th, 5th or 6th Edition, MOSBY – Harcourt Publishers Ltd. 2008, ISBN 0-72-34-3159-0

Recommended textbooks for clinical module (fourth and fifth year) students

ANAESTHESIOLOGY AND INTENSIVE THERAPY

Recommended:

- Keith G. Allman, Iain H. Wilson: Oxford Handbook of Anaesthesia, Oxford University Press, 2006. ISBN 0-19-856606-3
- Tim Craft, Jerry Nolan, Mike Parr: Critical Care, BIOS Scientific Publishers Ltd. 2009. ISBN 1-85996-2229-7

For fifth year students

Obligatory:

- Zsolt Molnár (Edited by): Anaesthesiology and Intensive Therapy (Medicina Könyvkiadó Zrt., 2013)

Recommended:

- Smith and Aitkenhead's Textbook of Anaesthesia
- Morgan and Mikhail's Clinical Anesthesiology

CHILD AND ADOLESCENT PSYCHIATRY

- Robert Goodman and Stephen Scott, Child Psychiatry, 1998

CLINICAL IMMUNOLOGY

- Spickett, Gavin: Oxford Handbook of Clinical Immunology, Oxford University Press, 2006, ISBN:019262721x

CLINICAL ONCOLOGY

- AJCC Cancer Staging Manual, 2002 Springer
- Cancer Management: A Multidisciplinary Approach, 2002 PRR Melville NY
- Principles and Practice of Radiation Oncology Editors Carlos A. Perez Luther W. Brandy., 1998 Lippincott-Raven
- Radiation Oncology: Management Devisons. Editors K. S. Clifford Chao, Carlos A. Perez., 1999. Lippincott-Raven
- The Washington Manual of Oncology. Editor Ramaswamy Gorindan, 2002 Lippincott

CLINICAL GENETICS

- Harper, Peter, S: Practical Genetic Counselling, 2001.
- Goodman, R.M. Golin, R.J: The Malformed Infant and Child, Oxford Univ. Press., 1983., ISBN: 0195032551
- Emery's Elements of Medical Genetics, Mueller RF, Young ID, 11th Edition Churchill Livingstone, 2001
- Genetics, 2nd Edition National Medical Series for Independent Study., Williams and Wilkins, 1995. Friedman JM, Dill FJ, Hayden MR, McGillivray
- Human Genetics . A problem-based approach B.R., Korf. 2nd,2000.

CLINICAL MICROBIOLOGY

- Peter H. Gilligan, Daniel S. Shapiro and M. Lynn Smiley: Cases in Medical Microbiology and Infectios Diseases, Publisher: Amer Society for Microbiology, Published Date: 1992, ISBN 1555810454
- Hilary HUMphreys, William L. Irving: Problem-Oriented-Clinical Microbiolgy and Infection, 2nd Edition, Publisher: Oxford University Press, 2004, ISBN: 0198515855
- W. Peters.H.M.Gilles: Color Atlas of Tropical Medicine and Parasitology, 4th Edition, London, Mosby, Wolfe, 1995, ISBN: 0723420696

DERMATOLOGY

- J. A. A. Hunter, J. A. Savin, M. V. Dahl: Clinical Dermatology, Blackwell Scientific Publications 2nd ed., ISBN: 0632037148

FORENSIC MEDICINE

- Jason Payne-James ed.: Simson's Forensic Medicine 13th Edition, 2011 Hodder Arnold an Hachette UK Company
ISBN-13 978 0 340 986 035
- Lecture Notes of Forensic Medicine (Ed.: P. Sótonyi, E. Keller), Semmelweis Publisher, 2008.
ISBN 978 963 9656 92 5

HOW TO USE MICROBIOLOGY LABORATORY RESULTS TO DIAGNOSE AND TREAT INFECTIOUS DISEASES; INTERACTIVE; PROBLEM-BASED CASE

- Cases in Medical Microbiology and Infectious Diseases, By Gilligan PH, Smiley ML, Shapiro DS 3rd Edition
- Problem-Oriented Clinical Microbiology and Infectious Diseases, By Humphreys H, Irving WL, Hart CA, 2nd Edition
- Atlas of Tropical Medicine and Parasitology, By Wallace Peters and Geoffrey Pasvol, 6th Edition

HUNGARIAN LANGUAGE

Obligatory:

- GYÖRFFY, Mária: Mi a panasz?, Idioma Bt. Pécs, 1999, ISBN 963 04 8860 4
- HILD, Gabriella et al. Listening Tasks For Students of Hungarian for Medical Purposes – Doctor–Patient Dialogues. University of Pécs, 2018. ISBN 978-963-429-215-9

INTERNAL MEDICINE

Obligatory:

- Hoffbrand, Moss: Essential Haematology, Wiley, 6th edition
- Harrison's Principles of Internal Medicine (2 Volume Set), Kasper, Dennis L. Braunwald, Eugene Fauci, Anthony Hauser, Stephen Longo, Dan Jameson, J., Larry, 16th ed., 2004, McGraw-Hill, ISBN: 0071391401
- Gibson, Costabel: Respiratory Medicine (2 Volume Set), 3rd ed., W. B. Saunders, 2002., ISBN: 0702026131
- Te-Chuan Chou: Chou's Electrocardiography Clinical Practice, 5th ed., W.B. Saunders, 2001., ISBN: 0721686974
- Forster T., Csanády M.: Atlas of Colour Doppler Echocardiography, Szeged, 1991.,
- I.J. Mazza: Manual of Clinical Hematology, Oxford Textbook of Nephrology JS Cameron, AM Davison et al, Oxford University Press, 2001., ISBN: 078172907
- The Merck Manual of Diagnosis and Therapy, Merck and Co. Inc. 2006., ISBN: 0911910182

Recommended:

- Stone: Harrison's Principles of Internal Medicine: Self Assessment and Board Review: ISE, International Student Edition, McGraw-Hill, 2001., ISBN: 0071203591
- Brostoff: Clinical Immunology – An Illustrated Outline, Mosby, 1994, ISBN: 1563756641
- Stone: Current Emergency Diagnosis & Treatment, 5th ed., Appleton & Lange, 2004., ISBN: 0071219757
- Cheitlin: Clinical Cardiology, 7th ed. (to be published in January 2006), Appleton & Lange, ISBN: 0838513859
- Current Medical Diagnosis and Treatment 2006, Author(s): Lawrence M. Tierney, Jr., MD; Stephen J. McPhee, MD; Maxine A. Papadakis, MD, ISBN: 0071454101, Publication date: 2005, Edition 45th, ISBN: 034061370X

LABORATORY DIAGNOSTICS: USE OF LABORATORY TESTS IN PRACTICE

- William J. Marshall: Clinical Chemistry, 4th, 5th or 6th Edition, MOSBY – Harcourt Publishers Ltd., 2008, ISBN: 0-72-34-3159-0

MEDICAL REHABILITATION AND PHYSICAL MEDICINE

Obligatory textbooks:

- Vekerdy-Nagy Zs (2016): Evidence Based Rehabilitation Medicine. Medicina Press, Budapest. (in Hungarian)

Recommended textbooks:

- Huszár I, Kulmann J, Tringer L (2006): The Practice of Rehabilitation. Medicina, Budapest. (in Hungarian)
- Csabai M, Molnár P (2009): Medical Psychology and Clinical Psychology. Medicina, Budapest. (in Hungarian)

NEUROLOGY

- Rowland, L.P: Merritt's Textbook of Neurology, Lea and Febiger, Philadelphia, 1995., ISBN: 0683074008
- Simon, R. P., Aminoff, M. J., Greenberg, D. A: Clinical Neurology, Appleton and Lange, 1993., ISBN: 0838514782
- Adams, R., Victor, M: Principles of Neurology, McGraw Hill, 1996., ISBN: 0070674396

NEUROSURGERY

- Andrew Kaye: Essential Neurosurgery, Churchill Livingstone, ISBN: 0443043507, available online: <https://archive.org/details/EssentialNeurosurgery>
- Mark S. Greenberg – Handbook of Neurosurgery (ISBN: 978-1-60406-326-4)

NUCLEAR MEDICINE

Recommended textbooks for fourth and fifth year medical students

- Szilvási István: Nukleáris Medicina, Medicina Kiadó, 2010; ISBN: 978 963 226 206 2
- Biersack-Freeman: Clinical Nuclear Medicine (2007), Springer kiadó, ISBN: 978-3-540-28026-2
- European Nuclear Medicine Guide, 2018; The European Nuclear Medicine guide is a joint publication by the EANM and Nuclear Medicine Section of the European Union of Medical Specialists (UEMS/EBNM). Access the free online version here: nucmed-guide.app
- Nuclear Medicine Clinical Decision Support, EANM, 2018; Free access via: nucmed-cds.app

OBSTETRICS AND GYNAECOLOGY

- M. M. Garrey, A. D. T. Govan, C. Hodge, R. Callander: Obstetrics Illustrated, Fourth Edition, Churchill Livingstone, 1993., ISBN: 0443041806
- Fundamentals of Obstetrics, 2nd ed., 1999, ISBN: 0723431507
- E. Malcolm Symonds: Essential Obstetrics and Gynaecology, Churchill Livingstone 1992, ISBN: 044304337X
- Hacker & Moore's Essentials of Obstetrics and Gynecology, 5th Edition ISBN-13: 978-1416059400

ORTHOPAEDICS

- Miklós Szendrői: Orthopedics. Semmelweis, Budapest 2008

OPHTHALMOLOGY

- Thieme Flexi Book, Gerhard K. Lang, Ophthalmology, A Pocket Textbook Atlas, Thieme 2000., ISBN: 313126161-7 (GTV), ISBN: 0865779368 (TNY)
- Differential Diagnosis in Ophthalmology, Stephen A. Vernon, Manson Publishing 1999., ISBN: 1874545901

OTO-RHINO-LARYNGOLOGY

- W. Becker, H.H. Naumann, C.R. Pfaltz: Ear, Nose and Throat Diseases, A Pocket Reference, Georg Thiemes Verlag Stuttgart, New York 1996., ISBN 3-13671201-3
- Sziklai: Oto-Rhino-Laryngology Lecture notes 1994. (handout), Order from: Semmelweis Orvostudományi Egyetem Képzéskutató, Oktatástechnológiai és Dokumentációs Központ, Budapest
- Carl Rudolf Pfaltz: Ear, Nose and Throat Diseases –A Pocket Reference, Thieme Medical Publishers, Inc., 1994., ISBN: 3136712021
- Simson Hall, Bernard H. Colman: Diseases of the Nose, Throat and Ear, A Handbook for Students and Practitioners, 1992., ISBN: 0443045631

PHARMACOLOGY

- Katzung: Basic and Clinical Pharmacology, 10th Edition, McGraw-Hill Medical, 2007., ISBN: 007145136
- Rang & Dale's Pharmacology, 6th ed., Churchill-Livingstone, 2007., ISBN: 0443069115, ISBN-13: 9780443069116

PUBLIC HEALTH AND PREVENTIVE MEDICINE

Obligatory:

- Paulik E (ed.): Public Health and Preventive Medicine. Medicina Publishing House, Budapest, 2013

Recommended:

- Tulchinsky TH, Varavikova EA: The New Public Health. 2nd ed. Elsevier Academic Press, 2009, ISBN: 978-0-12-370890-8
- Donaldson LJ, Donaldson RJ: Essential Public Health. 2nd ed. Petroc Press, 2003, ISBN: 1900603B7X

PULMONOLOGY

- Isselbacher: Harrison's: Principles of Internal Medicine I–II., 14th Edition, McGraw-Hill Book Company, 1998., ISBN: 0071133801
- S.J. Bourke: Lecture Notes On Respiratory Medicine, Sixth Edition, Blackwell Publishing, 2003

PAEDIATRICS

- Tom Lissauer, Will Carroll: Illustrated textbook of Paediatrics, 5th Edition, 2018, ISBN: 978-0-7234-3871-7

- Karen Marcdante, MD and Robert M. Kliegman, MD: Nelson Essentials of Pediatrics, 8th Edition 2019, ISBN: 978-0-323-51145-2

PSYCHIATRY

- Please See the list of mandatory and recommended textbooks here: <http://www.klinikaikozpont.u-szeged.hu/psych/en>

RHEUMATOLOGY

- Recommended source of learning: E-learning files at the website of the Department of Rheumatology and Immunology <http://www.klinikaikozpont.u-szeged.hu/reuma/en/educations.html>
- Recommended textbook: Harrison's Principles of Internal Medicine 18th edition (Longo, Fauci, Kasper, Hauser, Jameson, Loscalzo editors – ISBN 978 007 1748896)

RADIOLOGY

- Richard B. Gunderman, Essential Radiology, 3rd edition, Thieme, New York, Stuttgart, 2007

SURGERY

- Ed.: Norton, Barie, Bollinger, Chang, Lowry, Mulvihill, Pass, Thompson, Shirazi: Surgery: Basic Science and Clinical Evidence (Book with CD-ROM), Springer, 2000., ISBN: 038798447X

UROLOGY

- Smith: General Urology, Appleton and Lange, 14th ed. 1994., ISBN: 0838586139

TRAUMATOLOGY

- James D. Hardy: Hardy's Textbook of Surgery, J.B. Lippincott Company, Philadelphia, 1990, ISBN: 0397508182
- Dr. Endre Varga, Dr. Kristóf Boa: Traumatology - concept of the first hour of management (<https://elearning.szte.hu>)
- Klaus Dresing, Peter Trafton, Jos Engelen (Cast Technician): Casts, Splints, and Support Bandages - Nonoperative Treatment and Perioperative Protection, Thieme, ISBN: 9783131753410
- Joseph Schatzker, Marvin Tile: The Rationale of Operative Fracture Care, Second Edition, Springer, 1996, ISBN: 3-540-59388-2

TROPICAL DISEASES

- Manson's Tropical Diseases Edited by G. C. Cook and A. I. Zumla, 23rd Edition.
- Atlas of Tropical Medicine and Parasitology, By Wallace Peters and Geoffrey Pasvol, 6th Edition

BASIC AND PRECLINICAL MODULE

ANATOMY, HISTOLOGY AND EMBRYOLOGY

1st semester

	ANATOMY LECTURE (2 hrs/week)	DISSECTION PRACTICE (3 hrs/ week)	INTRODUCTION TO HISTOLOGY (2 hrs/week, in total 16)
	Introduction to human anatomy (anatomical nomenclature, planes, directions, axes). General osteology. General syndesmology.	<i>General information on the classes and exams.</i> <i>Injury preventive directives and dissecting room regulations.</i> Bones of the upper limb. Joints of the upper limb.	
1.	General myology. General angiology.		
2.			
3.	General neuroanatomy. The spinal cord segment. Formation of the plexuses from the spinal nerves.	Dissection of the muscles of the upper limb.	
4.	Nerves of the upper limb.	Blood vessels of the upper limb.	
5.	Functional anatomy of the upper limb.	Nerves of the upper limb.	"Preliminary" for the Grs 5-10 and 13.
6.	General embryology. Development of the embryo: gastrulation and neurulation.	<u>1st practical assessment</u> Anatomy of the upper limb. Bones of the pelvis and the free lower limb.	"Preliminary" for the Grs 14 and 15. "Epithelial tissue" for the Grs 5-10 and 13.
Written test:			
Oct 09			
7.	Development of the amnion and the yolk sacs.	Joints of the pelvis and the free lower limb.	Preliminary Use of light microscope. Histological methods. Interpretation of histological preparations. "Epithelial tissue" for the Grs 14 and 15. "Connective and supporting tissues, 1" for the Grs 5-10 and 13.
8.	Nerve tissue, part 1.	Muscles of the pelvis and the free lower limb. No practice for the Grs 1, 2, 3, 7, 8, 11, 12, 13, 14 and 15 will be held, due to the national holiday on Oct 23.	Epithelial tissue Kidney (HE) Jejunum (PAS+H) Trachea (HE) Oesophagus (HE) Finger pad (HE) Submandibular gland (HE) No practice for the for the Grs 5-10 and 13 due to the national holiday on Oct 23. "Connective and

			supporting tissues, 1" for the Grs 14 and 15.
			Connective and supporting tissues, 1 Finger pad (HE) Tendon (HE) Adipose tissue (HE) Adipose tissue (frozen section, Sudan Red) No practice for the for the Grs 5-10 and 13-15 due to the autumn break Oct 30 – Nov 01.
9.	Nerve tissue, part 2.	Blood vessels and nerves of the lower limb. No practice for the Grs 1, 2, 3, 7, 8, 11, 12, 13, 14 and 15 will be held, due to the autumn break Oct 30 – Nov 01.	
10.	The structure and biomechanical features of the trunk. The layers of the thoracic wall. Surface projections of the thoracic organs.	2nd practical assessment Anatomy of the lower limb. Bones, joints of the trunk. Anatomy of the thoracic cage.	Connective and supporting tissues, 2 Hyaline cartilage (HE) Elastic cartilage (orcein) Fibrocartilage (HE) Bone (ground section) Endochondral ossification (HE)
11.	Anatomy of the upper airways.	Superficial and deep back muscles. The diaphragm.	Muscle tissue Smooth muscle (HE) Skeletal muscle (cross section, HE) Skeletal muscle (longit. section, HE) Cardiac muscle (HE) Cardiac muscle (iron hematoxylin)
12.	Anatomy of the lower airways. Development of the respiratory system. Divisions and layers of the mediastinum	Surface anatomy of the thoracic wall. Projection of the thoracic organs onto the chest wall. Superior mediastinum.	Nerve tissue, 1 Sensory ganglion (HE) Spinal cord (HE) Cerebral cortex (HE) Cerebellum (HE) Vegetative ganglion (Ag)
13.	Functional and cross-sectional anatomy of the thorax.	Anatomy of the nasal cavity, paranasal sinuses, larynx, trachea, lungs and the pleura.	Nerve tissue, 2 Peripheral nerve (longit. section, HE) Peripheral nerve (cross section, HE) Peripheral nerve (longit. section, Os) Peripheral nerve (cross section, Os) Astrocyte (GFAP IHC)
14.	Organization of the vegetative nervous system.	3rd practical assessment Anatomy of the trunk, the thorax and the respiratory system. General recapitulation.	Respiration Trachea (HE) Lung (HE) Lung (orcein+H) Recapitulation.

2nd semester

LECTURE (2 hrs/week)	DISSECTION PRACTICE (3 hrs/week)	HISTOLOGY PRACTICE (2 hrs/week)
1. <u>Alimentary System</u> The anatomy and histology of the oral cavity; teeth, large salivary glands, and the tongue.	<u>Thoracic Cavity, Cardiovascular and Respiratory System</u> The anatomy of the mediastinum. Dissection of the superior mediastinum.	<u>Basic tissues I.:</u> Epithelial tissues: <i>Kidney (HE)</i> <i>Trachea (HE)</i> <i>Esophagus (HE)</i> <i>Skin (HE)</i>
2. The anatomy and histology of the, pharynx and the oesophagus. The anatomy of the peritoneum.	The anatomy of the heart and the pericardium.	<u>Basic tissues II.:</u> Connective and supporting tissues: <i>Skin (HE)</i> <i>Ear (Orcein)</i> <i>Bone (ground section)</i> <i>Enchondral ossification (HE)</i>
3. The anatomy and histology of the stomach, small intestine, large intestine and the rectum. The topography, anatomy and histology of the spleen.	Removal and dissection of the lungs and the bronchial tree. Dissection of the posterior mediastinum and the intercostal space.	<u>Basic tissues III.:</u> Muscle tissues and nervous tissue <i>Smooth muscle (HE)</i> <i>Skeletal muscle (HE)</i> <i>Cardiac muscle (HE)</i> <i>Peripheral nerve (HE)</i> <i>Sensory ganglion (HE)</i>
4. The anatomy, blood circulation and histology of the liver and the gall bladder. The anatomy and histology of the pancreas.	The anatomy of the nasal cavity, nasopharynx and the paranasal sinuses. The anatomy of the larynx.	Histology of the blood vessels and the respiratory system <i>Aorta (resorcin-fuchsin)</i> <i>Artery & Vein (HE)</i> <i>Trachea (HE)</i> <i>Lung (HE)</i>
5. Blood supply, lymphatic drainage and innervation of the organs of the abdominal cavity. Topography of the abdominal organs.	<u>Practical assessment: Anatomy of the thoracic cavity, mediastinum, heart, and the respiratory system. (nasal cavity, larynx, trachea and lungs)</u>	Histology of the digestive system I. <i>Lip (HE)</i> <i>Dorsum linguae (HE)</i> <i>Circumvallate papilla (HE)</i> <i>Parotid gland (HE)</i> <i>Submandibular gland (HE)</i>
6. <u>Urogenital System</u> Gross anatomy, blood supply and histology of the kidney. Anatomy and histology of the ureter, urinary bladder and the urethra.	<u>Abdominal Cavity and the Digestive System</u> Abdominal regions, abdominal situs and projection of the viscera. Opening of the abdominal cavity, inspection of the viscera. Dissection of the lesser and greater omentum, the omental bursa, the recesses of the peritoneum.	Histology of the digestive system II. <i>Esophagus (HE)</i> <i>Cardia (HE)</i> <i>Fundus, corpus (HE)</i> <i>Duodenum (HE)</i> <i>Jejunum (HE)</i> <i>Jejunum (PAS)</i> <i>Ileum (HE)</i>

7.	The anatomy and histology of the male genital organs.	Dissection of the stomach, the small and large intestines. Examination of the liver and the pancreas. Dissection of the hepatoduodenal ligament.	Histology of the digestive system III. Large intestine (HE) Vermiform appendix (HE) Anal canal (HE)
8.	The anatomy and histology of the female genital organs.	Dissection of the retroperitoneum: kidneys, ureters, posterior abdominal wall.	<u>Practical assessment:</u> Histology of the heart and blood vessels Histology of the respiratory and digestive systems
9.	The anatomy of the male and female perineum. Topography of the lesser pelvis.	<u>Practical assessment:</u> Anatomy of the alimentary tract and the abdominal cavity.	Histology of the liver and the pancreas <i>Liver (HE)</i> <i>Liver (Kupffer-cells)</i> <i>Gall bladder (HE)</i> <i>Pancreas (HE)</i>
10.	<u>Blood, Hematopoiesis and the Lymphatic System</u> Histology of the blood. Hematopoiesis	<u>Lesser Pelvis and Perineum</u> Dissection of the scrotum, testis and epididymis. Topography of the male pelvis.	Uropoietic system: <i>Kidney (HE)</i> <i>Ureter (HE)</i> <i>Urinary bladder (HE)</i> <i>Urethra (HE)</i>
11.	Histology of the immune system and lymphoid organs.	Dissection of the female genital organs. Topography of the female pelvis.	Male genital organs I.: <i>Testis-epididymis(HE)</i> <i>Spermatic cord(HE)</i> <i>Seminal vesicle(HE)</i> <i>Prostate (HE)</i> <i>Penis(HE)</i>
12.	<u>Endocrine System</u> The pituitary gland and the neuroendocrine regulation.	Dissection of the male and female perineum. Ischiorectal fossa, pudendal canal.	Female genital organs: <i>Ovary (HE)</i> <i>Oviduct(HE)</i> <i>Uterus(HE)</i> <i>Uterine cervix(HE)</i>
13.	The anatomy and histology of the thyroid and parathyroid glands. The endocrine pancreas and the enteroendokrin system.	<u>Practical assessment:</u> Anatomy of the lesser pelvis and urogenital organs	General recapitulation Repetition
14.	The suprarenal gland, and the endocrine cells of the gonads. Histology of the diffuse neuroendocrine system.	General recapitulation Repetition	<u>Practical assessment:</u> Histology of the urogenital system Histology of the liver and the pancreas

3rd semester

	LECTURE (2 hrs/week)	DISSECTION PRACTICE (3 hrs/week)	HISTOLOGY PRACTICE (2 hrs/week)
1.	Anatomy and blood supply of the spinal cord. Fine structure of the grey and white matter. Rexed's laminae and corresponding nuclei. Arrangement of the spinal cord tracts.	<i>Injury preventive directives and dissecting room regulations.</i> The cranial base: External and internal surfaces.	Skull The temporal and sphenoid bones.
2.	Neuroanatomy and fine structure of the medulla oblongata, pons and mesencephalon. Cranial nerve nuclei and the reticular formation.	Opening of the skull, duplications of the dura mater, meningeal spaces. Vertebral canal, meninges of the spinal cord and spinal cord preparation.	Skull Calvaria. Bony nasal and oral cavities. Infratemporal and pterygopalatine fossae.
3.	Diencephalon: organization. Thalamus and hypothalamus. Blood supply to the diencephalon.	Cerebral hemispheres: gyri and sulci. Blood supply to the brain, the cerebral arterial circle.	Histology Blood smear (MGG) Red bone marrow (HE) Thymus (HE) Lymph node (HE) Spleen (HE) Palatine tonsil (HE)
4.	Neuroanatomy, synaptology, histology of the cerebellum. Neuroanatomy of the cerebellar movement regulation.	Diencephalon. Lateral and third ventricles. Flechsig's cut. The extreme, external and internal capsules. Basal nuclei (ganglia).	Histology Sensory nerve ending (HE) Sensory nerve ending (Ag) Spinal cord (HE) Spinal cord (myelin staining) Cerebellum (HE) Cerebellum (Ag) Neocortex (HE) Astrocytes (GFAP IHC)
5.	Neuroanatomy of the cerebral cortex. The 'module-concept' in cerebral cortex architecture. The limbic system, the hippocampus.	Structure of the brainstem, the fourth ventricle, rhomboid fossa. Exits of the cranial nerves (from the brainstem and the skull).	Blood, hematopoiesis, lymphatic system, nervous system.
6.	Basal forebrain: amygdaloid complex. Basal nuclei and their functions in the movement regulation.	Cerebellum: topography, blood supply, parts. Cerebellar nuclei. Cerebellar peduncles. Frontal sections of the brain.	CNS seminar Cross-sections of the brainstem 1: the fine structure of the medulla.

		Hippocampus and other limbic areas.	
7.	Development of the nervous system.	Macroscopic anatomy of the CNS. Muscles of neck. Regions of neck: the cervical triangles. Fascial system of the neck. Surface anatomy of the neck.	CNS seminar Cross-sections of the brainstem 2: the fine structure of the pons.
8.	Anatomy and histology of the eye. Parts and layers of the retina. Blood supply to the retina.	Facial and masticatory muscles. Regions of head. Arterial supply, venous and lymphatic drainage of the head and cervical regions.	CNS seminar Cross-sections of the brainstem 3: the fine structure of the midbrain. Blood supply to the brainstem.
9.	Accessory visual structures: eyelids, lacrimal apparatus and extraocular muscles.	Facial and masticatory muscles. Regions of head. Arterial supply, venous and lymphatic drainage of the head and cervical regions.	CNS seminar Functional anatomy of the ascending and descending pathways.
10.	Neuroanatomy of the visual pathway. Light reflex of the pupil. Accommodation reflex. Horizontal and vertical gaze control.	The cranial nerves V and VII: ganglia and peripheral branches. Topography of the orbit.	Histology Hypophysis (HE) Thyroid gland(HE) Parathyroid gland (HE) Adrenal gland (HE) Corpus luteum (HE) Pancreas (HE)
11.	Anatomy, histology of the external and middle ears. Anatomy of the inner ear: osseous and membranous labyrinths.	The cranial nerves VIII, IX, X, XI and XII: ganglia and peripheral branches. Topography of the middle and inner ears.	Histology Eye (HE) Eyelid (HE) Lacrimal gland (HE)
12.	Organ of Corti. Fine structures of the cristae and maculae. Auditory and vestibular pathways.	Cervical plexus. Cervical part of the sympathetic trunk. Organization of the peripheral parasympathetic system in the head. Pterygopalatine fossa. Thyroid gland.	Histology Finger pad (HE) Hairy skin (HE) Cochlea (HE)

13.	Development of the eye and ear.	Regions of the head and neck. Anatomy of the eye.	Histology Resting mammary gland (HE) Lactating mammary gland (HE) Placenta (HE) Chicken embryo (HE)
14.	The branchial apparatus: formation, development and derivatives of the pharyngeal arches, pouches and grooves.	Recapitulation.	Endocrine system, sensory organs, skin, mammary gland, placenta, embryo.

BIOCHEMISTRY

3rd semester

LECTURE (3 hrs/week)	PRACTICE (2 hrs/week)
* Proteins and bioenergetics: structure and function of proteins, thermodynamics of living systems	General information, work safety, principles of lab work PRACTICE: Determination of protein concentration
* Enzymology: enzyme classes, coenzymes, characterisation of enzymes, isoenzymes, multienzyme systems	SEMINAR: proteins, enzymes
* Enzymology: molecular mechanism of catalysis, enzyme kinetics, modulation and regulation of enzyme activity MTO 1	PRACTICE: Substrate specificity and temperature optimum of amylase enzyme activity
* Carbohydrate metabolism: Digestion and absorption of carbohydrates, glycolysis, pyruvate dehydrogenase enzyme complex, gluconeogenesis	PRACTICE: Assay of activity of alkaline phosphatase
* Carbohydrate metabolism: Fructose and galactose metabolism, glycogen metabolism, pentose phosphate cycle and glucuronide shunt	SEMINAR: kinetics, carbohydrate metabolism
* Carbohydrate metabolism: regulation of blood glucose level, glycoproteins	PRACTICE: Determination of glucose-6-phosphatase activity
* Lipid metabolism: Eicosanoids, digestion and absorption of lipids, lipoprotein metabolism	SEMINAR: carbohydrate and lipid metabolism
* Lipid metabolism: lipid mobilisation, oxidation of fatty acids, ketone bodies, diabetes mellitus	SEMINAR: lipid metabolism
* Lipid metabolism: Synthesis of fatty acids, synthesis of triacyl glycerols and phospholipids, sphingolipids, cholesterol and steroid metabolism	SEMINAR: lipid metabolism

* Amino acid metabolism: Digestion and absorption of proteins, catabolism of essential amino acids, fate of amino group, urea cycle	PRACTICE: Determination of triacyl glycerol and cholesterol
* Amino acid metabolism: metabolism of non-essential amino acids, fate of carbon skeleton of amino acids, one-carbon units, glutathione. Synthesis and degradation of hem and porphyrins	SEMINAR: amino acid metabolism
* Nucleotide metabolism: synthesis and degradation of purine and pyrimidine nucleotides, salvage pathways, synthesis of deoxyribonucleotides	PRACTICE: Determination of uric acid concentration. MTO 3 (special evening time)
* Citric acid cycle: steps and regulation of the cycle, relationship between the cycle and other metabolic pws	PRACTICE: Investigation of the oxygen consumption of isolated mitochondria
* Mitochondrial transport systems, mechanism of respiratory chain and oxidative phosphorylation	SEMINAR: citric acid cycle, respiratory chain, oxidative phosphorylation

4th semester

LECTURE	SEMINAR	PRACTICE
* <u>Proteins and bioenergetics:</u> structure and function of proteins, thermodynamics of living systems		General information, work safety, principles of lab work
* Enzymology: enzyme classes, coenzymes, characterisation of enzymes, isoenzymes, multienzyme systems		Determination of protein concentration
* Enzymology: molecular mechanism of catalysis, enzyme kinetics, modulation and regulation of enzyme activity		Substrate specificity and temperature optimum of amylase enzyme activity
* Carbohydrate metabolism: Digestion and absorption of carbohydrates, glycolysis, pyruvate dehydrogenase enzyme complex, gluconeogenesis	SEMINAR (proteins, enzymes)	
* <u>Carbohydrate metabolism:</u> Fructose and galactose metabolism, glycogen metabolism, pentose phosphate cycle and glucuronide shunt		Assay of activity of alkaline phosphatase
* <u>Carbohydrate metabolism:</u> regulation of blood glucose level, glycoproteins <u>Lipid metabolism:</u> Eicosanoids, digestion and absorption of lipids, lipoprotein metabolism	SEMINAR (carbohydrate metabolism)	
* <u>Lipid metabolism:</u> lipid mobilisation, oxidation of fatty acids, ketone bodies, diabetes mellitus		Determination of glucose-6-phosphatase activity

* <u>Lipid metabolism</u> : Synthesis of fatty acids, synthesis of triacyl glycerols and phospholipids, sphingolipids, cholesterol and steroid metabolism	1st MTO	
* <u>Amino acid metabolism</u> : Digestion and absorption of proteins, catabolism of essential amino acids, fate of amino group, urea cycle	SEMINAR (lipid metabolism)	
* <u>Amino acid metabolism</u> : metabolism of non-essential amino acids, fate of carbon skeleton of amino acids, one-carbon units, glutathione		Determination of triacyl glycerol and cholesterol
* <u>Amino acid metabolism</u> : Synthesis of hem and porphyrine, enterohepatic circulation of hem degradation products	SEMINAR (amino acid metabolism)	
* <u>Citric acid cycle</u> : steps and regulation of the cycle, relationship between the cycle and other metabolic pathways	SEMINAR (citric acid cycle, respiratory chain, oxidative phosphorylation) 2nd MTO	
* <u>Mitochondrial transport systems, mechanism of respiratory chain and oxidative phosphorylation</u>		Investigation of the oxygen consumption of isolated mitochondria
* <u>Nucleotide metabolism</u> : synthesis and degradation of purine and pyrimidine nucleotides, salvage pathways, synthesis of deoxyribonucleotides		Nucleotide metabolism Determination of uric acid concentration

CELL BIOLOGY AND MOLECULAR GENETICS

1st semester

LECTURE (2 hrs/week)	PRACTICE (2 hrs/week)
* Structure and operation of the cell	Handling of technical devices
* The DNA	Microscopy-1
* Transcription, translation & proteins	Microscopy-2
* Mutation & jumping genes	DNA and RNA purification
* Bacterial genetics	Genetic exercises
* Genetic regulation in eukaryotes	Separation techniques
* Mendelian and non-Mendelian genetics	Lac operon & consultation
* Epigenetics	
* Genes and traits	

- * Genetic diseases
- * Evolution
- * Cytoskeleton & membrane processes
- * Molecular biology of viruses
- * Frontiers of molecular and cell biology

2nd semester

LECTURE (2 hrs/week)	PRACTICE (2 hrs/week)
* Human genome	Molecular cloning
* Genetically modified organisms & cloning	PCR & DNA sequencing
* Cell cycle & tumor formation	Detection of DNA and RNA
* Molecular medicine	Detection of proteins
* Cell signalling-1	DNA and protein chips, DNA finger printing
* Cell-signalling-2	Genetic exercises
* Cell communication & tissue differentiation	Reporter genes & consultation
* Genetic regulation of ontogenesis	
* Neural communication & consciousness	
* Molecular biology of sensation	
* Immunogenetics	
* Molecular evolution	
* Genetics of behaviour	
* Genetic disease of brain and psyche	

BASIC LIFE SUPPORT

1st semester

PRACTICE (2 hrs/week)
* Principles of first aid. Emergency situations. Victim assessment routine. Assessing respiration and pulses. Normal and abnormal pulse rates per minute.
* The unresponsive patient. Terms of position. Extrication of the injured patient (Rauterk manoeuvre).
* Basic life support. Victim assessment and positioning. Determine unresponsiveness. Assess for breathlessness. Provide rescue breathing. Circulation. Esmarch-Heiberg manoeuvre.
* BLS (one-person CPR, two-person CPR)
* Obstructed airway emergencies. Heimlich manoeuvre.
* Paediatric basic life support.
* Bleeding (haemorrhage). Bleeding from an artery, from a vein. General procedures for controlling bleeding. Direct and indirect pressure. Arterial pulse points.
* Recognition of patients with shock condition. Body positioning for preventing shock.
* Classification of open wounds. Bandaging.
* Burn injuries. Electrical injuries. Heat and cold emergencies. Water accident.

- * Mechanism of injury. Types of injury to joints and bones. Splints. Head injuries. Injuries to the spine. Injuries to the chest. Injuries to the abdomen.
- * Poisoning.
- * Heart attack. Respiratory emergencies.
- * Revision of BLS.

MEDICAL CHEMISTRY

1st semester (14 weeks)

LECTURE (3 hrs/week)	PRACTICE (1 hr/week)
1. Basic terms. The mole concept. Basic structure of atoms. Electronic structure of atoms. Atomic theories. The periodic table. Explanation of periodic properties.	Important terms: atomic mass, molar mass, moles, chemical formulas. Chemical reactions, stoichiometry. Atomic models, electronic configuration of atoms. Application of the periodic table.
2. Chemical bonding. Octet rule. Ionic, covalent and metallic bondings. Intermolecular forces: hydrogen bonding, van der Waals forces (dipole-dipole and London forces).	Atomic models, electronic configuration of atoms. Application of the periodic table.
3. Introduction to inorganic chemistry. Properties of the most important elements and their compounds. Biological importance and usage. Types of metathesis reactions: precipitation and gas formation, neutralization.	Solutions. Chemical calculations: concentration of solutions.
4. States of matter. The gaseous state: gas laws, Avogadro's law. The liquid state: properties of liquids, dependence of phase changes on pressure and temperature. The solid state: properties of solids, types of crystalline lattice. Homogeneous and heterogeneous systems.	Chemical bonds and intermolecular forces. Continuation of practicing simple chemical calculations.
5. Solutions. Types of solutions. The solution process. Ways of expressing concentration. Colligative properties. Osmosis and its biological importance.	Inorganic chemistry. Complexes. Summary of inorganic chemical reactions.
6. Chemical equilibrium. LeChatelier's principle. Equilibrium in electrolytes, pH and pOH. Acid-base ionization equilibrium. Salts.	Chemical equilibrium. Application of LeChatelier's principle.
7. Electrolytic dissociation, strong and weak electrolytes. Acid-base concepts. Acid-base titration. Buffers and their biological importance.	Acid-base concepts. pH calculations.
8. Thermodynamics. Basic terms. First, second and third laws of thermodynamics. Entropy and disorder. Change in Gibbs free energy and spontaneity of a reaction. Electrochemistry. Oxidation-reduction reactions. Electrical work and free energy change.	Buffers. Calculations involving buffers.

9. Voltaic cells, types of electrodes. Reference electrodes. Glass electrodes, measurement of pH. Electrolysis. Reaction kinetics. Rate, order, molecularity and mechanism of reactions. Complex chemical reactions. Catalysis. Enzymes as biocatalysts.	Basic terms of thermodynamics. Spontaneity of reactions.
10. General principles of organic chemistry. Classification of organic compounds. Functional groups. Types of organic chemical reactions: substitution, addition, and elimination. Alkanes (paraffin hydrocarbons). Cycloalkanes.	Electrochemistry. Redox reactions. Voltaic cells. Calculations involving the Nernst equation.
11. Alkenes. Alkynes. Isoprene, mevalonic acid, terpenes. Carotinoids. Vitamin A. The photochemistry of vision. Polarization in organic compounds: inductive and conjugation effects. Structure of conjugated dienes. Absorption of light, color compounds.	Reaction kinetics. Catalysis.
12. Aromatic hydrocarbons. Structure and stability of benzene and its derivatives. Chemical reactions of aromatic compounds.	Types of organic chemical reactions. Saturated and unsaturated hydrocarbons: alkanes, alkenes and alkynes.
13. Organic halogen compounds. Hydroxyl group containing organic compounds: alcohols, enols and phenols. Classification, nomenclature and chemical properties of alcohols. Some important alcohols.	Inductive and conjugation effects in organic compounds. Aromatic hydrocarbons.
14. Phenols. Acidity of phenols. Nomenclature and chemical reactions of phenols. Oxidation of phenols, quinones. Esters formed with inorganic acids. Ethers. Thioalcohols, thioethers, sulfoxides and sulfones.	Organic halogen compounds. Alcohols and phenols. Ethers and sulfur-containing organic compounds.

2nd semester (14 weeks)

LECTURE (3 hrs/week)	SEMINAR (1 hr/week)	PRACTICE (2 hrs/week)
1. Three-dimensional structure of molecules: constitution, configuration and conformation. Optical isomerism. Enantiomers, racemates. Configuration: D-L and R-S systems. Molecules with more than one chiral centers. Diastereomers.	Review of organic chemical reactions.	Fire and safety precautions. Examination of some important functional groups I.

2.	Classification and nomenclature of amines. Basicity of amines, salt formation. Biologically important amines and aminoalcohols. Amines as neurotransmitters. Reactions of amines. Azodyes, sulfonamides and its chemotherapy. Classification and nomenclature of heterocyclic compounds. Three- and four-membered heterocycles: beta-lactams. Five-membered heterocycles with one and two heteroatoms.	Chirality, optical isomerism.	Modeling of chirality.
3.	Six-membered heterocycles with one heteroatom: flavonoids, nicotinamide, NAD and NADH. Six-membered heterocycles with two heteroatoms: pyrimidines (barbituric acid and barbiturates), purines (uric acid).	Amines	Examination of some important functional groups II.
4.	Oxo compounds. Structure of the carbonyl group. Chemical reactions of aldehydes and ketones. Important oxo compounds: quinones, coenzyme Q and vitamin K. Classification and nomenclature of carboxylic acids. Acidity, salt formation. Homologous series of saturated and unsaturated carboxylic acids. Fatty acids. The role of fatty acids in biological membranes. Prostaglandines.	Heterocyclic compounds	During weeks 4-10 students work in rotation and conduct an experiment each week
5.	Dicarboxylic acids. Unsaturated and hydroxy carboxylic acids. Oxo acids, "ketone bodies". Derivatives of carbonic acid: urea, guanidine, creatine, phosphocreatine. Carboxylic acid derivatives: esters, thioesters, acyl halides, anhydrides, amides. Acylation reaction, acylating agents.	Oxo compounds	
6.	Acid-catalyzed esterification and hydrolysis of esters. Soaps, detergents. Phosphoglycerides. Plasmalogens. Sphingolipids. The structure of biological membranes.	Carboxylic acids and substituted carboxylic acids	
7.	Classification and nomenclature of amino acids. Proteinogenic amino acids. Amphoteric character: isoelectric points. Essential amino acids, biological importance. Qualitative tests, preparation and separation of amino acids. Chemical properties. Peptides. Stereochemistry of the peptide bond. Principles of sequence analysis. Synthesis of peptides. Biological importance. Naturally occurring peptides.	Carboxylic acid derivatives	

Important peptide hormones, analogues and peptide antibiotics.

8.	Structure and function of proteins. Physical and chemical properties, purification and classification of proteins. Qualitative tests. The three-dimensional structure of proteins. Protein folding. Denaturation of proteins. Biological importance of proteins: transport, contractile, structural, nutrient, storage, defense and regulation proteins. Enzymes. Mechanism of enzyme reactions.	Amino acids	
9.	Classification of carbohydrates. Configuration. D-glucose, mutarotation, anomers. Cyclic structures. Chemical properties of monosaccharides: oxidation, reduction, formation of ethers and esters, formation of O- and N-glycosides.	Peptides and proteins	
10.	Important monosaccharides: aldoses and ketoses and their derivatives. Structure of disaccharides. Nonreducing disaccharides: sucrose and trehalose. Reducing disaccharides: maltose, cellobiose, lactose. Oligosaccharides. Mucopolysaccharides: hyaluronic acid, chondroitin and its sulfate, dermatane sulfate and heparin.	Mono- and disaccharides	
11.	Polysaccharides: starch, glycogen, cellulose. Structure of bacterial cell wall. Steroids. Classification of steroids. Cholesterol, cholesteroesters. Ergosterol. Vitamins D2 and D3. Bile acids and their detergent effect. Steroid hormones. Corticosteroids: mineralo- and glucocorticosteroids. Sex hormones.	Oligo- and polysaccharides	Bioorganic chemistry: examination of proteins and carbohydrates
12.	Structure and properties of nucleosides and nucleotides. Nucleotide coenzymes. Nucleic acids: RNA and DNA. Hydrolysis, purification and properties of nucleic acids. Sequence analysis of nucleic acids. Structure of DNA: double helix. B-DNA, A-DNA and Z-DNA. Denaturation of DNA. DNA-protein complexes.	Steroids	

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| 13. | Biological importance of nucleic acids. Classification of RNA. Molecular mechanism of protein biosynthesis, genetic code. Water-soluble vitamins and their coenzymes. Fat-soluble vitamins. Hypo- and hypervitaminosis. | Nucleosides, nucleotides and nucleic acids | Make-up laboratory practices |
| 14. | Alkaloids, most important representatives. Antibiosis. Classification of antibiotics. Most important antibiotics. Porphin-ring containing compounds. Protoporphyrin-IX and heme. Hemoglobin and myoglobin. Intermediates of heme: biliverdin and bilirubin. Chlorophyll. | Vitamins | |

MEDICAL PHYSICS AND MEASUREMENTS IN MEDICAL PHYSICS

1st semester

MEDICAL PHYSICS (LECTURE) (1 hour a week)	MEDICAL PHYSICS (SEMINAR) (2 hours every 2nd week)	MEASUREMENTS IN MEDICAL PHYSICS (2 hours every 2nd week)
Introduction: the significance of physics in the medical profession	Fundamentals of mechanics 1	Introduction to the use of the Biopac measurement system
Mechanics of the human body 1		
Mechanics of the human body 2	Fundamentals of mechanics 2	Anthropometric measurements. Fundamental aspects of measurements: derived quantities, measurement error
Oscillations and waves in life sciences		
Hearing	Oscillations and waves	Sound as a mechanical wave
Principles of fluid mechanics 1		
Principles of fluid mechanics 2	Flow of fluids	Blood pressure measurement principles and their application
Physics of biological membranes, diffusion, osmosis		
Thermal interaction between the human body and its environment.	Thermodynamics	Analysis of blood pressure data
Medical aspects of optics, vision 1		

Medical aspects of optics, vision 2v

Thermodynamic aspects of transport processes

Optics

Optics of the eye

Note: The basic knowledge in general physics will be checked at the beginning of the semester in the form of a placement test. We highly offer an elective course ('Fundamentals of medical physics') to those students who have substantial deficiency in basic scientific concepts. The minimum requirements are published on the website of the institute (<http://www2.szote.u-szeged.hu/dmi/eng/>)

2nd semester

MEDICAL PHYSICS (LECTURE) (2 hours a week)	MEDICAL PHYSICS (SEMINAR) (2 hours every 2nd week)	MEASUREMENTS IN MEDICAL PHYSICS (2 hours every 2nd week)
Electricity	Electricity	Electrophysiology 1: Electromyography
Magnetism and electromagnetism		
Bioelectric phenomena	Magnetism, electromagnetism, bioelectricity	Electrophysiology 2: Electrocardiography
Signals, signal processing and data visualisation		
Quantum physical phenomena in life (and medical) sciences	The electromagnetic spectrum. Spectroscopy. Lasers	Spectroscopy
Spectroscopy (optical, with an outlook to general spectroscopy). Atomic physics. Atomic spectra. Electromagnetic radiation. Luminescence		
X-rays: general properties, use in diagnostics. Absorption of X-radiation. Producing X-rays, interaction with living substances	X-rays	Nuclear medicine
Nuclear physics. Radioactivity. Nuclear radiation, dosimetry		
Practical application of radioactive isotopes. Particle accelerators in medical practice.	Nuclear physics; radioactivity	Medical imaging techniques 1: tomography
Principles of the laser. Medical applications of lasers		
Medical imaging techniques: ultrasound, CT, MRI/NMR, PET, infrared diagnostics	Imaging and therapeutic methods	Medical imaging techniques 2: ultrasound
Physical basis of therapeutic methods: laser-, light, radio-, heat therapy, therapeutic use of electricity		
Physical methods in physiological research: microscopy (optical-, scanning-, electron-), mass spectrometry		

Molecular and cellular diagnostics:
sedimentation, electrophoretic
methods, flow cytometry

MEDICAL STATISTICS

2nd semester

LECTURE (1 hr/week)	PRACTICE (2 hrs/week)
1. The basics of probability theory. The concept of probability, rules of probability calculus. Diagnostic tests and conditional probabilities.	The basics of probability theory. The concept of probability, rules of probability calculus. Diagnostic tests and conditional probabilities.
2. Population, statistical sample. The distribution of categorical and continuous variables, the density function.	Population, statistical sample. The distribution of categorical and continuous variables, the density function.
3. Density function, the normal distribution. The normal distribution. Standardisation, practical examples.	Density function, the normal distribution. The normal distribution. Standardisation, practical examples.
4. Binomial distribution. Odds Ratio	Binomial distribution. Odds Ratio
5. Statistical estimation, confidence interval. The standard error of mean. The use of Student's t-table	Statistical estimation, confidence interval. The standard error of mean. The use of Student's t-table
6. Statistical inference, one-sample t-test. Significance test by confidence interval, t-statistics or p-value. Type I and II error, statistical power.	1st MTO.
7. T-tests (one-sample, paired, Student and Welch two-sample t-test)	T-tests (one-sample, paired, Student and Welch two-sample t-test)
8. Analysis of variance (principle of one-way ANOVA, F-test, pairwise comparisons)	Analysis of variance (principle of one-way ANOVA, F-test, pairwise comparisons)
9. Correlation-regression analysis	Correlation-regression analysis
10 The chi-squared test for independence (assumptions, Fisher exact test)	The chi-squared test for independence (assumptions, Fisher exact test)
11 Nonparametric methods based on ranks (Wilcoxon-test, Mann-Whitney test, Kruskal-Wallis test)	Nonparametric methods based on ranks (Wilcoxon-test, Mann-Whitney test, Kruskal-Wallis test)
12 Measure of agreement; 2x2 tables in epidemiology (Cohen-Kappa, relative risk)	Measure of agreement; 2x2 tables in epidemiology (Cohen-Kappa, relative risk)
13 Survival analysis	2nd MTO
14 Summary	Survival analysis Summary

MEDICAL PHYSIOLOGY

3rd semester

LECTURE (4 hrs/week)	PRACTICE (2 hrs/week)
* Membrane physiology: membrane transport, signalling systems, cellular electrophysiology	Membrane electrophysiology (computer simulation)

* Nerve and muscle physiology: primary sensory neurons, autonomic nervous system, motor neurons, striated muscle and smooth muscle.	Electromyography (EMG)
* Blood physiology: fluid compartments, blood plasma, erythropoiesis and degradation of red blood cells, ABO and Rh blood groups	Blood tests: RBC, WBC, platelet counts, differential leucocyte count, reticulocyte count, ABO/Rh blood groups, bleeding time, clotting time, prothrombin time, INR. RBC osmotic resistance, RBC sedimentation rate
* Respiratory physiology: ventilation, gas exchange, regulation	Human spirometry
* Cardiovascular physiology: the cardiac cycle, cellular electrophysiology and ECG, hemodynamics, the microcirculation, autonomic and hormonal regulation of the systemic and local circulation.	Experiments using the isolated rat heart (Langendorff's perfusion)
* Renal physiology	Electrocardiography Sphygmomanometry, determination of pulse qualities with palpation, cold pressor test

4th semester

LECTURE (6 hrs/week)	PRACTICE (2 hrs/week)
* Physiology of the gastrointestinal tract	Study of cardiovascular adaptation to physical exercise
* Metabolism and nutrition.	Urine tests: physical examination, microscopic investigation of urine sediment, detection of protein, calcium, glucose, ketone bodies, bile pigments, blood and pus in the urine. Strip tests.
* Endocrine systems: hypophysis, thyroid gland, adrenal gland endocrine pancreas	GI tract: study of the saliva: pH, protein content, digestion. Study of gastric juice.
* Integrative physiology: regulation of energy metabolism, osmoregulation, volume regulation, potassium, calcium, pH homeostasis, Thermoregulation.	Endocrinology: Oral glucose tolerance test, demonstration of the antidiuretic effect of vasopressin, pregnancy tests.
* Sports physiology	Determination of motor reaction time to visual and auditory stimulation, polygraphy. Study of human motor reflexes.
* Reproductive physiology: sexual function, physiology of pregnancy, parturition, growth and development.	Sensory systems: threshold audiometry, tuning fork tests, otoscopy. Study of gustatory and olfactory perception. Study of somatosensory systems: study of different modalities, determining two point discrimination threshold, demonstration of Weber's 3 basin test. Study of vision: determination of visual acuity, visual field, critical flicker fusion frequency. Study of accommodation, pupil light reflex, light adaptation, color vision, and eye movements (postrotatory and optokinetic nystagmus)

* CNS physiology: introduction, the cerebral circulation	Study of human EEG
* Sensory systems: somatosensory system, pain, vision, hearing, olfaction and taste:	Cognitive tests
* Motor systems: spinal, brainstem, cortical integration of motor functions. The vestibular system. The role of the cerebellum and the basal ganglia in motor functions.	
* Sleep/wake cycle, the EEG. Circadian rhythms.	
* Physiology of emotions, motivation, reward and punishment.	
* Physiology of learning and memory. Physiology of speech	

HUNGARIAN LANGUAGE

1st semester

PRACTICE

(4 hrs/week)

1. Introduction. Basic expressions. Vowels, consonants, vowel harmony. The Hungarian alphabet.
2. Definite and indefinite articles. Numbers. Money and measurements.
3. Personal pronouns; *to be* present tense; the *-nak, -nek* ending. Nationalities, jobs, adjectives. Greetings, address forms.
4. Usage of the verb *van*; the *-ban, -ben* ending; the *-n, -on, -en, -ön* ending; telling the time. Buildings, places and venues; expressions with the verb *van*.
5. Revision 1
6. TEST 1
7. Indefinite conjugation 1 (present tense); the *-t* ending; yes-no questions. Subjects, food, drinks, vegetables, fruits.
8. Indefinite conjugation 2; the *-va/, -ve/* ending. Cooked food. Some Hungarian dishes.
9. Revision 2
10. Verb formation; the infinitive *-ni* and its usage; the *-ul, -ül/* ending; the *-lak, -lek* ending. Verbs, modal verbs. Festivals, fairs, events.
11. Conjugation of *jönni* and *menni* (present tense); the *-ba, -be* and *-ra, -re* endings; the *-ból, -ből* and *-ról, -ről* endings. Means of transportation, other words in connection with transportation. Public transport in cities, travelling in Hungary.
12. Revision 3
13. TEST 2
14. Oral tests

2nd semester

PRACTICE

(4 hrs/week)

1. General revision

2. The possessive endings. Body parts, time expressions (past tense).
3. The verb *fájl(t)*; *to be* past tense.
4. Past tense (first person singular only, indefinite conjugation); the *-kor* ending; the *-től*, *-től* and the *-ig* endings.
5. The *-s*, *-os*, *-as*, *-es*, *-ös* ending; linking words. Word formation. Holidays.
6. Revision 4
7. TEST 1
8. Question words; ordinal numbers. The house.
9. The *-n*, *-on*, *-en*, *-ön* ending (meaning on). Rooms and furniture.
10. Indefinite conjugation (past tense). Postpositions.
11. Usage of postpositions of place and time. Geography.
12. Revision 5
13. TEST 2
14. Oral tests

3rd semester

PRACTICE

(4 hrs/week)

1. General revision
2. The *-nál*, *nél*, *-hoz*, *-hez*, *-höz*, *-től*, *-től* endings.
3. Jobs, family.
4. Comparative and superlative forms of adjectives. Clothing, colours.
5. The possessive structure; the plural *-k* ending. Describing what somebody looks like.
6. Revision 6
7. TEST 1
8. Verbs.
9. Definite conjugation (present tense).
10. Verbal prefixes.
11. Usage of verbal prefixes.
12. Revision 7
13. TEST 2
14. Oral tests

4th semester

PRACTICE

(4 hrs/week)

1. General revision
2. Definite conjugation (past tense). Accusative case of personal pronouns.
3. Telling the date, the weather, the school year
4. Revision 8
5. Body parts, organs, bones
6. The most common problems and complaints.
7. Test 1.
8. Body weight, height, blood pressure, temperature, pulse

9. History taking
10. Revision of grammar and vocabulary.
11. Practising role-play
12. Most common medications.
13. Revision of grammar and vocabulary.
14. Practising role-play.
15. Practising role-play.

5th semester

PRACTICE

(2 hrs/week)

- * Introduction to the course. The name of various clinical departments, the medical and nursing staff working there. Revision of the Present Tense.
- * Introduction to history taking. The parts of the case history. Asking and answering questions concerning present condition and pain: location, type, and duration, aggravating and relieving factors. Yes/No questions.
- * Asking the patients about previous hospitalisation and operations, major health problems, childhood diseases and vaccination. Revision of the Past Tense. Wh-questions.
- * Taking family and social history. Revising family relations, marital status, harmful habits (e.g. smoking, uncontrolled alcohol consumption, illegal drugs, excessive caffeine intake). Revising numbers and measurements.
- * Practising basic doctor-patient situations: role-play, history taking. Asking about presenting symptoms/ present complaints, past history, family and social history.
- * Asking the patient about dizziness, sweating, nausea or vomiting. Revision of Adjectives and Adverbs. Practising the Comparative and the Superlative.
- * Interviewing the patient about dyspnoea, cough and sputum. Revision of the Future Tense. Mid-term test.
- * Questions and answers concerning heart complaints and oedema of the legs. Revision of the Definite and Indefinite Articles.
- * Practising doctor-patient situations: role-play, history taking. Briefing simple English case histories in Hungarian.
- * Asking the patient about appetite, stools and urine. Revision of Modifiers and Quantifiers, and the vocabulary concerning food and drinks.
- * Questioning the patient about changes in his/her temperature. Questions about having fever, measuring fever and decreasing high temperature. Revising the vocabulary concerning the main parts of the body.
- * General instructions to patients during physical examination. The polite way of giving instructions. Revision of the Imperative Voice.
- * The most common conditions and diseases in Internal Medicine in Hungary: diseases of the digestive, cardiovascular and respiratory systems.
- * Practising doctor-patient situations: role-play, history taking. Briefing English case histories taken from the field of Internal Medicine in Hungarian. Final tests (written and oral).

6th semester

PRACTICE

(2 hrs/week)

- * Surgery. Interviewing the patient at the Surgery Department. General and more specific questions. Parts of the digestive tract.

- * The most common problems of the digestive tract. Role-play, history taking of patients with oesophageal problems. Interviewing a patient with gallbladder complaints.
- * Interviewing patients with abdominal complaints. Discussing case histories involving acute intestinal problems: appendicitis and ileus. Physical examination of the patient with acute abdominal complaints.
- * Interviewing patients with complaints referring to herniation. Chronic conditions in the colon: tumours of the large intestine and rectum. Sending patients for further investigations. Vocabulary concerning basic imaging techniques. Mid-term test.
- * Practising doctor-patient communication at the Surgery department: role-play, history taking and discussing possible surgical intervention with the patient. Revising the Conditional Mood. Briefing simple English case histories taken from the field of Surgery in Hungarian.
- * Interviewing patients who suffer from problems of the thyroid gland. Interviewing patients with breast cancer. Giving advice concerning life style. Revising Auxiliary Verbs.
- * Discussing the most common vascular problems. Interviewing patients with hypertension, vasoconstriction and varicose veins. Giving instructions concerning life style and medication. Discussing and arguing with patients.
- * Acute cases of the vascular system: embolism and thrombosis. Interviewing patients presenting with symptoms of embolism and thrombosis. Management of acute cases.
- * Patients at the Traumatology department. Home, road and sports accidents. Asking patients about conditions caused by accidents. Explaining medical procedures and giving advice to patients.
- * The type of drugs/medicines. Internally and externally administered drugs. Vocabulary expansion concerning forms of medicines and their containers.
- * The effect of drugs. Most common adverse effects. Explaining to patients how to take the prescribed medicines. General instructions.
- * Practising doctor-patient communication: role-play, history taking and giving advice to patients concerning medication. Reading simple Hungarian case histories taken from the field of Internal Medicine.
- * Practising doctor-patient communication: role-play, history taking and giving advice to patients concerning treatment and medication. Reading simple Hungarian case histories taken from the field of Surgery and Traumatology.
- * Revision. Practising doctor-patient situations that can emerge in the Internal Medicine, Surgery and Traumatology department. Interviewing and examining patients, sending them for further investigations, giving advice on diet, life style and medication. Final tests (written and oral).

LATIN

1st semester

PRACTICE (2 hrs/week)

- * The role of the Latin language in medicine. Alphabet, Pronunciation.
- * Basic features of the nouns. Endings of the nouns.
- * The meaning of the cases-. Greek word elements
- * Body parts internal organs, muscles
- * Miscellaneous exercises on the covered subjects.
- * Mid-term test.
- * Declensions. Possessive phrases. Greek word elements
- * 3rd declension nouns, typical endings. Anatomical names.

- * Practice of numbers and cases. Greek word elements.
- * Adjectives with 3 forms. Agreement rule. Word order.
- * Plural forms. Adjective agreed with possessor.
- * Miscellaneous exercises on the covered subjects.
- * Final test.
- * Evaluation.

2nd semester

PRACTICE (2 hrs/week)

- * Revision. Picking topics for weekly student presentations.
- * 4th declension. Greek prefixes.
- * 5th declension. Greek suffixes.
- * Comparison of adjectives. Examples from anatomy, pathology, physiology, clinical subjects.
- * Verbs in medicine, in medical prescription. Imperative. Greek elements in medicine.
- * Miscellaneous exercises.
- * Mid-term test.
- * Medical prescription. Formules. Abbreviations
- * Greek elements in medicine. Latin - Greek equivalents.
- * Diagnoses - clinical and pathological. Miscellaneous exercises.
- * Analysis of disease names with Greek and Latin elements. Miscellaneous exercises.
- * Revision.
- * Final test.

BIOCHEMICAL BASICS OF PREVENTIVE MEDICINE

4th semester

LECTURE (2 hrs/week)

- * Introduction to preventive medicine (importance of nutrition, physical activity and stress in the development of „civilization diseases“)
- * Biochemistry of oxidative stress and its importance in physiological and pathological processes (formation of free radicals and their effects)
- * Antioxidant mechanisms (vitamins, vitaminlike substances, enzymes and their cofactors involved in antioxidant protection)
- * Stress adaptation of the heart (early and late preconditioning)
- * General importance of balanced nutrition (macro- and micronutrients, alimentary fibers; additives)
- * Pathobiochemistry of atherosclerosis and possibilities of prevention
- * Role of oxidative stress in respiratory diseases
- * Role of free radicals and antioxidant protective mechanisms in physiological and pathological brain function

- * Background and prevention of obesity, metabolic syndrome and diabetes mellitus
- * Altered requirements for nutrients in physiological and pathological conditions; diets (theory and practice)
- * Sport biochemistry: general importance of physical activity (oxidative stress and role of antioxidants; changes in blood plasma parameters)
- * Psychological stress, oxidative stress, and importance of stress management
- * Biochemical basics of preventive medicine in the light of the most recent medical literature (interactive seminar and test)
- * Biochemical basics of preventive medicine in the light of the most recent medical literature (interactive seminar and test)

BIOCHEMISTRY: SELECTED CHAPTERS FROM MEDICAL BIOCHEMISTRY

1st semester (not announced in 2017/2018)

LECTURE (2 hrs/week)

- * Characterization of proteins (protein structure, folding, chaperones, and central role of heat shock proteins)
- * Enzymology (molecular mechanism of enzyme action, regulation of enzyme activity, enzyme classes, isoenzymes, coenzymes)
- * Carbohydrate metabolism (alternative pathways, metabolism of galactose and fructose, patobiochemical aspects, glucuronic acid shunt)
- * Carbohydrate metabolism (regulation of carbohydrate metabolism, regulation of blood glucose level, glucoproteins)
- * Lipid metabolism (metabolism of phospholipids and sphingolipids, detailed characterization of fatty acids, eikozoids)
- * Lipid metabolism (metabolism of cholesterol and its derivative, transport of cholesterol, cardiovascular risk factors)
- * Amino acid metabolism (N balance in human body, specialized products derived from amino acids)
- * Amino acid metabolism (inherited disorders affecting amino acids and their diagnostics)
- * Nucleic acid metabolism (drugs influencing nucleotide metabolism and patobiochemical aspects)
- * Consultation.
- * Citric acid cycle (central role in the metabolism, connection to other metabolic pathways)
- * Terminal oxidation and oxidative phosphorylation
- * Summary of metabolism

2nd semester

LECTURE (2 hrs/week)

- * General information
- * Biochemistry of blood (biochemical background of blood coagulation)
- * Inherited metabolic disorders
- * Biochemistry of blood (ion determination and blood-gas analysis)
- * Sportbiochemistry
- * Chronic inflammation, hypertrophy and fibrosis
- * Biochemistry of uremia and metabolic diseases.
- * Unappreciated topics in biochemistry

- * Molecular biology diagnostics.
- * Free radicals.
- * Biochemistry of nutrition.
- * Signaling.
- * Pathobiochemistry and diagnostics of diabetes mellitus.
- * Exam.

CARDIAC ELECTROPHYSIOLOGY AS A BASIC PROPERTY OF CARDIAC FUNCTION

4th and 8th semester

LECTURE AND PRACTICE (2 hrs/week)

- * Introduction.
- * Basic principles of electrophysiology, the impulse propagation in the heart I.
- * Basic principles of electrophysiology, the impulse propagation in the heart II.
- * The action potential of myocytes and the ionic channels determining the action potential I.
- * The action potential of myocytes and the ionic channels determining the action potential II.
- * Methods and techniques in cardiac electrophysiology.
- * Electro-mechanical coupling in the heart I.
- * Genetic background of ion-channel disturbances in the heart.
- * Electro-mechanical coupling in the heart II.
- * The mechanism of developing cardiac arrhythmias
- * Electrophysiological changes after the disturbances in blood supply to the myocardium.
- * Experimental methods and clinical relevance to investigate cardiac arrhythmias.
- * Investigational techniques in cardiac cellular electrophysiology
- * Practical and consultation

CYTOMORPHOLOGY AND MICROTECHNICS

1st semester, 3rd and 5th semester

LECTURE (2 hrs/week)

- * Evolution of cellular organisms. General morphology of the eukaryotic cell: size, shape. Research methods for structural cell biology.
- * Intracellular compartmentalization. Structure of the cell membrane. The endomembranes. Membrane dynamics (membrane fusion and fission).
- * Membrane modifications: cell surface modification (microvilli, stereocilia, cilia), coupling structures (belt-, spot-, hemidesmosome), impermeable junction (tight junction), communication junctions (gap junction, chemical synapse).
- * Structure and functions of the extracellular matrix. The lamina basalis. Cell adhesion molecules.
- * Structure and functions of the cytoskeleton. General characteristics of cytoskeletal proteins. Actin filaments/microfilaments. Microtubules and intermediate filaments.
- * Light- and electron microscopic structure of the cell nucleus and nucleolus. Organization of the

chromatin. Chromosomes.

- * The cell cycle. Growth and division of the cell. Mitotic and meiotic cell divisions.
- * The endomembranes: endoplasmic reticular systems, Golgi complex. Targeted intracellular transport of proteins. The vesicular transport and secretion.
- * Transport across membranes. Internalization of macromolecules and viruses. Phagocytosis. Receptor-induced endocytosis, exocytosis, transcytosis. The lysosomes.
- * Mitochondria: general characteristics and types.
- * Cyto- and histotechnics I. Nuclear / chromatin staining methods. Light- and electron microscopic enzyme histochemical methods.
- * Cyto- and histotechnics II. Light- and electron microscopic immunocytochemical and – histochemical methods.
- * Scanning electron microscopic techniques (freeze-etching, freeze-fracturing, etc.).

INTRODUCTION TO ANALYTICAL CHEMISTRY

1st semester

LECTURE (1 hr/week)

- * Definition of quantitative and qualitative analysis. Application of analytical chemistry: environment protection, clinical diagnosis, pharmacology, bioanalysis.
- * SI Units, prefixes and base units. Types of concentration of solutions. Methods of analytical error calculation.
- * Inaccuracy of measurement. Sources of inaccuracy. Systematic error. Minimizing systematic error. Reduction of accidental error.
- * Characteristics of analytical methods: accuracy, precision, average, median. Standard deviation. Distribution of the result.
- * Accuracy of measurement. Selectivity. Factors that influence selectivity. Analytical interference. Example. Prediction and avoidance of analytical interference.
- * Sensitivity of analytical methods. Definition. Sensitivity of different analytical methods.
- * Choosing of the appropriate analytical method. Measuring of low concentrations. Steps of quantitative analysis. Sampling.
- * Gravimetry. Definition, steps, example. Advantages and drawbacks of gravimetric analysis.
- * Volumetric analysis (titrimetry). Definition. Possible reactions, examples. Indication of the end-point of titration. Standardized solution.
- * Types of titration. Acid-base titration. Measuring of pH during titration. Titration curve, equivalence point.
- * Titration of weak acids by strong bases. Titration of polyprotic acids. Acid-base indicators. Indicator error.
- * Complexometry. Formation of a complex. Stability of complexes. Metal indicators. Titration curve. Example.
- * Redox titration. Types of redox titration: permanganometry, chromatometry, cerimetry, bromatometry, iodometry. Application.
- * Precipitate formation titrations. Argentometry. Application.

INTRODUCTION TO MEDICAL INFORMATICS

1st semester

LECTURE (1 hr/week)	PRACTICE (2 hrs/week)
Informatics revolutionized medicine and medical research	General information, hardware and software environment of the practice, Coospace
Computer architecture: from personal computers to supercomputers and smart devices	Introduction to spreadsheets using MS Excel (input, validation, references)
Computer software, Operating Systems, viruses	Evaluation of medical data with spreadsheets (calculations, functions, basic statistics)
Medical image processing 1	Evaluation of medical data with spreadsheets (charts, sorting, filtering)
Medical image processing 2	Evaluation of medical data with spreadsheets (large tables, regression, pivot table)
Computer networks	1st practical test
Internet, cloud computing and data security	Creating scientific presentation (PowerPoint, Prezi, Mentimeter)
Data presentation	Medical data on the web. Creating online medical surveys and forms
Telemedicine 1	Documents, formatting large documents (styles, table of contents, figures and captions, list of figures)
Telemedicine 2	Advanced document editing (header, footer, footnote, endnote, cross reference, references)
Medical applications of 3D design and printing	Telemedicine and 3D printing in practice
3D bioprinting	2nd practical test
Medical applications of virtual and augmented reality	Conclusion remarks and discussion of practical marks

Free software

FUNDAMENTALS OF MEDICAL PHYSICS

1st semester

SEMINAR (16 hrs in total)

- The SI unit system
- Mathematical background
- Kinematics
- Dynamics
- Energy, work
- Oscillations
- Waves
- Thermodynamics
- Optics
- Electricity
- Magnetism

INTRODUCTION TO MEDICINE

1st semester

LECTURE (2 hrs/ 7 weeks)

- * Introduction to the course, Survey
- * Modern concept of health and illness; What influences health?
- * Community diagnosis; Epidemiology
- * Prevention, screening; Health promotion, behavioral medicine, stress management
- * History of Medicine I. Earliest medicine, antique times; History of Medicine II. Medicine in middle ages, Renaissance, Enlightenment
- * History of Medicine III. Science and technology in the 19th-20th centuries; Medical Ethics I. Medical profession and the Hippocratic oath
- * Medical Ethics II. Ethics, morality and ethical theories; Medical Ethics III. Basic principles of bioethics

PRACTICE (2 hrs/ 7 weeks)

- * Modern concept of health and illness
- * What influences health?
- * Stress, lifestyle, society and health
- * Medical statistics, community diagnosis, epidemiology
- * Prevention and health promotion
- * Basic principles and practice of medical ethics

INTRODUCTION TO PSYCHOLOGY, COMMUNICATION

2nd semester

LECTURE (1 hr/week)	(PRACTICE (2 hrs/week)
* Scope of psychology. Contemporary themes, perspectives of psychology	Basic elements of communication
* Making sense of the physical environment. Sensation, perception, schemas, top-down processes	Factors which influence the communicational process
* Attention and memory	Non-verbal communication
* The mechanism of human behavior (classical conditioning, and it's practical utility)	Setting the context, reflective listening skills
* The mechanism of human behavior (instrumental, observational, and complex	Situational exercises

learning, and it's practical utility)	
* Motivation (drives, Maslow's hierarchy of needs). Emotions	Situational exercises
* The psychology of social interactions	Consultation
* Attitudes and cognitive dissonance	
* Intelligence	
* The personality. Behaviorist, cognitive approaches	
* The personality. Psychoanalytic, humanistic approaches	

MEDICAL ANTHROPOLOGY

4th semester

PRACTICE (1 hr/week)

- * Introduction to cultural and medical anthropology
- * Cultural anthropology of anatomy and physiology (lay beliefs)
- * Medical anthropology of stress and stress-related disease
- * Medical anthropology of pain and nutrition
- * Medical anthropology of sexuality and gynecology
- * Cultural aspects of health care
- * Medical anthropology of death and dying

MEDICAL SOCIOLOGY

3rd semester

PRACTICE (2 hrs/week)

- * Strategy and research methods of medical sociology.
- * What is sociology? Theories and perspectives in sociology. Role of behavioural sciences and medical sociology in medical education.
- * The medical profession.
- * Socialisation. Professional socialisation.
- * Doctors' and students' health and health behaviour.
- * Health behaviour. Going to the doctor. Medicalisation.
- * Doctor-patient interaction, models of the doctor-patient relationship.
- * Labelling and stigma.
- * Sociology of disability.
- * Deviant behaviours.
- * Stratification and class. Social mobility.
- * Social causes of illness, social patterns of illness.

- * Global inequality. Ethnicity and migration. Poverty and social exclusion and welfare.
- * Family and intimate relationships.

MOLECULAR CYTOLOGY AND HISTOLOGY

1st semester

LECTURE (2 hrs/week)

- * Connective tissue fibers: types, synthesis, occurrence in various organs and in the basement membrane. Staining of connective tissue fibers for routine histology and pathology.
- * Muscle tissue: light- and electron-microscopical properties, and molecular composition. Endocrine function of muscle tissue.
- * Blood - and lymphatic vessels: light- and electron-microscopical properties. Ultrastructure of capillaries in various organs.
- * The kidney, the testis and the ovary: light- and electron-microscopical properties. Development of the ovarian follicles. Ultrastructure of spermatozoon.
- * Formed elements of blood: light- and electron-microscopical properties. Haemopoiesis. Types of lymphocytes. Antigen-presenting cells. Electron-microscopical features of lymphoid organs.
- * The teeth, the major salivary glands and the tongue: functional histology and electron-microscopical features. Innervation of salivary glands.
- * The stomach and the intestines: light- and electron-microscopical properties, and microcirculation. Immune system of the alimentary tract.
- * The liver, the bile system and the pancreas: functional histology and electron-microscopical features. Microcirculation and lymphatics of the liver. Innervation of the liver and the pancreas.
- * The respiratory system: functional histology and electron-microscopical features. The blood-air barrier. Tissue-specific macrophages in the lung. Innervation, blood circulation and lymphatic drainage of the bronchial tree and the pleura.
- * The endocrine system: functional histology and electron-microscopical features. Modulations of the hormone release. Neurosecretion.

MOLECULAR DEVELOPMENTAL BIOLOGY

4th semester

LECTURE (2 hrs/week)

- * The molecular developmental aspect of medical biology
- * General mechanisms of embryonic development
- * The formation of body pattern (polarity, segment polarity, body domains) and appendage development
- * Seminary (lectures 1-3)
- * Cell movement and body formation in vertebrates, neural development
- * The formation of the epiderm and its renewal from stem cells. Sensory epithel, airway system, gut and liver development.
- * Seminary (lectures 5,6)
- * Blood vessels and endothelial cells, multipotent stem cells, blood cell renewal. Fibroblasts and their transformations. The movement and muscle types. The origin and potency of stem cells.
- * Seminary (lecture 8)
- * The cancer as a microevolutionary process.
- * Tumor formation and its molecular background
- * Seminary (lecture 10,11)

- * The molecular biology of nutrition and life span
- * Seminary (lecture 13)

NEUROCYTOLOGY

2nd semester

LECTURE

(2 hrs/week)

- * History: discovery of the neuron and glial cells, neuron theory, the discovery of synapses and synaptic transmission
- * Immunohistochemistry, in situ hybridization: pheno- and genotyping of neurons and glial cells
- * The cytology of glial cells: astrocytes, oligodendrocyte, microglia, ependyma and choroid epithelium, Schwann cells, myelin sheath
- * The morphology of the blood-brain barrier: ultrastructure of cerebral vessels, the regulation of cerebral circulation
- * The structure of the neuron: axontransport, dendrite-transport, neurosecretion and neuroresorption
- * Basic neuropathological processes: chromatolysis, Wallerian degeneration, hypoxia, neuronal damage
- * The ultrastructure and types of synapses: chemical and electric synapses, types of vesicle, transmitters and receptors, the mechanism of the exocytosis of the synaptic vesicles
- * Glutamate as a neurotransmitter: immunocytochemical identification, types of receptors, molecular structure and distribution
- * The cholinergic system: cholinergic nuclei, neurotransmission, receptors, pathology, Alzheimer's disease
- * Neuroimmunology
- * Functional neuroradiology
- * Neurocytology of the peripheral nervous system: distribution and cytochemical anatomy of the nerve and glial cells in the peripheral nervous system

ANIMAL EXPERIMENTS IN MEDICINE

3rd, 4th, 5th, 6th, 7th, 8th, 9th or 10th semester

LECTURE

(2 hrs/week for 11 weeks)

- * Introduction, general information. The theoretical background, history and significance of animal experiments in research. Animal models in biomedical research
- * Ethical aspects and legal regulation of animal experiments
- * Keeping, care, handling and transport of experimental animals. Biology, microbiological quality and diseases of the most frequently used laboratory mammals
- * General and local anesthesia, analgesia. Principles of invasive and surgical interventions, postoperative care. Euthanasia
- * Planning and evaluation of experiments. Processing and analysis of experimental data. Statistical methods. Publication of results. Basic experimental techniques: Methods and animal models of circulation research
- * Methods and animal models of respiration research. Methods and animal models of gastrointestinal research
- * Methods and animal models of microcirculation research
- * Methods and animal models of neurobiological research

- * Research methods of pharmacodynamics. Research methods and animal models of the reproductive system
- * Methods and animal models of dermatological research. Biocompatibility examinations. Alternative methods for the replacement of animal experiments. *In vitro* techniques and models
- * Outbred, inbred and genetically modified animals, cloning. Animal models in immunobiology
- * Written test exam

BODY DEVELOPMENT AND DISEASES - A MOLECULAR BIOLOGICAL BACKGROUND

4th semester

LECTURE (2 hrs/week)

- * The general mechanisms of animal development. Siamese twins, embryo deformities
- * The formation of body pattern (polarity, segment polarity, homeotic genes), organ formation and appendages. Molecular base of appendage abnormalities
- * Cell movements and body formation of vertebrates. The formation of body axis (*situs inversus totalis*).
- * The neural development. The axonal growth cone, formation of the visual and auditory map, formation and processing of the synapse.
- * The formation of the epidermis and its renewal from stem cells. Definition of stem cells, types of stem cells, use for therapies.
- * The sensory epithelial development. Molecular evidence for renewal of connections between olfactory neurons and the bulb. The characteristics of renewal of auditory neurons and retinal neurons.
- * The airways and the gut development. The mucociliary escalator and its connection with *situs inversus*. The renewal of intestine epithelial layer. The connection between the size of the liver and the whole body.
- * Blood vessels and endothelial cells, the molecular drive of angiogenesis, VHL syndrome and hemangioblastoma.
- * Renewal by multipotent stem cells: blood cell formation. Pathological migration of crista neuralis cells.
- * Genesis, modulation and regeneration of skeletal muscle. Muscle size and quality, myopathies with functional defects, secondary muscle defects.
- * Fibroblasts and their transformations: the connective-tissue cell family. Leptins and obesity, bone abnormalities, achondroplasia.
- * Stem-cell origin and engineering, the main questions of stem cell therapy, the special renewal of the heart and brain.
- * Cancer as a micro evolutionary process, features making cancer diagnosis problematic.
- * The molecular base of cancer formation, the character of tumour cell formation, the definition of tumour, the contradictory nature of tumour stem cell.
- * Nutrition and life span, the rules of proper nutrition, the likely genetic background of metabolic syndrome, genes influencing life span.

MATHEMATICAL AND STATISTICAL MODELLING IN MEDICINE

4th semester

LECTURE (1 hr/week)	PRACTICE (1 hr/week)
* Elementary mathematical functions (The logarithm and exponential functions). Definitions and graphs. Geometric meaning of the derivative and definite integral.	Elementary mathematical functions (The logarithm and exponential functions). Definitions and graphs. Geometric meaning of the derivative and definite integral.
* Discrete (Poisson-) and continuous (exponential, Weibull-, normal and t-) distributions	Discrete (Poisson-) and continuous (exponential, Weibull-, normal and t-) distributions
* Ratios, proportions and rates in epidemiology	Ratios, proportions and rates in epidemiology
* Conditional probability, testing proportions: the relative difference	Conditional probability, testing proportions: the relative difference
* One- and Two-way ANOVA	One- and Two-way ANOVA
* Repeated measurement ANOVA	Repeated measurement ANOVA
* Nonparametric ANOVA. Kruskal-Wallis, Jonckheere-Terpstra and Nemenyi tests	Nonparametric ANOVA. Kruskal-Wallis, Jonckheere-Terpstra and Nemenyi tests
* Linear-by-linear method. Kendall tau statistic. Logrank test	Linear-by-linear method. Kendall tau statistic. Logrank test
* Logistic and Poisson regression models (ROC curves)	Logistic and Poisson regression models (ROC curves)
* Harmonic trend and seasonality (Edward and Walter-Elwood test, logistic regression and Cosinor method)	Harmonic trend and seasonality (Edward and Walter-Elwood test, logistic regression and Cosinor method)
* Area under curve methods	Area under curve methods
* Non-linear regression models (Michaelis-Menten kinetics, RIA, Scatchard plots)	Non-linear regression models (Michaelis-Menten kinetics, RIA, Scatchard plots)
* Internal and external quality control methods	Internal and external quality control methods
* Decision and cost-effectiveness analysis with probabilities.	Exam

MOLECULAR MEDICINE

5th semester

LECTURE (2 hr/week)
* Molecular genetic and cell biology methods in diagnosis and therapy.
* Diagnostic methods based on immunological techniques (RIA, ELISA, Western blot analysis, immunocytology, cytotoxicity tests, etc.).
* Diagnostic methods based on nucleic acid hybridization (Northern and Southern analysis, in situ hybridization, DNA chip technology, etc.).
* Diagnostic methods based on specific endonuclease activity (fragment length polymorphism, pedigree analysis, etc.).
* Gene sequencing and analysis, genomic and proteomic techniques. Cell and tissue culture methods.
* Antisense pharmacology. RNA interference/silencing. Small interfering RNAs. Molecular chaperons.
* Gene therapy, viral vectors, DNA-liposome complexes.

- * Molecular markers in human disorders. Biomarkers for neurological and psychiatric disorders.
- * Molecular interactions between pathogens and host.
- * Stem cell therapy. Embryonal and adult stem cells. Induced pluripotent stem cells. Neuronal stem cells.
- * In vitro differentiation of stem cells to the desired phenotype. Transfection of stem cells.
- * Regulation of cell cycle and cell differentiation. Regulation of transcriptional and translational control of gene expression.
- * Telomerase-directed molecular therapy.
- * Immunotherapy. Antitumour immune responses.
- * Bioinformatic and computer-assisted methods in diagnosis and therapy: functional genomics and proteomics.

IMMUNOLOGY I.

4th semester

LECTURE (2hrs/week)

- * 1. week - Introduction to immunology. Basic principles.
- * 2. week - Innate immunity.
- * 3. week - Structure and activation of the complement system.
- * 4. week II. - Ontogeny of B cells. Antigen recognition.
- * 5. week - B cell activation. Humoral immune response.
- * 6. week - Ontogeny of T cells. Antigen recognition.
- * 7. week - Major histocompatibility complex (MHC).
- * 8. week - Antigen processing.
- * 9. week - Hypersensitivity reactions.
- * 10. week - Cytokines I.
- * 11. week - Cytokines II. Adhesion molecules.
- * 12. week - Tolerance, autoimmunity.
- * 13. week - Transplantation immunity.
- * 14. week - Tumourimmunity.

MICROBIOLOGY I.

5th semester

LECTURE (1 hrs/week)	LECTURE (2 hrs/week)	PRACTICAL
1. Introduction to microbiology. Characterization and classification of bacteria.	Structure of bacteria. Growth and nutrition of bacteria.	Introduction to microbiology. Laboratory safety. Aseptic techniques. Wet-mount preparation.
2. <i>Staphylococcus aureus</i>	Microbial genetics.	Preparation of bacterial smear. Simple and Gram staining.
3. Shigella, Proteus	<i>Neisseria</i> genus, Coagulase negative staphylococci	Ziehl-Neelsen, Schaffer-Fulton and Neisser staining.
4. Human pathogenic salmonellae	<i>Streptococcus</i> genus	Culture media.

5. <i>E. coli</i> , <i>Klebsiella</i> genus	<i>Vibrio cholerae</i> , <i>Campylobacter</i> , <i>Helicobacter</i>	Preparation of blood agar. Colony morphology. Handling bacterial cultures (inoculation and plating). Methods for counting bacteria.
6. <i>Brucella</i> , <i>Francisella</i>	<i>Listeria</i> , <i>Yersinia</i>	Biochemical diagnostic tests. Anaerobic cultivation
7. <i>Burkholderia</i> , <i>Pseudomonas</i>	<i>Chlamydia</i> , <i>Mycoplasma</i>	<i>Staphylococcus</i> , <i>Streptococcus</i> AST
8. <i>Corynebacterium</i>	<i>Bordetella</i> , <i>Haemophilus</i> , <i>Nocardia</i>	<i>Neisseria</i> , <i>E. coli</i> , <i>Klebsiella</i>
9. <i>Bacillus</i> , <i>Legionella</i>	<i>Treponema</i> , <i>Leptospira</i> , <i>Borrelia</i>	<i>Yersinia</i> , <i>Salmonella</i> , <i>Shigella</i> , <i>Proteus</i>
10. Anaerobic bacteria I.	Anaerobic bacteria II.	<i>Pseudomonas</i> , <i>Campylobacter</i> , <i>Helicobacter</i>
11. <i>Mycobacterium</i> , <i>Nocardia</i>	<i>Rickettsia</i> , <i>Coxiella</i> , <i>Bartonella</i>	<i>Mycobacterium</i> , <i>Haemophilus</i> , <i>Bacillus</i>
12. Antimicrobial chemotherapy I.	Antimicrobial chemotherapy II.	Antimicrobial susceptibility testing
13. HACEK	Pathogenesis of bacterial infection	<i>Corynebacterium</i> , <i>Bordetella</i> , <i>Listeria</i>

CLINICAL DIAGNOSTICS I. – INTERNAL MEDICINE

5th semester

LECTURE Basics of Haematology (2 hrs/week)	PRACTICE (2 hrs/week)
* Case history, documentation	General introduction and guide to the practicals in internal medicine
* Fever, pulse, blood pressure	Documentation, taking history
* Inspection, palpation	Elements of physical examination: practical aspects of inspection, palpation
* Physical examination of the chest and the lungs	Elements of physical examination: practical aspects of percussio and auscultation
* Heart sounds, murmurs, physical findings in heart diseases	Elements of physical examination: feeling pulse, checking blood pressure, taking temperature
* Electrocardiography	Listening to the heart and chest
* Imaging techniques in cardiology	Basic aspects of electrocardiography. Developing skills in PE
* Clinical presentation of left and right ventricular failure	Practical electrocardiography. Developing skills in PE
* Physical signs of endocrine disorders	Practical electrocardiography. Developing skills in PE
* Physical examination of the abdomen and abdominal sonography	Practical echocardiography. Developing skills in PE

* Physical examination of the musculoskeletal system	Practical echocardiography. Developing skills in PE
* Physical and laboratory investigation in clinical haematology	Abdominal sonography
* Physical examination in neurology	Physical examination in neurology. Developing skills in PE
* Consultation	Consultation

CLINICAL DIAGNOSTICS II. – SURGERY

6th semester

LECTURE	PRACTICE/SEMINAR
* The origins and development of surgery	Demonstration and investigation of surgical patients
* Observation and documentation of surgical patients	"
* The shock. Basic mechanism and clinical profile	"
* The circulatory shock	"
* The basis of fluid and electrolyte therapy in surgical patients	"
* Blood transfusion	"
* Bleeding and haemostasis	"
* The significance and role of asepsis and antisepsis in the practice of surgery	"
* Surgical infections. Modern antibiotic treatment	"
* Types of wounds and the basic principles of wound healing	"
* Perioperative complications	"
* Parenteral feeding	"
* Surgical oncology	"
* The possibilities and practice of organ transplantation	"
* Video demonstration of surgical procedures	"
* Test	

ETHICS IN MEDICINE

6th semester

LECTURE (1 hr/week)	PRACTICE (2 hrs/week)
* Introduction: Basic Moral Concepts	Ethical theories; Ethical principles of health care ethics
* Neuroethics and neuroenhancement	Informed consent
* Basic Ethical Theories, Principles of Bioethics	Moral status of fetuses; Ethical issues of human reproduction
* Informed Consent	Ethical problems of medical genetics
* Moral dilemmas in reproductive medicine.	Ethical issues of organ transplantation and

Family planning	brain death
* Reproductive medicine (cont.)	End-of-life decisions
* Ethical aspects of medical genetics	
* Ethics of organ transplantation	
* Euthanasia – a non-medical approach	
* AIDS	
* Cloning	
* Research on human subjects. Patients' rights and health care system	

INTERNAL MEDICINE I.

6th semester

LECTURE (4 hrs/week)	PRACTICE (2 hrs/week)
* Gastroesophageal Reflux Disease (GERD) Diagnostic endoscopy	Problem oriented evaluation of the symptoms of patients with esophageal disorders
* Extraesophageal manifestations of GERD, esophageal motility disorders Barrett's oesophagus, esophageal malignancies	Practical aspects of the functional evaluation of patients with esophageal disorders (esophageal manometry, 24 h pH-metry, evaluation of the biliary reflux)
* Gastroduodenal ulcer disease (H.pylori, NSAID) Gastric malignancies	Upper gastrointestinal endoscopy
* Functional Dyspepsia (EPS, PDS) Irritable Bowel Syndrome (IBS)	Symptomatic evaluation of the liver patient. Problem oriented laboratory investigation of the liver patient.
* Chronic hepatitis Endosonography	Symptoms of biliary obstruction, investigative methods for patients with biliary obstruction (symptoms, biochemistry, ultrasonography, ERCP)
* Cirrhosis of the liver Diseases of the gallbladder and the biliary tract	Symptoms of patients with acute pancreatitis Diagnostic work up of patients with acute pancreatitis
* Tumors of the liver and other liver diseases Acute pancreatitis	Diagnostic work up of patients with chronic pancreatitis and pancreatic cancer
* Chronic pancreatitis, maldigestion Pancreatic cancer	Diagnostic work up of patients with CU and Crohn's disease.
* Crohn's disease Ulcerative colitis	Early identification of patients with colorectal cancer. Diagnostic methods.
* Malabsorption syndrome Gastrointestinal bleeding	Symptoms of malabsorption, maldigestion, Diagnostic workup: Hydrogen, c13 urea and starch breath tests
* Nutritional support Tumors of the large intestine	Practical aspects of the diagnosis and therapy of patients with diabetes mellitus; the patient education.
* Chronic constipation Colonic diverticular disease, Anorectal Hyperuricemia, gout	Practical aspects of insulin therapy. Treatment of dyslipoproteinemias
* Therapeutic endoscopy Gastrointestinal manifestations of systemic diseases	Physical examination of patients with rheumatoid diseases

* Translational pancreatology

Consultation

MEDICAL PSYCHOLOGY I.**6th semester**

LECTURE (1 hr/week)	PRACTICE (1 hr/week)
1. Introduction: Medical psychology and border areas. Communication I. - CLASS	Introduction, bio-psycho-social model
2. Suggestive communication	Active listening skills
3. Factors of nonadaptive behavior	Motivational interview (developing discrepancy)
4. Health promotion	Motivation interview
5. Health and illness related beliefs	Prevention and management of burnout
6. The psychological process of becoming ill	Summary
7. Health protective behavior	
8. Symptoms and illness – Perception (pain, placebo)	
9. Adherence in the patient–physician relationship	
10. Stress and Health	
11. The prevention and management of burnout among health professionals	
12. Chronic illness, death, dying	
13. The role of personality in the changes of health status	

MICROBIOLOGY II.**6th semester**

LECTURE (1 hrs/week)	LECTURE (2 hrs/week)	PRACTICAL
1. General characteristics of viruses, viral replication, antiviral therapy	Structure of viruses and classification	Laboratory safety. Methods of sterilization. Sterility testing.
2. Herpesviridae I	Herpesviridae II	Differential diagnosis of bacteria
3. Arenaviridae, Filoviridae	Orthomyxoviridae, Paramyxoviridae	Serological reactions I. (Precipitation, CFT)
4. Parvoviridae, Bunyaviridae	Papilloma and polyoma viruses	Serological reactions II. Agglutination. Laboratory methods for

		detection of cellular immunity.
5. Poxviridae, Rhabdoviridae	Togaviridae, adenoviridae	Clinical Microbiology
6. Retroviridae I	HIV	Virology I. Cultivation of viruses. Signs of viral replication.
7. Retroviridae II	Slow" viruses.	Virology II. Quantitation of viruses
8. Flaviviridae	Hepatitis viruses	-
9. Picornaviridae	Oncoviruses	Virology III. Virus serology (HAG, ELISA, IF) Neutralization test
10. Reoviridae, Astroviridae, Coronaviridae	Immune response against pathogens.	Bacteriophages
11. Human pathogenic fungi I.	Human pathogenic fungi II.	Molecular methods in the diagnosis of infectious diseases.
12. Human pathogenic protozoa I.	Human pathogenic protozoa II.	Mycology
13. Human pathogenic helminths I.	Human pathogenic helminths II.	Parasitology
14. Immunization I.	Immunization II.	

PATHOLOGY

5th semester

LECTURE (3 hrs/week)	SEMINAR (1 hour/week)	PRACTICE (2 hrs/week)
* Role of pathology in medicine. Nomenclature. Reversible and irreversible cellular injury. Adaptations. Pathological accumulation of lipids, carbohydrates and proteins. Storage diseases. Pigments.	Cellular injury and death. Cellular adaptations of growth and differentiation. Oedema, hyperaemia, congestion. Haemorrhage.	Histopathology of cellular injury and death/Autopsy
* Amyloidosis. Calcification. Oedema, hyperaemia, congestion. Haemorrhage. Thrombosis. Embolism. Shock. Disseminated intravascular coagulation.	Thrombosis. Embolism. Shock. Consequences of vascular occlusion. Infarction.	Autopsy/Histopathology of cellular injury and death/
* Pathology of inflammation I. Pathology of inflammation II.	Pathology of inflammation	Histopathology of degeneration/Autopsy
* Pathology of inflammation III. Pathology of inflammation IV. Tissue repair. Wound healing.	Pathology of inflammation	Autopsy/Histopathology of vncrosis
* Immunopathology I. Immunopathology II.	Immunopathology	Histopathology of necrosis/Autopsy
* Immunopathology III. Pathology of transplant rejection. Neoplasia I.	Immunopathology	Autopsy/Histopathology of circulation disorders

* Neoplasia II. Neoplasia III.	Neoplasia.	Autopsy/ Histopathology of circulation disorders/Autopsy
* Diseases of the blood vessels I.	Carcinogenesis.	Autopsy/Histopathology of inflammation
* Diseases of the blood vessels II. Diseases of the heart I.	Diseases of the blood vessels & heart	Autopsy/ Histopathology of inflammation
* Diseases of the heart II. Essential hypertension. Nephropathology I.	Diseases of the heart	Autopsy/Oncohistopathology
* Nephropathology II. Nephropathology III.	Nephropathology	Autopsy/Oncohistopathology
* Nephropathology IV. Diseases of the lung I.	Nephropathology	Autopsy/vascular pathology
* Diseases of the lung. II. Diseases of the lung III.	Diseases of the lung	Autopsy/Vascular pathology
* Pathology of bed rest. Pathology of alcohol abuse. Pathology of smoking. Pathology of aging. Nutritional and metabolic diseases.	Pathology of alcohol abuse. Pathology of smoking. Diabetes. Pathology of obesity.	Revision/Autopsy

6th semester

LECTURE (2 hrs/week)	SEMINAR (1 hr/week)	PRACTICE (3 hrs/week)
* Neuropathology I.	Neuropathology	Histopathology of the kidney /Autopsy
* Neuropathology II.		Histopathology of the kidney Nephropathology/Autopsy
* Neuropathology III.	Neuropathology	Histopathology of the nervous system Endocrine /Autopsy
* Neuromuscular pathology. Ophtalmic pathology	Neuromuscular and ophtalmic pathology	Histopathology of the nervous system /Autopsy
* Endocrine pathology	Endocrine pathology	Respiratory histopathology Endocrine histopathology/ Autopsy
* Gastrointestinal pathology.	Gastrointestinal pathology.	Histopathology of the gastrointestinal tract/Autopsy
* Pathology of the liver and pancreaticobiliary system	Pathology of the liver. Pathology of the biliary tract and pancreas.	Histopathology of the liver and pancreas /Autopsy
* Haematopathology I.	Haematopathology	Endocrine histopathology/Autopsy Histopathology of the breast/Autopsy

* Haematopathology II.	Haematopathology	Histopathology of haematological disordersemato
* Pathology of female genital system I. Breast pathology.	Pathology of female genital system	Histopathology of the female genital tract /Autopsy
* Pathology of female genital system II. Paediatric pathology	Pathology of female genital system. Breast pathology.	Histopathology of the breast /Autopsy
* Bladder and urinary tract pathology	Bladder and urinary tract pathology	Histopathology of urinary tract and male genitalia /Autopsy
* Pathology of male genital system.	Pathology of male genital system.	Revision/Autopsy
* Soft tissue and bone pathology	Pathology of soft tissue tumours. Pathology of the bones and joints.	Revision/Autopsy

PATHOPHYSIOLOGY

5th semester

LECTURE (3 hrs/week)	PRACTICE/SEMINAR (2 hrs/week)
* Inflammation I.: Basic concepts of inflammation, inflammatory mediators and types of inflammation. <i>Lecturer: Zoltán Rakonczay, Substitute lecturer: Zsolt Bagosi</i>	Safety regulations. Physiology of heart and circulation. Basic concepts of ECG. In the practice room: Registration and analysis of ECG.
* Inflammation II.: Pathomechanism of acute and chronic inflammation, local and systemic symptoms/signs of inflammation, basic concepts of pain. <i>Lecturer: Zoltán Rakonczay, Substitute lecturer: Zsolt Bagosi</i>	Classroom switched between groups! Inflammation I.: Basic concepts of inflammation, inflammatory mediators and types of inflammation. ECG: Premature beats
* Disturbances of immune system I.: Hypersensitivity reactions and autoimmune diseases. <i>Lecturer: Zsófia Mezei, Substitute lecturer: Júlia Szakács</i>	Inflammation II.: Pathomechanism of acute and chronic inflammation, local and systemic symptoms/signs of inflammation, basic concepts of pain. ECG: AV blocks
* Disturbances of immune system II.: Primary and secondary immunodeficiencies. <i>Lecturer: Zsófia Mezei, Substitute lecturer: Júlia Szakács</i>	Disturbances of immune system I.: Hypersensitivity reactions and autoimmune diseases. ECG: BBB
* Nutritional Diseases: Malnutrition syndromes, starvation, vitamin deficiency, obesity. <i>Lecturer: Krisztina Csabafi, Substitute lecturer: Miklós Jászberényi</i>	Disturbances of immune system II.: Primary and secondary immunodeficiencies. ECG: WPW
* Diabetes mellitus, metabolic syndrome, hypoglycemia: Pathophysiology of diabetes mellitus, prediabetes, concept of insulin resistance and metabolic syndrome, hypoglycemia. <i>Lecturer: Krisztina Csabafi, Substitute lecturer: Miklós Jászberényi</i>	Nutritional Diseases: Malnutrition syndromes, starvation, vitamin deficiency, obesity. ECG: supraventricular tachycardias

* Hyperlipidemias, atherosclerosis: Primary and secondary hyperlipidemias, pathophysiology of atherosclerosis. <i>Lecturer: Zsolt Bagosi, Substitute lecturer: Zoltán Rakonczay</i>	Diabetes mellitus, metabolic syndrome, hypoglycemia: Pathophysiology of diabetes mellitus, prediabetes, concept of insulin resistance and metabolic syndrome, hypoglycemia. ECG: ventricular tachycardias
* Cardiovascular system I.: Angina pectoris, acute coronary syndrome, myocardial infarction, chronic heart diseases. <i>Lecturer: Júlia Szakács, Substitute lecturer: Zsófia Mezei</i>	Hyperlipidemias, atherosclerosis: Primary and secondary hyperlipidemias, pathophysiology of atherosclerosis. ECG: MI
* Cardiovascular system II.: Congenital and acquired heart defects, pathophysiology of compensated and decompensated heart failure. <i>Lecturer: Zsolt Bagosi, Substitute lecturer: Zoltán Rakonczay</i>	Cardiovascular system I.: Angina pectoris, acute coronary syndrome, myocardial infarction, chronic heart diseases. ECG: hypertrophy
* Disturbances of peripheral circulation I.: Volume depletion (hypovolemia, hypotension), syncope, circulatory shock. <i>Lecturer: Júlia Szakács, Substitute lecturer: Zsófia Mezei</i>	Cardiovascular system II.: Congenital and acquired heart defects, pathophysiology of compensated and decompensated heart failure. ECG: calcium, potassium
* Disturbances of peripheral circulation II.: Volume expansion (hypervolemia), primary and secondary hypertension. <i>Lecturer: Zsolt Bagosi, Substitute lecturer: Zoltán Rakonczay</i>	Disturbances of peripheral circulation I.: Volume depletion (hypovolemia, hypotension), syncope, circulatory shock. ECG: review
* Kidney diseases I.: Disturbances of glomerular and tubular functions, nephrolithiasis. <i>Lecturer: Krisztina Csabafi, Substitute lecturer: Miklós Jászberényi</i>	Disturbances of peripheral circulation II.: Volume expansion (hypervolemia), primary and secondary hypertension.
* Kidney diseases II.: Acute and chronic renal failure. <i>Lecturer: Krisztina Csabafi, Substitute lecturer: Miklós Jászberényi</i>	Kidney diseases I.: Urinalysis and kidney functional tests, glomerular and tubulointerstitial diseases, nephrolithiasis.
* Electrolyte disturbances: Salt-water balance disorders, pathophysiology of potassium, calcium, phosphate, iron, and copper. <i>Lecturer: Miklós Jászberényi, Substitute lecturer: Krisztina Csabafi</i>	Kidney diseases II.: Acute kidney injury and chronic kidney disease failure Electrolyte disturbances: Salt-water balance disorders, pathophysiology of potassium, calcium, phosphate, iron, and copper.

6th semester

LECTURE (3 hrs/week)	PRACTICE/SEMINAR (2 hrs/week)
* Pulmonary diseases I: Dyspneas, general characterization of obstructive and restrictive pulmonary diseases, asthma bronchiale, COPD, cystic fibrosis. <i>Lecturer: Zsolt Bagosi, Substitute lecturer: Zoltán Rakonczay</i>	Safety regulations. Electrolyte disturbances: Salt-water balance disorders, pathophysiology of potassium, calcium, phosphate, iron, and copper.

<p>* Pulmonary diseases II: Restrictive pulmonary diseases: chest wall and pleura disorders, pulmonary edema, pulmonary hypertension, embolism, hypoxia, respiratory failure. <i>Lecturer: Zsolt Bagosi, Substitute lecturer: Zoltán Rakonczay</i></p>	<p>Pulmonary diseases I: Dyspneas, general characterization of obstructive and restrictive pulmonary diseases, asthma bronchiale, COPD, cystic fibrosis.</p>
<p>* Disturbances of acid-base metabolism: Respiratory acidosis and alkalosis, metabolic acidosis and alkalosis. <i>Lecturer: Krisztina Csabafi, Substitute lecturer: Miklós Jászberényi</i></p>	<p>Pulmonary diseases II: Restrictive pulmonary diseases: chest wall and pleura disorders, pulmonary edema, pulmonary hypertension, pulmonary embolism, hypoxia, respiratory failure.</p>
<p>* CNS disorders I.: Multiple sclerosis, neurodegenerative diseases: Alzheimer's, Parkinson's and Huntington's disease, motoneuron diseases, myasthenia gravis. <i>Lecturer: Miklós Jászberényi, Substitute lecturer: Krisztina Csabafi</i></p>	<p>Disturbances of acid-base metabolism: Respiratory acidosis and alkalosis, metabolic acidosis and alkalosis.</p>
<p>* CNS disorders II.: Circulatory diseases of the CNS, cerebral edema, headache, epilepsy. <i>Lecturer: Miklós Jászberényi, Substitute lecturer: Krisztina Csabafi</i></p>	<p>CNS disorders I.: Multiple sclerosis, neurodegenerative diseases: Alzheimer's, Parkinson's and Huntington's disease, motoneuron diseases, myasthenia gravis.</p>
<p>* Endocrinology I: Diseases of hypothalamus, pituitary and thyroid glands. <i>Lecturer: Miklós Jászberényi, Substitute lecturer: Krisztina Csabafi</i></p>	<p>CNS disorders II.: Circulatory diseases of the CNS, cerebral edema, headache, epilepsy.</p>
<p>* Endocrinology II: Diseases of parathyroid glands, adrenal gland (cortex and medulla), disturbances of male and female reproductive system. <i>Lecturer: Miklós Jászberényi, Substitute lecturer: Krisztina Csabafi</i></p>	<p>Endocrinology I: Diseases of hypothalamus, pituitary and thyroid glands.</p>
<p>* Gastrointestinal diseases I.: Nausea, vomiting, dysphagia, GERD, abnormalities of gastric juice secretion, peptic ulcer, acute and chronic pancreatitis. <i>Lecturer: Zoltán Rakonczay, Substitute lecturer: Zsolt Bagosi</i></p>	<p>Endocrinology II: Diseases of parathyroid glands, adrenal (cortex and medulla) gland, disturbances of male and female reproductive system.</p>
<p>* Gastrointestinal diseases II.: Diseases of absorption, diarrhea, constipation: Irritable bowel syndrome, intestinal obstruction. <i>Lecturer: Zoltán Rakonczay, Substitute lecturer: Zsolt Bagosi</i></p>	<p>Gastrointestinal diseases I.: Nausea, vomiting, dysphagia, GERD, abnormalities of gastric juice secretion, peptic ulcer, acute and chronic pancreatitis.</p>
<p>* Diseases of liver and biliary tract: Liver dysfunction, diseases of bilirubin metabolism: jaundice, hepatic cirrhosis, liver failure, alcoholic, immune and genetic liver diseases, cholelithiasis. <i>Lecturer: Zoltán Rakonczay, Substitute lecturer: Zsófia Mezei</i></p>	<p>Gastrointestinal diseases II.: Diseases of absorption, diarrhea, constipation: Irritable bowel syndrome, intestinal obstruction.</p>

* SPRING BREAK	SPRING BREAK
<p>* Pathophysiology of leukocytes II.: Leucopenia, proliferative diseases: reactive and malignant diseases (leukemias, lymphomas), qualitative disturbances of leukocytes. <i>Lecturer: Zsófia Mezei, Substitute lecturer: Júlia Szakács</i></p>	<p>Diseases of liver and biliary tract: Liver dysfunction, diseases of bilirubin metabolism: jaundice, hepatic cirrhosis, liver failure, alcoholic, immune and genetic liver diseases, cholelithiasis.</p>
<p>* Red blood cell disorders: Anemias - ineffective erythropoiesis, blood loss, hemolysis. <i>Lecturer: Zsófia Mezei, Substitute lecturer: Júlia Szakács</i></p>	<p>Pathophysiology of leukocytes II.: Leucopenia, proliferative diseases: reactive and malignant diseases (leukemias, lymphomas), qualitative disturbances of leukocytes. Review of ECG analysis</p>
<p>* Hemostasis: Bleeding disorders (platelet, vascular, clotting factor disturbances), thrombosis and embolism. <i>Lecturer: Zsófia Mezei, Substitute lecturer: Júlia Szakács</i></p>	<p>Red blood cell disorders: Anemias - ineffective erythropoiesis, blood loss, hemolysis.</p>
<p>* Thermoregulation: Definition, causes, progression and complications of hypo- and hyperthermia. <i>Lecturer: Júlia Szakács, Substitute lecturer: Zsófia Mezei</i></p>	<p>Hemostasis: Bleeding disorders (platelet, vascular, clotting factor disturbances), thrombosis and embolism.</p>

ADVANCED SURGICAL SKILLS

5th, 6th, 7th, 8th, 9th or 10th semester

LECTURE (2 hrs/week)	PRACTICE (4 hrs/gr./every 2nd week)
* Laparotomy I. Abdominal pain. History of abdominal surgery. Technical background and basic principles of abdominal incisions. Anatomy, vessels and nerves of the abdominal wall. Factors affecting wound healing. Prevention of wound complications. Surgical intervention: anesthesia, positioning, skin preparation, draping, incisions, supplies	Scrubbing. Basic knotting and suturing techniques. (2 hours) (Surgical theatre, computer room)
* Laparotomy II. Abdominal incisions. Major types, characteristics, advantages, disadvantages. Wound dehiscence (characteristics, types, repair). Basic gastrointestinal operations. Appendectomy (history, anatomy). Open appendectomy. Laparoscopic appendectomy.	Advanced suturing techniques. Wound closure techniques with multiple layers. Enterotomy. Intestinal anastomosis. (2 hours) (Surgical theatre)
* Advances suturing methods. Anastomoses (types, factors influencing healing). Anastomosis techniques. Intestinal anastomoses. Indications, principles and steps of bowel resection and anastomosis. Mechanical anastomosis – staplers. Postoperative care. Coniotomy. Tacheostomy.	The Minor Skin Procedures computer program. Local anesthesia. Ellipse excision of skin. Removal of encapsulated structures (cysts, tumors). Incision of abscesses. Minimally invasive surgery. (4 hours) (Surgical theatre, computer room)
* Surgical hemostasis. Basics of vascular surgery. Fast tract surgery. Itraoperative endoscopy.	
* Minimally invasive surgery I. Technical background. Equipments and instruments. Robotic and fetoscopic surgery	Advanced forms of surgical hemostasis and suturing techniques on a large animal model. Tracheostomy. Laparotomy. (4 hours) (Surgical theatre)

- * Minimally invasive surgery II. Pneumoperitoneum (pathophysiology, complications, diagnosis, treatment). Gastro-enteroanastomoses. Laparoscopic surgery. Laparoscopic cholecystectomy

BASICS OF EMERGENCY MEDICINE

5th semester

LECTURE (2 hrs/week)	PRACTICE (4 hrs/gr./every 2nd week)
* Bioinstrumentation. Bioengineering. Medical devices (risk classes, therapeutic and monitoring devices). Basic metrology. Types, categories and definitions of measurements. Monitoring (guidelines, monitor categories). Non-invasive cardiovascular monitoring. Clinical observations. Pulse examination, indirect blood pressure measurement, pulse pressure, electrocardiography, pulse-oximetry. The Doppler-technique: flowmetry, echocardiography	<p> Injections. Puncture and cannulation of veins (braunule). Taking blood samples. Venous cut-down <i>ex vivo</i>. The Seldinger technique. Practising on phantoms and a Virtual Reality simulator (Cathsim). Fluid therapy in practice. Infusions, infusion pumps </p>
* Invasive cardiovascular monitoring. Direct (invasive) blood pressure measurements: arterial pressure, central venous pressure, pulmonary artery pressure (sites for cannulation, Seldinger technique, Swan-Ganz catheter, methods, equipment, indications, complications). Blood flow, cardiac output measurements. Oxygen delivery, saturation and consumption measurement (central and mixed venous O ₂). Heart contractility	<p> Injections. Puncture and cannulation of veins (braunule). Taking blood samples. Venous cut-down <i>ex vivo</i>. The Seldinger technique. Practising on phantoms and a Virtual Reality simulator (Cathsim). Fluid therapy in practice. Infusions, infusion pumps </p>
* Monitoring of respiration and gas exchange. Clinical respiratory patterns. Spirometry. Airway gas (CO ₂) monitoring (capnography, capnometry). Air embolism, pulmonary embolism (diagnosis, prevention, treatment)	<p> Invasive cardiovascular monitoring. Securing of central vein (dissection of veins, introduction of central venous catheter using the Seldinger technique). Measurement of central venous pressure. Dissection of arteries, direct measurement of arterial pressure. Determination of cardiac output using the transpulmonary thermodilution method. Arterial blood flow measurements. Monitoring of pulmonary circulation. Introduction of Swan-Ganz catheter into the pulmonary artery, pressure measurements. Thermodilution cardiac output measurement with the aid of Swan-Ganz catheter </p>

<p>* Monitoring of oxygenation and hypoxia. Inadequate external respiration, O₂ transport, internal respiration. Hypoxemia, tissue hypoxia, subcellular hypoxia (etiology, pathophysiology, clinical signs and symptoms). Tissue oxygenation and wound healing. Clinical assessment of tissue hypoxia. Diagnostic assessment of oxygen delivery, extraction, requirement and consumption. Monitors of hypoperfusion-associated hypoxia and tissue oxygenation (tissue oxymeter, Clark electrode, near infrared spectroscopy); organ perfusion (macrocirculation: angiography and flowmetry; microcirculation: intravital microscopy, orthogonal polarization spectral imaging) and mucosal pCO₂ (clinical tonometry). Blood acid-base status, blood gas analysis. Extracorporeal membrane oxygenation</p>	<p>Invasive cardiovascular monitoring. Securing of central vein (dissection of veins, introduction of central venous catheter using the Seldinger technique). Measurement of central venous pressure. Dissection of arteries, direct measurement of arterial pressure. Determination of cardiac output using the transpulmonary thermodilution method. Arterial blood flow measurements. Monitoring of pulmonary circulation. Introduction of Swan-Ganz catheter into the pulmonary artery, pressure measurements. Thermodilution cardiac output measurement with the aid of Swan-Ganz catheter</p>
<p>* Monitoring of urinary system. Catheters. Analysis of urine. Blood laboratory parameters indicating renal function. Imaging techniques. Urinary bladder pressure. Monitoring of central nervous system. Measurement of intracranial pressure (ICP), cerebral blood flow and cerebral perfusion pressure. Increased ICP (etiology, pathology, diagnosis, treatment). Monitoring of temperature (sites, methods). Hyperthermia, hypothermia (pathophysiology, clinical signs, treatment)</p>	<p>Complex monitoring. Monitoring of respiratory system. Endotracheal intubation; monitoring of respiratory rate, rhythm and airway gases (capnography, capnometry). Pulse oxymetry. Blood gas analysis. Mechanical ventilation. Monitoring of gastrointestinal tract. Indirect (gastric, intestinal and sublingual) tonometry. Monitoring of microcirculation (intravital videomicroscopy, orthogonal polarization spectral imaging). Monitoring of urinary system. Catheterization of the urinary bladder (male, female)</p>
<p>* Monitoring of gastrointestinal tract. Measurement of intrabdominal pressure (direct, indirect methods; intravesical pressure), abdominal compartment syndrome (etiology, pathophysiology). Monitoring of nutrition (anamnesis, clinical assessment, anthropometry, laboratory analysis, calorimetry). Feeding (indications, nutrients). Enteral feeding. Gastric intubation, nasogastric and orogastric tubes (types, indications, contraindications, tube insertion). Gastrostomy, jejunostomy. Feeding formulas, methods, complications. Parenteral feeding. Indications, nutrient solutions, complications (postaggression syndromes). Enemas, laxation</p>	<p>Complex monitoring. Monitoring of respiratory system. Endotracheal intubation; monitoring of respiratory rate, rhythm and airway gases (capnography, capnometry). Pulse oxymetry. Blood gas analysis. Mechanical ventilation. Monitoring of gastrointestinal tract. Indirect (gastric, intestinal and sublingual) tonometry. Monitoring of microcirculation (intravital videomicroscopy, orthogonal polarization spectral imaging). Monitoring of urinary system. Catheterization of the urinary bladder (male, female)</p>
<p>* Written test exam</p>	<p>Practical exam</p>

MICROSURGERY

5th, 6th, 7th, 8th, 9th or 10th semester

LECTURE (TOTAL: 8 hrs)	PRACTICE (TOTAL: 20 hrs)
* General information. introduction to microsurgery (1 hrs)	Appropriate posture at the operating microscope and the adjustment of the microscope. Movement coordination of the hands: interlacing threads under microscope (1 hr)
* Indications of microsurgery. Clinical applications of microsurgery I. (2 hours)	Tying basic microsurgical knots under macroscopic and microscopic conditions (2 hrs)
* Clinical applications of microsurgery (2 hrs)	Stitching and tying knots with microsurgical instruments on rubber gloves (3 and 2 hrs)
* The operating microscope (1 hr)	Suture of tubes (2 x 3 hrs)
* Basic suturing techniques, sutures of vessels and nerves (2 hrs)	End-to-end anastomosis of rat carotid artery <i>ex vivo</i> (2 x 3 hrs)

MOLECULAR MEDICINE

5th semester

LECTURE (2 hrs/week)
* Molecular genetic and cell biology methods in diagnosis and therapy.
* Diagnostic methods based on immunologic techniques (RIA, ELISA, Western blot analysis, immunocytology, cytotoxicity tests, etc.).
* Diagnostic methods based on nucleic acid hybridization (Northern and Southern analysis, in situ hybridization, DNA chip technology, etc.).
* Diagnostic methods based on specific endonuclease activity (fragment length polymorphism, pedigree analysis, etc.).
* Gene sequencing and analysis, genomic and proteomic techniques, cell and tissue culture methods.
* Antisense pharmacology. Small interfering RNA. Molecular chaperons.
* Gene therapy, viral vectors, DNA-liposome complexes.
* Molecular markers in human disorders.
* Biomarkers for neurologic and psychiatric disorders.
* Molecular interactions between pathogens and host.
* Stem cell therapy. Embryonal and adult stem cells.
* In vitro differentiation of stem cells to the desired phenotype. Transfection of stem cells.
* Regulation of cell cycle and cell differentiation. Regulation of transcriptional and translational control of gene expression.
* Telomerase-directed molecular therapy.
* Immunotherapy. Antitumour immune responses.
* Bioinformatic and computer-assisted methods in diagnosis and therapy: functional genomics and proteomics.

PATHOPHYSIOLOGICAL ASPECTS OF LABORATORY MEDICINE

6th semester

LECTURE (2 hrs/week)

- * Introduction to laboratory medicine
Preanalytical processes, test requesting, sampling, common preanalytical errors
Analytical processes: quality control, traceability of measurements, precision, biological variation, reference range, point of care testing.
Postanalytical processes: interpretation of results, sensitivity, specificity, predictive values, pre- and post-test probability, clinically significant change values, alarming or critical values, evidence based laboratory medicine

- * Visit at the Department of Laboratory Medicine

- * Acid-base balance disorders

- * Laboratory diagnosis of coagulation disorders
Basic coagulation tests, monitoring of anticoagulant therapy, testing for congenital and acquired thrombophilias

- * Laboratory diagnosis of sodium and water metabolism
Hypo- and hypernatremia: causes and differential diagnosis, SIADH, diabetes insipidus, laboratory diagnosis of oedema. Effect of diuretics on sodium and water balance, disorders of osmolar regulation

- * Disorders of potassium metabolism
Hypo-, and hyperkalemia: causes and differential diagnosis, diagnostic algorithms and treatment

- * Laboratory diagnosis of liver diseases

- * Endocrinology I.
Laboratory diagnosis of disorders of endocrine regulation. Diseases of hypothalamus, hypophysis, thyroid and parathyroid glands.

- * Endocrinology II.
Laboratory diagnosis of disorders of the adrenal gland and the reproductive system

- * Laboratory diagnosis of disorders of lipid metabolism
Primary, and secondary hyperlipidemia, clinical significance of cholesterol, TG, HDL-C, LDL-C, classification of hyperlipidemias. Risks of atherosclerosis: clinical significance of ApoA, ApoB, Lp (a), homocystein, fibrinogen.

- * Laboratory diagnosis and monitoring of diabetes mellitus

- * Laboratory diagnosis of renal diseases
Laboratory tests of glomerular and tubular functions, laboratory diagnosis of proteinuria, acute and chronic renal failure, nephrosis syndrome, differentiation of distal and proximal renal tubular acidosis

- * Laboratory diagnosis of myocardial infarction and acute coronary syndrome
Classical markers: CK, LDH isoenzymes, myoglobin. New markers: Troponin I, Troponin T, significance of point of care testing, diagnostic algorithms.

BASIC SURGICAL SKILLS

4th semester

LECTURE (2 hrs/every 2nd week)	PRACTICE (2 hrs/gr./every 2nd week)
* Asepsis and antisepsis. Historical background. Surgical infections, sources of infections. Types, classification, risks and prevention of wound contaminations. Sterilization, disinfection. Preparation of the patient before operation: scrub preparation and isolation of the surgical site. Scrubbing, disinfection, gowning and gloving of the operating team. Personnel attire and movement. Basic rules of asepsis in the operating room. Postoperative wound management. Surgical antisepsis. Design and equipments of the operating room, basic technical background. Operating room personnel and their duties. Positioning of the patient on the operating table. Positioning.	1- 2. General information. Scrubbing, gowning and gloving. Practical rules of asepsis in the operating room. Behavior and movement in the operating room
* Surgical instruments. Basic surgical instruments, special surgical tools and technologies, suture materials. Wound closure (sutures, clips, adhesive strips). Imperfections of suturing techniques. Removal of sutures. Drainage.	2 – 3. Basic surgical instruments, suture materials, textiles. Scrubbing, gowning and gloving. Scrub preparation and draping of the surgical site. Making incisions (on skin pad), wound closure with sutures or clips. Practicing instrument knots by means of the Suture Tutor program.
* The operation. Basic surgical interventions. Indications for an operation, informed consent, operative risk, the surgeon's responsibility. Preoperative investigations. Preoperative preparation of the patient. Basics of minimally invasive surgical interventions. Historical background. Components of the laparoscopic tower, laparoscopic instruments. Local anesthesia (drugs, types of local anesthesia, complications). Perioperative fluid balance, fluid requirements and fluid therapy.	4 – 5. Tying surgical knots. Tying surgical knots (hand and instrument knots). Knotting under tension and in cavities.
* Wounds. Types and classification of accidental wounds. Wound healing, scar formation. Surgical wounds. Wound closure and its complications. Management of accidental wounds. Dressings, types of bandages. Innovations in wound treatment.	6 – 7. Skin incision, handling bleeding, closing wounds in separate layers with sutures or with wound clips. Draining of wounds. Knotting with an instruments using the Suture Tutor program.
* Bleeding. Types and classification of hemorrhage. Signs and consequences of blood loss. Bleeding in surgery (pre-, intra- and postoperative bleeding). Factors influencing operative blood loss. Surgical hemostasis (mechanical, thermal, chemical-biological methods). Blood replacement in surgery, autotransfusion.	8 – 9. Management of accidental wounds. Dressing, types of dressing. Changing dressing under aseptic conditions. Removal of sutures.

* Complications. Definition and classification of complications. Complications of anaesthesia. Complications of wound healing. Complications related to surgery. Haemorrhagic complications. Pathophysiology, signs and treatment of hemorrhagic shock	10 – 11. Basics of minimally invasive surgery. Components of the laparoscopic tower, laparoscopic instruments. Eupractic movements, handling of laparoscopic instruments, knotting.
* Basics of minimally invasive surgical interventions. Historical background. Components of the laparoscopic tower, laparoscopic instruments.	12 – 13. Practical exam. (1) Surgical scrubbing and gowning (2) Knotting under tension and in a deep cavity (3) Surgical suture (mounting of a needle holder, closure of a 5 cm-long incision with Donati-stitches, instrumental knotting (max. 15 min)

BASIC IMMUNOPATHOLOGY

6th semester

LECTURE (2 hrs/every 2nd week)

- * General informations. Introduction to immunopathology. Transplantation immunology: transplantation antigens, allogeneic recognition, effector mechanisms of graft rejection
- * Histocompatibility testing. Immunological investigations before and after transplantation.
- * Immunosuppressive therapy
- * Immunology of organ transplantation. Immunology of bone marrow transplantation: graft-versus-host disease. Xenogeneic transplantation
- * Reproductive immunology
- * Tumor immunology: tumor antigens, antitumor immune responses. Evasion of immune responses by tumors. Immunotherapy for tumors
- * Immunological tolerance. Self tolerance: central and peripheral tolerance. Mechanisms of T and B cell tolerance
- * Pathomechanisms of autoimmunity: failure of self tolerance, genetic factors, role of infections and other factors; effector mechanisms. Systemic and organ specific autoimmune diseases
- * Written test exam

CEREBRAL BLOOD FLOW AND METABOLISM

5th semester

LECTURE (2 hrs/week)

- * Introduction – requirements-general view
- * Methods for investigation of cerebral blood flow and metabolism
- * The physiology of the cerebrovascular smooth muscle
- * Regulation of the cerebrovascular tone * the role of the endothelium
- * Regulation of the cerebrovascular tone * the neural components
- * Regulation of the cerebrovascular tone * the metabolic components
- * Blood supply and basal metabolic processes in the brain
- * The neurovascular coupling
- * The transport to the brain-the blood brain barrier

- * The blood supply of the dura mater cerebri
- * The regulation of the cerebral blood flow in the neonate
- * Ageing and cerebral blood flow
- * Basic pathomechanism of the stroke
- * Exam

GERONTOLOGY

6th semester

LECTURE/PRACTICE (1 hr/week, 1 hr/week)

- * General principles of geriatric medicine
- * History taking with elderly patients
- * Physical examination
- * Mental status examination
- * Evaluation of functional capacity in him elderly
- * Laboratory examination
- * Progressive constriction of each organ systems
- * Intellectual impairment
- * Immobility
- * Iatrogenic drug reactions
- * Community of care
- * Quality of life and therapeutic objectives
- * Legal and ethical issues
- * Care of the dying patient

FOUNDATIONS OF EVIDENCE BASED MEDICINE

6th, 8th, 10th semester

- * Introduction of evidence-based medicine/healthcare: concepts, steps in practicing EBM
- * Asking structured questions (PICO), classification of clinical questions. The hierarchy of evidences.
- * Types of studies: RCT, cohort, case-control, cross-sectional studies.
- * Search the evidence – theoretical and practical knowledge
- * Critical appraisal process – theoretical and practical knowledge
- * Grading quality of evidence and strength of recommendations, GRADE approach
- * Development of evidence-based practice guidelines
- * Practical implementation of practice guidelines
- * Implementation of practice guidelines in the clinical practice and prevention
- * Health economic aspects of evidence-based medicine
- * Reporting scientific results – requirements of scientific papers
- * Reporting scientific results – requirements of oral presentations

CLINICAL MODULE

ANAESTHESIOLOGY AND INTENSIVE THERAPY

9th semester (Basics, anaesthesiology)

LECTURE/PRACTICE

(2 hrs/week, 1 hr/week)

1. Introducing anaesthesiology and intensive therapy
2. Applied physiology –I. Circulation, circulation management
3. Applied physiology – I. Breathing, oxygen therapy
4. Applied pharmacology
 - I. Clinical pharmacology
 - II. Anaesthesiological pharmacology
5. Anaesthesia machine, breathing systems
6. Assessment of perioperative risks, preoperative preparation
7. General anaesthesia, anaesthetics
8. Regional anaesthesia, local anesthetics
9. Airway management
10. Monitoring during anaesthesia
11. Postoperative patient care, complications, PACU
12. Postoperative acute and chronic analgesia
13. Test

10th semester (acute care, intensive therapy)

LECTURE/PRACTICE

(2 hrs/week, 1 hr/week)

1. Theory of sudden death and resuscitation (BLS, ALS)
2. Methods of invasive hemodynamic measurement
3. The respirator
4. Infection, infection control
5. Severe sepsis, septic shock
6. Acute respiratory dysfunction and ARDS
7. Acute metabolic dysfunction and their treatment
8. Recognition and treatment of acute cardiovascular diseases
9. Low GCS, coma, brain death
10. Basics of clinical nutrition
11. Main aspects in the acute treatment of polytraumatized patient
11. Acute treatment of intoxicated patient
12. Chronic pain, pain clinic
13. Recognition and acute treatment of multi-organ dysfunction

CLINICAL ONCOLOGY

7th semester

LECTURE

(2 hrs/week)

- * Cancer etiology, epidemiology. Tumor prevention
- * The basics of Radiotherapy
- * The importance of pathology and diagnostic imaging in oncology; AJC/UICC TNM system
- * Practical aspects of Radiotherapy
- * Medical therapies: chemotherapy, endocrine therapy, biological therapies
- * Supportive, palliative therapy and the holistic approach; psychooncology
- * Breast cancer and gynecological malignancies
- * The complex therapy of head and neck, oesophagus and gastric cancers
- * The complex therapy of liver, pancreas and colorectal tumors
Genitourinary malignancies
Lung cancer and mesenchymal tumors
- * Central nervous system, childhood and skin malignancies
- * Multidisciplinary team-work
- * EXAM

DERMATOLOGY

9th semester

LECTURE (3 hrs/week)		PRACTICE (2 hrs/week)
*	Introduction. The anatomy and physiology of the skin. Types of skin lesions.	Examination of patients with dermatological diseases. Case presentations.
*	Basic immunopathologic reactions. Urticaria. Drug allergy.	Primary and secondary lesions. Case presentations.
*	Atopic dermatitis. Contact der-matitis and other eczematous reactions. Viral diseases.	Special tools and techniques in Dermatology (Wood-lights, diascopy, dermatoscopy) Case presentations.
*	Bacterial diseases with cutan involvement. Fungal diseases with cutaneous involvement.	Special tests in Dermatology I. In vitro and in vivo (skin) tests in allergic disorders. Case presentations.
*	Tuberculosis of the skin. Sexually transmitted diseases. Syphilis. Gonorrhoea.	Special tests in Dermatology II. Diagnosis of infectious diseases. Case presentations.
*	AIDS. Scabies, pediculosis. Tropical skin diseases.	Special tests in Dermatology. Diagnosis and treatment of STD. Case presentations.
*	Psoriasis. Papulosquamous diseases. Thermally injured skin.	Special tests in Dermatology III. Diagnosis of autoimmune diseases. Case presentations.
*	Vesiculobullosus diseases. Acne, rosacea, perioral dermatitis.	Skin biopsy, histological examinations in Dermatology. Case presentations.

*	Disorders of collagen and tissue. Vasculitis, purpuric conditions.	Topical therapy in Dermatology. Case presentations.
*	Cutaneous manifestations in metabolic disorders. Benign malign tumours of the skin.	Physical therapies in Dermatology I. Surgical excision, curettage, electrodesiccation, cryotherapy, radiotherapy. Case presentations.
*	Tumours of mesodermal origin. Melanoma malignum. Differential diagnosis of pigmented lesions.	Physical therapies in Dermatology II. Phototherapy, lasertherapy. Case presentations.
*	Disorders of the vasculature. Granulomas. Disorders with abnormal keratinization. The skin in systemic disease.	Physical therapies of venous and lymphatic insufficiencies. Case presentations.
*	Disorders of the hair and nails. UV-induced dermatoses. Laser therapy in dermatology.	Systemic therapy in Dermatology. Case presentations.
*	Local therapy in dermatology. Systemic therapy in dermatology. Dermatotomy.	Case presentations and discussions.

FORENSIC MEDICINE

9th semester

	LECTURE (1 hr/week)	PRACTICE (2 hrs/week)
1.	Recommendation on autopsy rules	How to fill in a death certificate?
2.	Introduction to criminal and civil law	Autopsy (3 occasions)
3.	Changes after death (determination of postmortem interval)	Histology (vital signs)
4.	Duties of the doctor - rights of the patients	Toxicology - Alcohol analysis
5.	Wounds I. (blunt force, sharp and pointed object trauma,)	Poisoning (agricultural chemicals, alkaloids, corrosives, alcohols)
6.	Wounds II. (shot wounds, explosives, heat and cold, electrocution)	DNA - Scene investigation
7.	Alcohol in forensic medicine (metabolism, detection, related crimes)	

10th semester

	LECTURE (2 hrs/every second week)	PRACTICE (2 hrs/week)
1.	Forensic aspects of illegal drug use	Autopsy (3)
2.	Identification	Medical malpractice
3.	Sexual offences. Battered child, infanticide.	Sudden death in adult
4.	Transportation medicine, traffic accident	Toxicology – the detection of illegal drugs
5.	Asphyxia, drowning	Forensic aspects of pharmaceutical products
6.	Facial and dental injuries	DNA in forensic medicine (paternity testing)
7.	Forensic psychiatry	Health care in custody
8.		Histological dating of injuries

9.	Assessment of disability. Fitness to drive.
10.	Identification

INTERNAL MEDICINE

7th semester

LECTURE (5 hrs/week)	PRACTICE (2 hrs/week)
* Echocardiography	Methods in echocardiography, reading an echocardiographic record.
* Infective endocarditis. Tumors of the heart	Taking the case history the physical examination.
* Hypertension in cardiologic aspect. Aortic dissection	Performing percussion, auscultation.
* Aortic stenosis +Aortic incompetence.	Performing percussion, auscultation.
* Mitral stenosis + Mitral incompetence	Performing percussion, auscultation.
* Tricuspid stenosis and incompetence. Combined valvular heart disease. Prosthetic valve.	Performing percussion, auscultation.
* Rheumatic fever. Myocarditis and pericarditis	The physical findings of rheumatic fever and inflammatory diseases.
* Adult congenital heart diseases	Performing percussion, auscultation.
* Hypertrophic and dilatative cardiomyopathy: diagnosis and treatment	Performing percussion, auscultation. The physical findings of cardiomyopathies.
* Electrocardiography	Reading ECG records.
* Cardiac arrhythmias	Reading ECG records learning modern antiarrhythmic treatment and procedures.
* Ischemic heart diseases	Non invasive and invasive technics in the diagnosis of ischemic heart disease.
* Invasive diagnostic and therapeutc methods in cardiology	Non invasive and invasive technics in the diagnosis of ischemic heart disease.
* Restrictive and obliterative cardiomyopathy. Chronic heart failure	Performing percussion, auscultation. The physical findings of cardiomyopathies and chronic heart failure.
* Pulmonary embolism. Pulmonary hypertension.	Physical findings of pulmonary embolism and hypertension.
* Cardiac rehabilitation	Possibilities in rehabilitation program.
* Special cardiac conditions: women, athletics, elders. Cardiac risk stratification in non cardiac surgery	Non invasive and invasive technics in cardiology.
* Acute heart failure. Failure of periferial circulation	The signs and treatment of heart failure and periferial circulation disturbances.
* Revascularization in cardiac surgery	Visiting at operation theatre.
* Basic hematology	Evaluation of laboratory data
* Anemias	Inspection of patients with anaemia
* Anemias. Hemolytic anemia	Microscopic evaluation of red cells morphology
* Pancytopenias (Myelodysplastic syndromes. Aplastic anemia)	Bone marrow smears examination, physical signs of pancytopenic patients
* Acut leukemia	Examination of blood and bone marrow smears with acute leukemias

* Stem cell transplantation	Discussion of indications for stem cell transplantation
* Myeloproliferative diseases	Palpation of spleens and enlarged livers
* Malignant lymphomas. (Classification, Hodgkin disease)	Lymph nodes palpation
* Aggressive lymphomas	Examination of blood and bone marrow smears with lymphomatous infiltration
* Malignant lymphomas. (Indolent lymphomas, multiple myeloma)	X ray consultation, physical examinations
* Coagulation abnormalities. (Thrombophilias)	Bleeding manifestations

8th semester

LECTURE (5 hrs/week)	PRACTICE (2 hrs/week)
* Investigative methods	Problem oriented evaluation of the symptoms of patients with esophageal disorders
* Nephrosis syndrome, non proliferative glomerulonephritises Proliferative glomerulonephritises	Practical aspects of the functional evaluation of patients with esophageal disorders (esophageal manometry, 24 h pH-metry, evaluation of the biliary reflux)
* Hypertension I: etiology and pathomechanism Renal failure (acute, chronic, dialysis treatment)	Upper gastrointestinal endoscopy
* Hypertension II: therapy and complications Tubulointerstitial nephritis (bacterial, non bacterial), polycystic kidney disease	Symptomatic evaluation of the liver patient. Problem oriented laboratory investigation of the liver patient.
* Renal involvement in systemic diseases, kidney neoplasias Pregnancy and nephropathy	Symptoms of biliary obstruction, investigative methods for patients with biliary obstruction (symptoms, biochemistry, ultrasonography, ERCP)
* Hyperlipidaemia Diabetes mellitus	Symptoms of patients with acute pancreatitis Diagnostic work up of patients with acute pancreatitis
* Diabetes mellitus (acute and chronic complications) Diabetes mellitus (therapy) Introduction to endocrinology. Endocrine regulation. Anterior pituitary	Diagnostic work up of patients with chronic pancreatitis and pancreatic cancer Diagnostic work up of patients with CU and Crohn's disease.
* Neurohypophysis	
* Thyroid: developmental errors, inflammation, normofunctional goiter, tumors	Early identification of patients with colorectal cancer. Diagnostic methods.
* Thyrotoxicosis	
* Hypothyroidism	Symptoms of malabsorption, maldigestion, Diagnostic workup: Hydrogen, ¹³ C urea and starch breath tests
* Spring Holiday	Practical aspects of the diagnosis and therapy of patients with diabetes mellitus; the patient education.
* Parathyroid disorders	
* Adrenal cortex: hypoadrenia	Practical aspects of insulin therapy. Treatment of dyslipoproteinemias
* Adrenal cortex: Cushing and Conn	
* Obesity	Physical examination of patients with rheumatoid diseases
* Hypogonadism	
* Multiple endocrine neoplasias, paraneoplastic	

	endocrinopathies,
*	polyglandular autoimmune syndrome, Carcinoid syndrome
*	Adrenal cortex: adrenogenital syndrome
*	Osteoporosis
*	Consultation

INTERNAL MEDICINE: INFECTIOLOGY

9th semester

LECTURE (2 hrs/week)	PRACTICE (2 hrs/week)
* Introduction. History, principles, classification of infectious diseases. Antibiotic prophylaxis, antibiotic policy	History, principles, distribution of infectious diseases. Epidemiological problems. Pathogenetic agents.
* Tropical diseases	Pathophysiology and diagnosis of infectious diseases.
* Infection control	Infections of the respiratory organs.
* Exanthematous infectious diseases	Infections of the gastrointestinal tract
* Gastrointestinal and abdominal infections	Neuroinfections
* Sexually transmitted, gynecological and urinary tract infections	Hepatitis
* Infections of the respiratory organs	AIDS
* Antropozoonoses, Bioterrorism	Sepsis
* Joint and bone infections. Fungal infections.	Prevention of infectious diseases
* Cardiovascular infections. Infections and their prophylaxis during interventions.	Exanthematous infectious diseases
* Neuroinfections. Skin and soft tissue infections.	Antropozoonoses (Lyssa, Brucellosis, Tularemia etc.)
* Infections in immunosuppression. AIDS. Vaccination.	Antimicrobial therapy
* Sepsis, septic shock	Nosocomial infections
* Antimicrobial therapy, antibiotic policy	Tropical diseases

10th semester

LECTURE (2 hrs/week)	PRACTICE (total 16 hrs)
* Degenerative diseases of the spine, gout	Medical thinking, general principles of differential diagnostics
* Spondylarthritis	Differential diagnostics of diarrhea and constipation
* Rheumatoid arthritis	Differential diagnostics in patients with abdominal pain

* Systemic lupus erythematoses, antiphospholipid sy., principles of immunosuppressive therapy	Differential diagnostics of ascites
* Fever, ion abnormalities	Differential diagnostics of occult and manifest gastrointestinal bleedings
* Sjögren's syndrome, myositises, systemic sclerosis (scleroderma)	Differential diagnostics of jaundice
* Edema, hematuria, proteinuria	Differential diagnostics of the gastrointestinal motility disorders
* Cyanosis, dyspnea	differential diagnostics of hypertension
* Chest pain, syncope	differential diagnostics of chest pain and syncope
* Spring Holiday	differential diagnostics of edema, cyanosis, dyspnoe
* Anaemia, lymphadenomegaly, hematologic disorders	differential diagnostics of anaemias and lymph node enlargement
* Abdominal pain, acute abdomen	differential diagnostics in patients with renal diseases
* National holiday	selected differential diagnostic problems, consultation
* Jaundice, ascites	selected differential diagnostic problems, consultation
* Diarrhoea, constipation, GI motility disorders	

MEDICAL PSYCHOLOGY II.

7th semester

LECTURE (1 hr/ week)

Introduction, Consciousness
 Attachment Theory
 Psycho-neuro-immunology, Psychosomatic Perspective
 Psychooncology, Psychological Factors
 Anxiety Disorders
 Personality Disorders
 Psychological Interventions I.
 Psychological Interventions II.
 Psychological Interventions III.
 Counseling

PRACTICE (1 hr/ week)

Review 1. CLASS-model, motivational interview
 Review 2.
 Empathy, sympathy
 Frustrated patient
 Roll plays 1.
 Roll plays 2.
 Case discussion

NEUROLOGY

9th semester

LECTURE (1 hr/week)	PRACTICE (2 hrs/week)
* a. Introduction. History of neurology. b. Physical examination. Neurological status.	Neurological investigation related to the lecture
* a. The organization of the sensory system. b. Pain.	Neurological investigation related to the lecture
* The organization of the motor system.	Neurological investigation related to the lecture
* Spinal cord. Neurological localization.	Neurological investigation related to the lecture
* Brainstem. Neurological localization.	Neurological investigation related to the lecture
* Cerebellum. Neurological localization.	Neurological investigation related to the lecture
* Cerebral cortex. Frontal lobe. Neurological localization.	Neurological investigation related to the lecture
* Temporal lobe. Neurological localization.	Neurological investigation related to the lecture
* a./ Parietal and occipital lobes. Neurological localization. b./ Vegetative nervous system.	Neurological investigation related to the lecture
* Cerebrospinal fluid. Diagnostic methods.	Neurological investigation related to the lecture
* Neurovascular system. Neurological localization.	Neurological investigation related to the lecture
* Extrapyramidal system. Neurological localization.	Neurological investigation related to the lecture
* a./ Electrical activity and examination of muscles and nerves b./ Modern neuroradiological diagnostic methods.	Neurological investigation related to the lecture
* Review of basic neurology knowledge	Neurological investigation related to the lecture

10th semester

LECTURE (1 hr/week)	PRACTICE (1 hr/week)
* Cerebrovascular disorders I.	Neurological investigation related to the lecture
* Cerebrovascular disorders II.	
* Epilepsies. Epilepsies. Sleep disturbances.	Neurological investigation related to the lecture
* Muscle and motoneuron disorders.	Neurological investigation related to the lecture
* Neuroinflammatory disorders.	
* Multiple sclerosis	
* Extrapyramidal disorders I.	
* Extrapyramidal disorders II.	Neurological investigation related to the lecture
* Intensive neurology. Tumors of the central nervous system.	Neurological investigation related to the lecture

* Neurorehabilitation.	
* Diagnosis and treatment of headaches.	Neurological investigation related to the lecture
* Pathomechanism of neurodegenerative disorders.	
* Dementias. Neurology in general medical practice. Novel therapies in neurology.	Neurological investigation related to the lecture

OBSTETRICS AND GYNAECOLOGY

7th semester

LECTURE (3 hrs/week)	PRACTICE (2 hrs/week)
* Introduction. Concepts of obstetrics and gynaecology and its role in modern medicine. Historical review.	Prenatal care. Obstetrical history, physical examination.
* Development and function of the placenta. Development of the fetus.	Pregnancy tests
* Endocrinology of pregnancy.	Induction of labour
* Obstetrical anatomy. Diagnosis of pregnancy.	Ultrasonography
* Genital and extragenital changes during pregnancy.	Follow up examinations during pregnancy
* Signs of the fetal life. The mature placenta, umbilical cord, membranes and amniotic fluid.	Genetics, CVS, AC, Cordocentesis
* Intrauterine position of the fetus.	Preparation for labour
* Antenatal care and examinations.	CTG, OCT, AS, X ray
* Normal mechanism of labour.	Normal delivery
* Patient care during labour.	Induced abortion. Surgical aspects.
* Pharmacokinetics in pregnancy. Registration of the uterine activity.	Forceps delivery, vacuum extraction
* Diseases of the trophoblast.	Breech presentation
* Monitoring of the fetus and placenta.	Postpartal hemorrhage
* Physiology of the uterus.	Caesarean section
* Obstetrical ultrasonography.	
* The newborn. Care and management. The puerperium.	
* Abortion.	
* Ectopic pregnancy.	
* EPH-gestosis.	
* Breech presentation and delivery.	
* Multiple pregnancy.	
* Premature labour.	
* Management of delivery. Induction of labour.	

* Intrauterine death. Postmaturity. Dysmaturity.

* Alternative delivery methods.

8th semester

LECTURE (3 hrs/week)	PRACTICE (2 hrs/week)
* Uterine rupture, postpartal haemorrhage, abnormal puerperium.	Gynaecological history taking, physical and pelvic examinations.
* Causes of 3rd trimester bleeding (premature separation of the placenta, DIC, plac. praevia).	Screening methods for cervical cancer: cytology.
* Dysmaturity. Hyperemesis.	Screening methods for cervical cancer: colposcopy.
* Erythroblastosis fetalis.	Curettage, cervical biopsy, electrocauterisation, conisation.
* Dystocia (difficult labor) pelvic dystocia due to uterine dysfunction, dystocia of fetal origin, dystocia of placental origin.	Female infertility, diagnostic procedures.
* Infectious diseases and pregnancy.	Infertility study of the male partner.
* Respiratory, renal, neurologic, endocrine and metabolic diseases.	Labor procedures of infertility.
* Benign tumors of the uterus.	Conception control.
* Diseases of the cervix. Cancer screening.	Endoscopy.
* Pelvic inflammatory diseases. Diseases of the Fallopian tube.	Abdominal gynaecological operations.
* Medical complications during pregnancy. (Heart, haematologic, gastrointestinal diseases.)	Vaginal surgical procedures.
* Genetic disorders.	Adolescent gynaecology.
* Birth control. Contraception.	Physiotherapy in gynaecology.
* Abnormalities of the menstruation.	Radio- and chemotherapy.
* Climacteric.	Psychosexual diseases.
* Ethical aspects of Obstetrics-Gynaecology.	
* Endometriosis.	
* Assisted fertilization in the female.	
* Gynaecological endoscopy.	
* Infertility of the female.	
* Benign ovarian tumors.	
* Malignant ovarian tumors.	
* Adolescent gynaecology.	
* Infertility of the male.	
* Diseases of the vulva and vagina.	

OPHTHALMOLOGY

10th semester

LECTURE (2 hrs/week)	PRACTICE (2 hrs/week)
* The eye and systemic diseases	General Practical
* Essentials of anatomy and physiology, Optics and refraction	General Practical
* The lids and the lacrimal system, The conjunctiva	General Practical
* The cornea, The lens	Angiography and laser therapy
* The iris, The choroid	Pediatric ophthalmology
* The retina	Contact lens
* The vitreous, Retinal detachment	Ultrasound in ophthalmology
* Optic nerve diseases, Neuroophthalmology	Elektrophysiology
* Strabismus, The child with suspected eye disease	MTO
* Glaucoma, The Sclera, the orbita	Eximer laser surgery
* Acute painless visual disturbance, Chronic loss of vision	General Practical
* Chronic ocular unease, The acute red eyes	General Practical
* Ocular injuries	General Practical
* Ophthalmology through on the world	General Practical

ORTHOPAEDICS

7th semester

LECTURE (2 hrs/week)	PRACTICE (2 hrs/week)
* Field of orthopaedics, history. Diagnosis and treatment of orthopaedic disorders.	The course of the examination of the patients with locomotor system diseases. Diagnostic means. X-ray demonstration. Case report.
* Disorders of the spine in childhood. Scoliosis.	Examination of the neck and cervical spine. Disorders of the neck and cervical spine. X-ray demonstration. Case report.
General affections of the skeleton	Examination of the trunk and spine. Disorders of the trunk and spine. X-ray demonstration. Case report.
* Congenital deformities and disabilities	Examination of the scoliosis. Diagnostic means. X-ray demonstration. Case report.
* Disorders of the foot (congenital club foot, pes planovalgus)	Examination of the shoulder and elbow. Disorders of the shoulder and elbow. X-ray demonstration. Case report.
* Arthritis, osteomyelitis, tuberculous arthritis	Examination of the forearm, wrist and the hand. Disorders of the forearm, wrist and the hand. X-ray demonstration. Case report.
* Bone tumors	Examination of the hip regio. Disorders of the hip. Messuring the length of the limbs. X-ray demonstration. Case report.
* Infections and degenerative disorders of the spine. Spondylolysis, spondylolisthesis.	Examination of the osteoarthritis of the hip and of the knee. X-ray demonstration. Case report.
* Disorders of the neck and upper limbs	Examination of the knee. Disorders of the knee. X-ray demonstration. Case report.

* Congenital dislocation and dysplasia of the hip	Examination of the leg, ankle and foot. Disorders of the leg, ankle and foot. X-ray demonstration. Case report.
* Other hip disorders in childhood (Perthes disease, slipped upper femoral epiphysis. Transient arthritis of the hip.)	Infections of the bone. Arthritis. Bone tumors. X-ray demonstration. Case report.
* Osteoarthritis of the hip. Idiopathical necrosis capitis femoris.	Osteoarthrosis. General affections of the skeleton. (Neurological disorders). X-ray demonstration. Case report.
* Disorders of the knee.	
* Neuromuscular diseases, general affections of the skeleton	

OTO-RHINO-LARYNGOLOGY

9th semester

LECTURE (2 hrs/week)	PRACTICE (3 hrs/week)
* Oto-rhino-laryngology in medicine.	Examination equipment in oto-rhino-laryngology.
* History of oto-rhino-laryngology.	
* Anatomy and physiology of the ear.	Practice in use of forehead mirror and ear speculum.
* Diseases of the external ear and their treatment.	Examination of the external auditory meatus and eardrum.
* Acute inflammation of the middle ear.	Practice in cleaning the external meatus. Diseases of the external meatus. Ear drops. Examination of the Eustachian tube.
* Complications of acute otitis media.	Demonstration of eardrum perforations and various ear diseases.
* Non-suppurative diseases of the middle ear.	X-ray, CT, MR pictures of the ear.
* Chronic otitis media. Complications of chronic otitis media.	Examination of hearing by means of tuning forks.
* Reconstruction of the hearing mechanism.	Measurement of hearing loss. The usual method of recording hearing by audiometer. Demonstration of various types of pure-tone audiograms. Hearing aids.
* Anatomy of the inner ear. The vestibular and cochlear system.	Demonstrations of otoneurological examinations.
* Examination of hearing and the vestibular system.	Clinical examination of the nose and nasal cavity. Practice in using nasal speculum. Posterior rhinoscopy. Demonstration of diseases of nasal cavity. Treatment of nasal injuries.
* Diseases of the inner ear: toxic damage to the ear, inflammatory and vascular lesions of the inner ear. Acoustic trauma. Meniere's disease.	Haemorrhage from the nose. Treatment of epistaxis.. Demonstration of Bellocq pack.

* Diseases of the inner ear: acoustic neuroma, temporal bone fractures.	Treatment of sinusitis. Nasal drops. X-ray, CT, MR pictures of nasal sinuses. Demonstration of puncture of the maxillary sinus. Differential diagnosis of headache.
* Anatomy of the nose and nasal sinuses.	Examination of the mouth and pharynx. Demonstration of pharyngeal diseases.
* Diseases of the external nose and the nasal cavity.	Demonstration of tumors in the larynx and hypopharynx.
* Sinusitis. Treatment and complications. Fractures of the sinuses.	Examination of the larynx. Demonstration of laryngeal diseases. Anaesthesia in oto-rhino-laryngology.
* Haemorrhage from the nose. Tumors of the nose and paranasal sinuses.	Demonstration of patients after tracheostomy. Cleaning of tracheostomy tube.
* Anatomy of the pharynx. Diseases of the nasopharynx.	Demonstration of esophagoscopes and bronchoscopes. The method of introducing the naso-esophageal nutrition tube. Differential diagnosis of neck nodes in practice.
* Adenoid hyperplasia. Benign and malignant nasopharyngeal tumors.	
* Acute and chronic inflammatory diseases of the pharynx.	
* Acute and chronic tonsillitis. Peritonsillar abscess and complications.	
* Indications of tonsillectomy. Tumors of mesopharynx.	
* Functional anatomy of the larynx. Acute and chronic diseases of the larynx.	
* Injuries of the larynx. Paralysis of the larynx.	
* Tumors of the hypopharynx and the larynx.	
* Classifications of malignant laryngeal tumors.	
* Treatment of laryngeal tumors.	
* Diseases of the oesophagus and the inferior respiratory tract.	
* Differential diagnosis of neck nodes.	

PEDIATRICS

9th semester

LECTURE (1 hrs/week)	PRACTICE/SEMINAR (2 hrs/week, 2 hrs/week)
* Paediatric History Taking and Physical Examination	pBLS – Paediatric Basic Life Support Prioritise the care of a sick child

Age- and developmentally-appropriate history How to perform a paediatric examination (to include respiratory, cardiovascular, gastrointestinal, central and peripheral nervous system, musculoskeletal, skin, eyes, ears/nose/throat) Newborn examination	<ul style="list-style-type: none"> - Use a systematic approach (ABCDE) to the care of a sick child - Demonstrate basic airway management (including appropriate airway positioning, bag-valve mask ventilation) - Deliver age-appropriate cardio-pulmonary resuscitation (pBLS) - Recognise the need for help and identify how to obtain it
* General Paediatrics – Growth Normal growth in childhood (newborn-adolescence) Measurement; Puberty; Plot and interpret a growth chart; Main physiological changes from birth to adulthood	Skills/Procedures Common practical procedures in children (venepuncture, urinary catheterisation, lumbar puncture)
* General Paediatrics – Development Developmental milestones of children 0-5 years ; Developmental screening and assessment; Age- and developmentally-appropriate history and examination	General growth and development Normal growth in childhood (newborn-adolescence) Plot and interpret a growth chart Main physiological changes from birth to adulthood Developmental milestones of children 0-5 years Developmental examination in a child under 5 years
* General Paediatrics – Nutrition Normal feeding and eating behaviour from birth to adulthood (<i>Breastfeeding, Formula feeding, Principles of normal nutrition of childhood</i>)	Nutrition, Feeding Infant feeding Failure to thrive Malnutrition Obesity
* Laboratory and Microbiology in Paediatrics Laboratory and microbiological investigations in Paediatric conditions Common (hematological and biochemistry) laboratory tests in children – normal values	Fluid balance Dehydration Fluid therapy in emergency care - Types of intravenous fluids, Calculate intravenous fluids (bolus and maintenance) etc. Shock management
* Acid base and electrolyte disorders Common acid base disorders and common causes in Paediatrics Interpret blood gases in children – normal values	Recognition of a sick child, Paediatric Emergencies Assessment of a seriously ill child Respiratory failure Sepsis Anaphylaxis ALTE
* Pharmacology/Drugs in Paediatrics Prescription by weight, age and body surface area in children Differences in drug metabolism between infants, children and adults Special routes of drug administration in children e.g. inhalation with babyhaler, suppository etc. Calculate (with given doses): Common analgesics, Common antibiotics, Oral rehydration solution, Common asthma medications (eg. beta-2 agonists, steroids), Common emergency drugs (eg. adrenaline for anaphylaxis)	Preventive paediatrics - Screening and Immunisation Role of prevention in Paediatric population Vaccinations, immunisation programme in Hungary Neonatal screening

* Antibiotic therapy in Paediatrics Common paediatric bacterial infections, appropriate antibiotic use	Infectious diseases Common viral infections in Pediatrics Common bacterial infections in Pediatrics Neuroinfections Management of a febrile infant TBC
* Paediatric Radiology Ordering Radiology Investigations in Paediatrics, Radiation, Radiation Free Imaging, Neuroimaging/Imaging of Musculoskeletal/GIT/Urogenital Tract, Interventions	Paediatric Surgery Congenital malformations of the gastrointestinal tract (Esophageal atresia, TOF, Duodenal atresia, Intestinal atresia, Anus atresia, Malrotation, Hirschprung disease) Acute abdomen (Appendicitis, Intussusception, Volvulus) Congenital diaphragmatic hernia Acute scrotum, Inguinal hernia, Hydrocele, Undescended testis Surgical management of congenital urinary tract malformations (PUJ obstruction, VUR, hypospadias)
* Newborn, infant Physiologic characteristics of the newborn, term and preterm infants Maternal diseases/drugs affecting the newborn (diabetes, gestational diabetes, lifestyle (alcohol, drugs, smoking), hypertension, chronic conditions)	Paediatric Emergencies (Trauma/Accident) Paediatric accidental injuries (<i>Burn injury primary care, Airway and GI foreign body management, Road Accidents</i>)
* Toxicology Poisoning (General principles of toxicology)	Neonatology 1. (Neonatal Care in Delivery Room/Resuscitation) Adaptation to extrauterine life; Delivery room care Routine examination of the newborn infant Neonatal Resuscitation
* New Trends in Paediatrics	Child Protection Risk factors for child maltreatment Types of child abuse and neglect Symptoms, signs and red flags of child maltreatment Procedure for raising concerns about child maltreatment
* Ethics in Paediatrics, Communication	Child and Adolescent Psychiatry
* Child and Adolescent Psychiatry	

10th semester
PRACTICE/SEMINAR
(2 hrs/week, 2 hrs/week)

- * Neonatology 2.
Respiratory diseases of the newborn (*TTN, MAS, infection (sepsis, pneumonia), RDS, congenital malformations*)
Jaundice - physiologic (*breast milk, breastfeeding*), pathologic (*ABO/Rh incompatibility*)
Neonatal Sepsis (*Early and late onset*), Congenital infections
Neonatal convulsion (*Metabolic, Congenital malformation, Bleeding/Ischaemia, Infection, Hypoxic ischemic encephalopathy*)
Summary of problems with preterm babies (*RDS, Intracranial hemorrhage, Necrotizing enterocolitis, Persistent ductus arteriosus, Bronchopulmonary dysplasia, Retinopathy of prematurity (ROP)*)

* Gastroenterology Problems of infant feeding (<i>Gastro-oesophageal reflux disease, Pyloric stenosis</i>) Malabsorption/malnutrition syndromes (<i>Inflammatory bowel disease Food adverse reactions</i>); Constipation
* Respiratory disorders 1 Upper respiratory tract infection (<i>pharyngitis, laryngitis, epiglottitis, otitis media</i>) Community acquired bacterial pneumonia in children; Cystic fibrosis
* Respiratory disorders 2 Pulmonary physiology, pulmonary function tests Wheeze (<i>Viral induced wheeze, obstructive bronchitis, asthma bronchiale, bronchiolitis</i>) Acute therapy of respiratory distress (<i>O₂ delivery, non-invasive, invasive ventilation</i>)
* Diabetes in childhood Diabetes mellitus; Diabetic ketoacidosis, treatment; Evaluation of hypoglycemia in childhood
* Endocrinology Endocrine emergencies; Thyroid disorders; Evaluation of growth retardation, short stature Disorders of sexual differentiation and puberty (precocious/delayed)
* Nephrology Congenital urinary tract malformations; Urinary tract infection in children Nephrosis syndrome, Nephritis syndrome; Acute kidney injury; Hypertension; Enuresis
* Cardiology Symptoms and differential diagnosis of congenital heart defects; Hypertension Arrhythmias (<i>SVT, Bradycardia, VT, VF</i>); Cardiogenic shock (<i>Diagnosis, Differential diagnosis, Therapy</i>)
* Hematology Anaemia in paediatrics Bleeding disorders, coagulopathies in children, Immune thrombocytopenic purpura (ITP) Acute leukemia in pediatrics (ALL), lymphoma
* Oncology Most common solid tumors in Paediatrics (CNS tumours, Lymphoma, Neuroblastoma, Wilms tumour); Principles of treatment of malignancies, Side effects of treatment, Supportive care
* Neurology Differential diagnosis of a floppy infant (<i>HIE, Haemorrhage, SMA, Myopathies, Metabolic</i>) Hydrocephalus Headache in childhood (<i>Migrain, Secondary headaches</i>) Seizures in childhood (<i>Febrile seizure, Epilepsy, Acute symptomatic seizure</i>) Demyelinating of the central nervous system (<i>Guillain-Barré syndrome</i>)
* Metabolic Disorders, Genetics General rules of inborn errors of metabolism; Newborn screening of inherited metabolic disorders Chromosomal abnormalities (Down, Klinefelter, Turner syndrome)
* Immunology Classification, presentation and investigation of immun defects
* Case based discussions/Consultation

PHARMACOLOGY

7th semester

LECTURE (3 hrs/week)	PRACTICE (2 hrs/week)
* Introduction into pharmacology. Pharmacokinetics I: Absorption. Passage across body membranes.	Receptor theory.
* Pharmacokinetics II: Distribution.	Computer Lab: Drug-receptor interactions.
* Pharmacokinetics III: Elimination - Metabolism and excretion. Individual drug responses: Pharmacogenetics. Allergy. Age, diet, and diseases.	Computer Lab: Pharmacokinetics.

* Safety and effectiveness. Therapeutic index. Development of new drugs. Tolerance and drug dependence. Drug interactions.	Computer Lab: Repeated drug administration.
* Autonomic nervous system: Introduction. Ganglion stimulants, inhibitors. Cholinomimetics.	MTO: General pharmacology.
* Cholinolytic drugs. Sympathomimetic drugs.	MTO-GPH Discussion
* Alpha-adrenoceptor blockers. Beta-adrenoceptor blockers. Adrenergic neuron blocking agents.	Computer Lab: Parasympathetic nervous system.
* Peripheral muscle relaxants. Antihistamines. Serotonin, kinin, PG, LT antagonists.	Computer Lab: Sympathetic nervous system.
* Smooth muscle relaxants. Treatment of asthma bronchiale.	Computer Lab: Skeletal muscle and smooth muscle relaxants.
* Local anaesthetics. Antiinflammatory drugs. Glucocorticoids.	MTO: Autonomic nervous system.
* Chemotherapy I. Cell wall synthesis inhibitors. Protein synthesis inhibitors.	MTO: Autonomic nervous system - Discussion.
* Chemotherapy II. Sulfonamids. Kinolones. Anthelmintic agents. Antiseptics, disinfectants.	Prescription writing.
* Chemotherapy III. Macrolid-antibiotics. Chemotherapy of neoplastic diseases.	Treatment of mycobacterium infections (TBC).
* Chemotherapy IV: Antiviral and antifungal agents. Treatment of protozoan infections (malaria).	To recapitulate: Chemotherapy.

8th semester

LECTURE (4 hrs/week)	PRACTICE (2 hrs/week)
* Psychostimulants. Anorectics. Hallucinogenics. Anxiolytics. Sedatohypnotics.	Introduction.
* Pharmacology of general anaesthesia. Opioid analgetics.	Contemporary drug abuse.
* Antidepressants. Antiparkinson drugs. Central muscle relaxants.	To recapitulate: General anaesthesia.
* Antipsychotic drugs. Antiepileptic drugs.	Pharmacotherapy of pain.
* Antiarrhythmic drugs.	To recapitulate: CNS
* Antianginal drugs.	MTO: CNS.
* Diuretic drugs. Pharmacotherapy of hyperlipoproteinemias.	Therapy of AMI.
* Cardiotonics.	Computer lab - CVS
* Antihypertensive drugs. Drugs acting on the blood.	Therapy of migraine.
* Stroke (prevention and treatment). Diabetes mellitus. Hyperthyreosis.	Therapy of anaemias.
* Hormones. Vitamines.	MTO: CVS.
* Drugs that influence the GIT. Toxicology I.	Discussion - CVS.
* Toxicology II.	Principles of immunopharmacology.
* Toxicology of doping.	Prepare for the final exam.

PSYCHIATRY**9th semester**

LECTURE 1 hr/week	PRACTICE 1hr/week
* Introduction to Psychiatry	Psychiatric patient examination related to the lecture
* Disorders of Attachment	Psychiatric patient examination related to the lecture
* Psychiatric Interview, Psychopathology I.	Psychiatric patient examination related to the lecture
* Psychopathology II.	Psychiatric patient examination related to the lecture
* Psychopathology III. and Nosology	Psychiatric patient examination related to the lecture
* Anxiety Disorders	Psychiatric patient examination related to the lecture
* Mood Disorders	Psychiatric patient examination related to the lecture
* Suicide	Psychiatric patient examination related to the lecture
* Somatoform Disorders	Psychiatric patient examination related to the lecture
* Forensic and Ethical Issues in Psychiatry	Psychiatric patient examination related to the lecture
* Obsessive and Compulsive and Related Disorders	Psychiatric patient examination related to the lecture

10th semester

LECTURE (2 hrs/week)	PRACTICE (1 hr/week)
* Alcohol Use Disorders/Neurobiological basis of psychotherapy	Psychiatric patient examination related to the lecture
* Neurocognitive Disorders/First interview, psychotherapy contract, common effective factors of psychotherapy	Psychiatric patient examination related to the lecture
* Behavioral and Psychological Symptoms of Dementia/Cognitive behavioral therapy	Psychiatric patient examination related to the lecture
* Delirium syndromes/Relaxation, symbol and art therapies	Psychiatric patient examination related to the lecture
* Schizophrenia I./Psychotherapy in psychosis	Psychiatric patient examination related to the lecture
* Feeding and Eating Disorders/Humanistic - patient centered therapy	Psychiatric patient examination related to the lecture
* Substance Related and Addictive Disorders/Special aspects of psychotherapy in addictology	Psychiatric patient examination related to the lecture
* Personality Disorders I./ Opportunities of group therapies	Psychiatric patient examination related to the lecture
* Personality Disorders II./Crisis intervention approaches	Psychiatric patient examination related to the lecture
* Schizophrenia II./Expressive and supportive psychodynamic therapies	Psychiatric patient examination related to the lecture
* OCD Spectrum Disorders/Hypnosis, suggestive communication	Psychiatric patient examination related to the lecture

* Psychopharmacology	Psychiatric patient examination related to the lecture
* Non-pharmacological biological therapies	Psychiatric patient examination related to the lecture

PUBLIC HEALTH AND PREVENTIVE MEDICINE I.

7th semester

LECTURE (2 hrs/week)	PRACTICE (2 hrs/week)
* The history of preventive medicine and public health. The levels of prevention. Measuring health status of a population; the theoretical basis of demography and epidemiology.	Requirements of the semester. Introduction into demography. Demographic indexes and their use. Analysis of statistical data-bases.
* The global health situation; priorities in global health. Epidemiology of chronic diseases – cardiovascular diseases.	Measuring mortality; standardization. Measuring morbidity. Analysis of statistical data-bases.
* Epidemiology of chronic diseases – respiratory diseases. Epidemiology of chronic diseases – tumors.	Epidemiological studies: ecological, cross sectional, case-control and cohort studies.
* Epidemiology of chronic diseases – metabolic and musculoskeletal diseases. Epidemiology of mental disorders, suicide and accidents.	Epidemiological studies: interventional studies. Planning and preparation of epidemiological surveys.
* Epidemiology of chronic diseases – gastrointestinal diseases. Health status of high-risk populations (elderly people, prisoners, military and homeless people).	Practical aspects of the prevention of cardiovascular diseases. Students' presentations: epidemiological studies I.
* General epidemiology of infectious diseases. Epidemiology of infectious diseases: airborne diseases.	The role of screening in the prevention of selected chronic diseases. Practical aspects of the prevention of selected chronic conditions. Students' presentations: epidemiological studies II.
* Epidemiology of infectious diseases: toxico-infections. Epidemiology of infectious diseases: enteric diseases	Practical aspects of vaccination. Students' presentations: epidemiological studies III.
* Epidemiology of health care associated infections (infection control, nosocomial surveillance).	Sterilization, disinfection (hand hygiene), disinsection, deratisation. Students' presentations: epidemiological studies IV.
* Global problem of antimicrobial resistance.	Practical aspects of the prevention of selected infectious diseases; enteric diseases. Case studies. Students' presentations: epidemiological studies V.
* Epidemiology of infectious diseases: hematogenic, cutaneous and sexually transmitted diseases.	Demonstration. Practical aspects of the prevention of selected infectious diseases; airborne diseases. Case studies. Students' presentations: epidemiological studies VI.
* Epidemiology of infectious diseases: zoonoses, transmissible spongiform encephalopathies; emerging and re-emerging diseases.	Practical aspects of the prevention of selected infectious diseases II. Hepatitis infections, tick-borne diseases, tetanus, lyssa.

PUBLIC HEALTH AND PREVENTIVE MEDICINE II.**8th semester**

LECTURE (2 hrs/week)	PRACTICE (2 hrs/week)
* Health influencing factors – life style, environment, health care, genetics. Nutrition in public health. Basics of nutrition. Malnutritions. The role of physical activity in the prevention of chronic diseases.	Requirements, questionnaire. Measuring nutritional status. Dietary guidelines, healthy nutrition.
* Diet-related chronic diseases. Treatment of obesity. Food quality and safety.	The role of diet in the prevention of diet-related diseases; special dietary requirements of certain chronic diseases I. (Students' presentations)
* Epidemiology of smoking. Epidemiology of alcohol consumption	The role of diet in the prevention of diet-related diseases; special dietary requirements of certain chronic diseases II. (Students' presentations)
* Human ecology; global warming; air pollutants and their effects on human health (indoor and outdoor). Epidemiology of drug consumption.	Smoking cessation guidelines for health professionals. Prevention of alcohol and drug consumption.
* Water pollutants and their effects on human health. Sewage, soil pollutions, waste management. General toxicology.	Health influencing factors. Health promotion in various settings (community, workplace, school).
* Toxicology of persistent organic pollutants, plastics and agrochemicals. Toxicology of metals, solvents and gases.	Environmental epidemiology: examining health damaging effects of air pollution.
* Occupational health. Occupational safety, accident prevention. Occupational diseases caused by physical exposures.	Demonstration. Environmental epidemiology: examining health damaging effects of surface and drinking water pollution
* HOLIDAY	Case studies about health effects of certain chemicals.
* Occupational diseases caused by biological, ergonomic and psychosocial exposures. Health effects of dusts, occupational pneumoconiosis.	Practical aspects of occupational health.
* Structure and operation of health systems I. – general aspects.	Health effects of workplace-related exposures. Occupational hazards in health care (case studies).
* Structure and operation of health systems II. – health and health care in the family (mother, infant, child, adolescent).	Quality improvement in health care. Quality improvement methods according to steps of PDCA.

PULMONOLOGY**7th semester**

LECTURE (1 hr/week)	PRACTICE (2 hrs/week)
* Main clinical features of lung diseases	Morphology and roentgen anatomy of lung. Physical examination.
* COPD (Chronic bronchitis. Emphysema.)	Characteristic X-ray findings.
* Respiratory function. Spirometry.	Chronic bronchitis. "Pink puffers" and "blue bloaters".
* Pharmacospirometry. Provocation.	Lung function tests. Pharmacospirometry.
* Asthma bronchiale	Diagnosis of asthma bronchiale. Aspecific

* Malignant neoplasm of lung	provocation tests, skin test, IgE. Bronchoscopy, Thoracoscopy, mediastinoscopy.
* Pneumonia lung abscess	Radiographic findings of lung cancer. Transthoracic needle-biopsy. Cytology. TNM classification.
* Breathing mechanics. Blood gases.	Radiographic findings of pneumonia. Sputum examination. Treatment.
* Interstitial lung diseases	Pletysmography. Diffusing capacity. Cardiopulmonary exercise test.
* Diseases of pleura	Aetiology of pleural effusions. Aspiration of the pleural effusion. Laboratory findings.
* Pulmonary thromboembolism, cor pulmonale chronicum	X-ray findings in tuberculosis.
* Tuberculosis	Sputum examination in tuberculosis. Tuberculin test. Treatment.
* Occupational lung diseases. Fungal infections.	Cor pulmonale. Differential diagnosis of disseminated lung diseases.
* Respiratory failure. Sleep apnoea syndrome.	

RADIOLOGY

7th semester

LECTURE (1 hr/week)	PRACTICE (1 hr/week)
* Imaging diagnostics: role, development, present and future	Imaging diagnostics: role, development, present and future
* Conventional radiology	Conventional radiology
* Contrast agents	Contrast agents
* Ultrasound	Ultrasound
* Computed tomography and magnetic resonance imaging	Computed tomography and magnetic resonance imaging
* Interventional radiology	Interventional radiology
* Gastroenterology I.(esophagus, stomach, duodenum)	Gastroenterology I.
* Gastroenterology II. (mesenteric small bowels large intestine)	Gastroenterology II.
* Joints	Joints
* Bones	Bones
* Chest I. (lung)	Chest I. (lung)
* Chest II. (mediastinum)	Chest II. (mediastinum)
* Heart and peripheral vessels	Heart and peripheral vessels
* Head and neck	Head and neck

8th semester

LECTURE (1 hr/week)	PRACTICE (1 hr/week)
* Radiology of the breasts and female reproductive system	Radiology of the breasts
* Radiology of the liver	Radiology of the liver
* Radiology of the biliary tract	Radiology of the biliary tract
* Radiology of the pancreas & spleen	Radiology of the pancreas & spleen

*	Neuroradiology I. (image modalities, congenital anomalies and vascular lesions of the head)	Neuroradiology I.
*	Neuroradiology II. (Tumours, infections, trauma of the head)	Neuroradiology II.
*	Neuroradiology III. (Spinal diseases)	Neuroradiology III.
*	Pediatric radiology	Pediatric radiology
*	Radiology of the kidneys & the urinary tract	Radiology of the kidneys & the urinary tract
*	Radiology of the retroperitoneal space	Radiology of the retroperitoneal space
*	Radiology of the pelvis and the male reproductive organs	Radiology of the pelvis and the male reproductive organs
*	Radiological aspects of emergency	Radiological aspects of emergency
*	Radiological aspects of trauma	Radiological aspects of trauma

SURGERY

7th semester

LECTURE (2 hrs/week)	PRACTICE (2 hrs/week)
* Benign diseases of the breast	The syllabus of the practicals are synchronized with the lectures.
* Surgery of the breast cancer	The patients examinations and the discussion of the symptoms and illnesses follow the topics of the lectures.
* Breast-reconstruction. Oncoplastic surgery in the surgical treatment of breast cancer	The practicals take place in the Department of Surgery.
* Surgery of abdominal wall The syllabus of the practicals are synchronized with the lectures.	
* Surgery of the mediastinum The patients examinations and the discussion of the symptoms and illnesses follow the topics of the lectures.	
* Surgery of the thorax The practicals take place in the Department of Surgery.	
* Surgery of the lung cancer	
* Cardiac Surgery	
* Cardiac Surgery	
* Cardiac Surgery	
* Vascular surgery	
* Vascular surgery	
* Vascular surgery	

8th semester

LECTURE (2 hrs/week)	PRACTICE (2 hrs/week)
* Benign diseases of the oesophagus The practicals take place in the Department of Surgery.	The syllabus of the practicals are synchronized with the lectures.

* The malignant disease of oesophagus	The patients examinations and the discussion of the symptoms and illnesses follow the topics of the lectures.
* Gastric surgery. Malignant disease	The practicals take place in the Department of Surgery.
* Gastric surgery. Benign disease	
* Surgery of the pancreas I. The syllabus of the practicals are synchronized with the lectures.	
* Surgery of pancreas II. The patients examinations and the discussion of the symptoms and illnesses follow the topics of the lectures.	
* Surgery of the liver	
* Surgery of gallbladder and biliary ways	
* Surgery of the spleen	
* Benign diseases of the colon and rectum	
* Malignant diseases of the colon and rectum	
* Proctology, the care of patients wearing of intestinal stoma	
* Bleeding of the GI tract	
* Minimal invasive surgery	

9th semester

LECTURE (1 hr/week)	PRACTICE (1 hr/week)
* Endocrine surgery	The syllabus of the practicals are synchronized with the lectures.
* Surgical immunology	The patients examinations and the discussion of the symptoms and illnesses follow the topics of the lectures.
* Organ transplantation	The practicals take place in the Department of Surgery.
* Ileus	
* Peritonitis	
* Appendicitis	
* Differential diagnosis of acute abdomen	

TRAUMATOLOGY**10th semester**

LECTURE (2 hrs/week)	PRACTICE (2 hrs/week)
* General traumatology. Injuries of soft tissues. Types of fractures. Bone healing. Methods of managing fractures. Early and late complications of the fractures and dislocations.	Clinical examination of the injured patient. Additional clinical investigations. X-ray examination.
* Fractures and dislocations about the shoulder, humerus and elbow.	Principles of fracture treatment. First aid. Treatment of uncomplicated closed fractures.
* Fractures of the olecranon, radius and ulna. General hand surgery. Fractures and dislocations of the hand.	Plaster technique. Synthetic splinting. Other external splints.

* Surgical management of soft tissue injuries. Treatment of tendon injuries. Skin injuries. Treatment of skin defects. Plastic reconstructive surgery of the hand.	Operative treatment of fractures. Presentation of cases.
* Injuries of the peripheral nerves. Nerve degeneration and regeneration. Microsurgical treatment of peripheral nerve injuries. Amputations. Replantation, revascularisation and microvascular plastic surgical methods.	Complications of fractures. Delayed union. Non-union. Avascular necrosis. Osteoarthritis. Reflex sympathetic dystrophy.
* Injuries of the vertebral column with and without neurological spinal cord defect. Surgical stabilization of the vertebral fractures.	Joint injuries. Dislocation and subluxation. Diagnosis, complications, treatment.
* Head injuries. Fractures, epidural, subdural and intracerebral hematomas. First aid diagnosis and treatment.	Head injuries. Diagnosis, treatment. Visit at the intensive care unit.
* Fractures of the hip joint, intracapsular fractures of the femoral head. Intertrochanteric fractures. Fractures of the femur and patella.	Spine injuries. Cervical spine injuries. Halo-thoracic support. Paraplegia and tetraplegia.
* Pelvic injuries. Fractures of the acetabulum. Examination of the knee joint. Injuries of the knee joint. Ligamentous injuries. Meniscal ruptures. Arthroscopy of the knee joint. Sport traumatology.	Shoulder, upper arm and elbow injuries.
* Fractures of the tibial condyles. Closed and open injuries of the tibial shaft. Complications.	Forearm, wrist and hand. Fractures and soft tissue injuries.
* Fractures and dislocations about the ankle and foot.	Peripheral nerve injuries. Microsurgical treatment. Brachial plexus injuries.
* Polytraumatization and multiple injuries. First aid and transportation. Priorities in polytrauma. Primary and secondary treatment of fractures.	Pelvic fractures. Fractures of the femoral neck. Intertrochanteric fractures. Treatment of the femoral fractures.
* Thoracic and abdominal injuries. Treatment of open and blunt traumas. Intensive therapy of injured patients.	Knee injuries. Arthroscopy. Meniscal tear. Rupture of ACL.
*	Leg, ankle and foot injuries. Methods of treatment. Special fractures in children.

UROLOGY

10th semester

LECTURE (1hr/week)	PRACTICE (2hrs/week)
* Signs and symptoms urological diseases. Case history and the physical examination.	Case history, physical examination. Case presentation.
* Congenital anomalies.	Signs and symptoms of the urology patient. Case presentation.
* Urolithiasis.	Catheters and endoscopic instruments.
* Incontinency.	Endoscopy.
* Urotraumatology.	Percutaneous epicystostomy and nephrostomy.
* Acute and chronic renal failure.	ESWL.
* Nonspecific infections in the urology.	Uro-radiology.
* Tumors of the kidney and ureter.	Physical examinations of patients.

* Tumors of the bladder.	Laboratory investigations in the urology.
* Tumors of the external male genitalia.	Biopsy from bladder, prostate and testis.
* Tumors of the prostate.	Evaluation of sonography.
* BPH.	Physical examinations. Case reports.
* Acute urology.	Visit to operating theatre.
* Consultation	Acute urology

DOCTOR-PATIENT COMMUNICATION

7th or 8th semester

The aim of the subject:

Students attain the skills needed for doctor-patient consultation and for selecting from the appropriate consultation models.

By the end of the course students will be aware of the importance of doctor-patient communication and its critical points.

They should acquire the ethical principles of doctor-patient communication and they should be able to integrate them into their consultation behaviour. Students should know the ethical and communication methods of commitment to providing medical information.

They should be able to carry out a 10-minute doctor-patient consultation, and afterwards to analyse and evaluate their performance from the video recording at a group meeting. They should be able to elaborate a medical case.

HUNGARIAN LANGUAGE

7th semester

PRACTICE (3 hrs/week)

- * Revision of 3rd year material: body parts, most common symptoms and conditions, instructions, medications.
- * History taking and physical examination in internal medicine.
- * History taking and physical examination in the surgical department. Field practice.
- * Gynaecology. The external and internal female genital organs. Revising the Possessive Structure.
- * The most frequent complaints and diseases in the field of gynaecology. Practising basic doctor-patient situations: role-play, history taking in Gynaecology.
- * Asking the patient about her menstruation cycle and history. Revision of Wh-questions. Obstetrics. Taking history concerning previous pregnancies. Deliveries and abortions. Complaints during pregnancy. Field practice.
- * Patient examination at the Department of Obstetrics and Gynaecology. General and specific instructions to patients. Sending the patient for further investigations.
- * Practising basic doctor-patient situations: role-play, history taking in Obstetrics and Gynaecology. Revising the Indefinite Pronouns. Oral exam.
- * AUTUMN BREAK
- * Pulmonology. The structure of the respiratory system. Revising the name of body parts.

- * The most frequent abnormal conditions and diseases in Pulmonology. Revising the vocabulary of breathing problems, coughing and sputum. Field practice.
- * History taking, patient examination and specific instructions in the field of Pulmonology.
- * Practising doctor-patient communication: role-play, history taking and examination of patients with respiratory problems. Giving advice to patients concerning medication. Reading simple Hungarian case histories taken from the field of Pulmonology.
- * Revision. Final test (written).
- * Practising doctor-patient situations: role-play, history taking.
Final test (oral).

8th semester

PRACTICE (3 hrs/week)

- * Orthopaedics. The structure of the skeletal system. Revising the name of bones and joints.
- * Patient examination at the Department of Orthopaedics. General and specific instructions to patients. Sending the patient for further investigations.
- * The most frequent abnormal conditions and diseases in Orthopaedics. Revising the vocabulary of accidents, Traumatology and Physiotherapy.
- * Practising doctor-patient situations: role-play, history taking in Orthopaedics.
Briefing English case histories taken from the field of Orthopaedics in Hungarian.
- * Urology. The most common conditions and diseases in the field of Urology: cystitis, kidney stones, pyelonephritis.
- * Patient examination in Urology. Giving instructions and sending the patient for further investigations.
- * Practising doctor-patient situations: role-play, history taking in Urology.
Briefing English case histories taken from the field of Urology in Hungarian.
- * Revision and oral exam.
- * SPRING BREAK
- * Exam preparation: written part
- * Exam preparation: written part
- * Reading simple Hungarian case histories taken from the field of Orthopaedics and Urology.
- * Reading simple Hungarian case histories taken from the field of Orthopaedics and Urology.
- * General revision. Practising doctor-patient dialogues in all covered medical fields.
- * Revision. Practising doctor-patient situations that can emerge at medical and surgical departments. Interviewing and examining patients, sending them for further investigations, giving advice on diet, life style and medication.

ADVANCED BIOSTATISTICS**8th, 10th semester**

LECTURE (1 hr/week)	PRACTICE (1 hr/week)
* Introduction: summary of basic biostatistics	The mean concepts of ogisticccs. Statistical computer systems.
* Nonparametric methods for two ore more dependent or independent data	The choice of the appropriate statistical method and its evaluation
* Multiple linear regression, linear models	Data sets with several independent variables (i.e., risc factors)
* Comparison of several independent group-means: two-way ANOVA	Data sets and problems when two-way ANOVA is appropriate
* Two-way ANOVA with interaction	Understanding the concept of interaction
* Comparison of several related group-menad: repeated measures ANOVA	Data sets and problems for repeated measurements ANOVA
* Summary	TEST I: solving two problems, main results and interpretation
* Diagnostic tests. Specificity, sensitivity, PPV, NPV, Accuracy	Calculation of the diagnostic measures
* Biostatistical methods in epidemiology, relative risk, odds ratio	Calculation of RR and OR by hand and by computer. Comparison of methods.
* Logistic regression: equation, use, meaning	Simple logistic regression problem soving by computer program
* Logistic regression: ogisticcc accuracy ROC curve	Examples from the medical literature: the use of ogistic regression to find risc factors of an illness.
* Multivariate methods: discriminant analysis	Examples from the medical literature: decision making by computer
* Multivariate methods: cluster analysis	Examples from the medical literature: classification of cases or variables
* Summary	TEST II: solving two simple problems, main results and interpretation.

BASIC BIOSTATISTICS**7th, 9th semester**

LECTURE (1 hr/week)	PRACTICE (1 hr/week)
* Data definition, types of data, displaying data. Sample characteristics.	Bar chart, histogram. Calculation of the mean and standard deviation.
* Probability, random variables and their types, distributions.	Calculation of ogisticccs. The use of a computer program.
* Binomial, Poisson, uniform and normal distribution and their properties.	The use of statistical tables – standard normal distribution.
* Statistical estimation, confidence intervals.	Calculation of the confidence interval for a population mean. The use of the t-table.
* Testing hypotheses, significance. One-sample t-test.	Practice of one-sample t-test using experimental data.

*	Paired and Independent samples t-tests.	Practice of t-tests using experimental data. The meaning of significance, p-value.
*	Errors in hypothesis tests	TEST I.
*	Comparing the mean of several groups: one-way analysis of variance.	Independent t-tests and one-way ANOVA. Multiple comparisons.
*	Relationship between continuous variables, correlation, linear regression.	Scatterplot, trend-line in EXCEL. http://www.ruf.rice.edu/~lane/stat_sim/reg_by_eye
*	Relationship between categorical variables: the chi-square test for independence	Evaluation of a 2x2 table by hand calculation and by computer
*	The use of 2x2 tables in diagnostic tests. The chi-square-test for goodness of fit.	Calculation of sensitivity, specificity, positive and negative predictive value.
*	Nonparametric methods.	Statistical tests on ranks.
*	Summary	TEST II.
*	Examples from the literature	Practical questions of applied biostatistics.

HOW TO USE MICROBIOLOGY LABORATORY RESULTS TO DIAGNOSE AND TREAT INFECTIOUS DISEASES; INTERACTIVE; PROBLEM-BASED CASE

8th or 10th semester

LECTURE (2 hrs/week)

* Principles of microbiological sample collection and handling. Procedures for the transport of microbiological specimens. Cases will be discussed where these procedures have a great influence on the outcome of laboratory investigations.

* Upper and lower respiratory tract infections. Community-acquired and nosocomial pneumonia cases will be discussed in details. How to choose adequate antibiotic therapy? The value of microbiological tests in these cases will be discussed.

* Upper and lower urinary tract infections. Differences in antibiotic resistances of pathogens causing urinary tract infections. Pitfalls in laboratory tests.

* Differences in gastrointestinal diseases caused by bacteria, viruses and parasites. Possibilities in the laboratory diagnosis and treatment of these infections.

* Infection or colonization. How to distinguish them using microbiological laboratory tests?

Difficulties in the interpretation of laboratory results and findings.

* Nosocomial infections, nosocomial epidemics, and laboratory methods which are suitable to follow the spread of nosocomial pathogens in a hospital environment.

Cases involved in nosocomial epidemics will be discussed, together with measures taken to stop the spread of nosocomial pathogens.

* Neuroinfections and joint infections. Laboratory methods, including molecular techniques to set up the diagnoses of central nervous system infections.

- * Infections of immunocompromised patients, special aspects of infections in case of patients with haematologic malignancy. Problems in the laboratory diagnosis of these infections.
- * Sexually-transmitted diseases and their consequences, classic and newly recognized sexually-transmitted infections. Diagnostic possibilities in case of STIs.
- * Infections caused by anaerobic bacteria, diagnostic problems and anaerobic culture possibilities.
- * Sepsis and its consequences, and blood culture techniques in the diagnosis of sepsis. Treatment possibilities in case of bloodstream infections. The spread of antibiotic resistance worldwide, development of resistance to certain antibiotics during therapy.
- * General principles of specimen collection and handling in case of viral infections. Emerging and re-emerging viral infections.

Cases will be discussed where these procedures have a great influence on the outcome of laboratory investigations.

- * How to use molecular biological methods in routine clinical microbiological diagnostics? The value of these methods?

Cases will be discussed where molecular techniques can help to set up the diagnosis.

- * General principles of detection and identification of infections caused by parasites.

CHILD AND ADOLESCENT PSYCHIATRY

8th or 10th semester

LECTURE (2hr/week)

- * Introduction to child and adolescent psychiatry
- * Assessment, diagnosis and formulation in child psychiatry
- * Psychological assessment
- * Neurodevelopmental disorders I: Intellectual disability and specific learning disorders
- * Neurodevelopmental disorders II: Attention deficit-Hyperactivity disorder, Tic disorder, Tourette disorder
- * Neurodevelopmental disorders III: Communication disorders, Pervasive developmental disorder
- * Anxiety disorders I (Separation anxiety, Specific phobia, Social anxiety disorder, GAD)
- * Anxiety disorders II (Agoraphobia, Panic disorder, Selective mutism, OCD, PTSD, BDD)
- * Mood disorders (Depressive disorder, Bipolar disorder), Suicidal behavior, Non-suicidal self-injury
- * Schizophrenia spectrum disorders
- * Disruptive, impulse control and conduct disorders
- * Eating disorders (Anorexia nervosa, Bulimia nervosa)
- * Elimination disorders (Enuresis, encopresis)
- * Psychoactive substance use and addictive disorder

CLINICAL GENETICS

10th semester

LECTURE (2 hrs/week)

- * Genetics in medicine. Human genome, epigenome. Genome programs, postgenomic era.
- * Epigenetic control of gene expression. Genomic imprinting, X chromosome inactivation, tissue specific imprinting.
Teratogenesis. Teratogens in clinical praxis.
- * Reproductive genetics. Prenatal genetic screening. Prenatal genetic diagnostics. Fetal programming.
- * Dominant and recessive pattern of inheritance in clinical praxis.
- * Chromosome anomalies in clinical practice. Dysmorphology. Facial dysmorphism.
- * Genetic counseling, genetic screening. Ethical considerations. Genetic law. Local aspects in EC, U.S. and Hungary
- * Genetics therapy. Stem cell therapy. Artificial chromosome.
Pharmacogenetics, pharmacogenomics.
- * Cancer genetics and genomics.
- * Mitochondrial inheritance. Multifactorial inheritance. Genetic background of complex diseases, gene-environment interactions.
- * Clinical Genomics. Changing paradigm in common disease.
- * The significance of genomic knowledge in the diagnosis, therapy and prevention of human diseases.
Summary. Assessment of the semester.

CLINICAL IMMUNOLOGY

8th, 10th semester

LECTURE (2 hrs/week)

- * The structure and the functions of the immune system. The biological significance of the self recognition.
- * Methods for clinical immunological investigations.
- * Immune-mediated tissue damage. The role of cytokines.
- * Immunology of allergic diseases.
- * Autoimmunity - Health and disease. The autoimmune diseases.
- * Immunohaematology.
- * Connective tissue disorders and joint diseases.
- * Organ specific autoimmune diseases.
- * Detection of histocompatibility antigens and their pathogenetic significance. Transplantation immunology. Reproductive immunology.
- * Immunodeficiencies. The immunology of HIV infection.
- * Tumor immunology.
- * Neuroimmunology.
- * Immune manipulation.

INTRODUCTION TO AVIATION AND SPACE MEDICINE

7th or 9th semester

- * The history, subject, position and role of aviation and space medicine in medical sciences.
- * The effect of the dynamic factors of aviation on the pilot's body. The pilot's life-saving equipment.

- * The effects of noise and vibration on the human body during flight.
- * The basics of aerodynamics. The composition, layers and main physical properties of the atmosphere.
- * The medical qualification of pilots and parachuters. The ergonomical characters of the cockpit of an aircraft.
- * The effects of short- and long-range flights from the passenger's point of view.
- * Medical Evacuation by Air (MEDEVAC) Transportation of Sick and Wounded Patients by Air.
- * The pilot's lifestyle, nutrition and sports.
- * The adverse effects of changes in baropressure on the human body. The effect of reduction in partial oxygen pressure on the human body, its importance in aviation. Pressure oxygen breathing. The pressurized cabin.
- * The psychophysiological characters of the pilot's personality. The fatigue and overload of aircrews
- * Decompression sickness.
- * Spatial alertness in flight, flight illusions. Motion sickness in aviation.
- * The physiological effects of space flight on the human body. The basic principles of astronaut selection and training.

THE CLINICAL BASICS OF AVIATION AND SPACE MEDICINE

8th or 10th semester

- * The aeromedical qualification system in civilian and military practice.
- * Functional diagnostic examinations in practical aviation medicine.
- * Aeromedical problems in pulmonology and gastroenterology.
- * The cardiological aspects of aviation medicine.
- * Excess temperature in aviation.
- * Neurological and psychiatric problems in aviation medicine.
- * Ophthalmology in aviation medicine.
- * Emphasized aeromedical issues in oto-rhino-laryngology.
- * The comparison of experiences gained in the MiG-29 and the Gripen.
- * The issues of alcoholism in aviation medicine.
- * Rheumatological aspects of aviation.
- * The medical background of the International Space Station (ISS). Medical care during long-term space flights.
- * Energy drinks in aviation?

LABORATORY DIAGNOSTICS: USE OF LABORATORY TESTS IN PRACTICE

8th, 10th semester

TUTORIAL (2 hours/week): Solving and discussing clinical cases

- * Introduction to laboratory diagnostics
- * Visit at the Department of Laboratory Medicine

*	Acid-base balance disorders: diagnosis and treatment of acute cases, combined acid-base disorders, discussion of complex cases
*	Disorders of water, sodium and potassium balance: diagnosis and treatment of osmoregulatory defects and hypo-, and hyperkalaemia and -natraemia
*	Bone and calcium metabolism: Causes of hypo- and hypercalcaemia, diagnostic algorithms
*	Laboratory diagnosis of renal diseases: Managing patients with acute and chronic renal failure, diagnosis of impaired glomerular and tubular function. Differential diagnosis of proteinuria
*	Laboratory diagnosis of diabetes mellitus: diagnosis and treatment of acute cases, problems with the laboratory monitoring of long-term outcomes
*	Cardiovascular risk assessment and laboratory management of patients with cardiovascular diseases: case discussions – Evidence-based practice of AMI, acute coronary syndrome and congestive heart failure. Differential diagnosis of acute chest pain and dyspnoea.
*	The role of laboratory in oncology: tumor markers and their use in practice
*	Case presentations in endocrinology – a case oriented approach: Functional tests and diagnostic algorithms in the investigation of endocrine abnormalities
*	Laboratory diagnosis of coagulation disorders: Cases on the diagnosis of thrombo-embolic events (DVT, PE, congenital thrombophilias, lupus anticoagulant and anti-phospholipid syndrome) and bleeding disorders
*	Haematology cases: differential diagnosis of anaemia, diagnosis of monoclonal gammopathies, use of flow cytometry in haemato-oncology
*	Therapeutic drug monitoring: Role of TDM in patients treated with lithium, digoxin, antibiotics and immunosuppressive medications.
*	Toxicology: Cases on drug overdose and ingestion of toxic substances.

NEUROSURGERY

10th semester

LECTURE (2 hrs/every second week)	PRACTICE (2 hrs/week)
* Introduction to neurosurgery, Emergency neurosurgical cases I.: Traumatic Brain Injury	Material of the lecture in practice.
* Diagnostic procedures in neurosurgery, Emergency neurosurgical cases II: Head I (intracranial mass lesions, infection)	Material of the lecture in practice.
* Emergency neurosurgical cases III: Head III (cerebrovascular), Spine (trauma, degenerative, infection)	Material of the lecture in practice.
* Cerebrovascular diseases	Material of the lecture in practice.
* Neurosurgical treatment of central nervous system tumors	Material of the lecture in practice.
* Spine surgery: traumatic injuries, degenerative disorders, infections	Material of the lecture in practice.

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| * | Other: Endovascular treatment, movement disorder and pain surgery, pediatric neurosurgery and hydrocephalus | Material of the lecture in practice. |
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NUCLEAR MEDICINE

7th, 9th semester

LECTURE (14 hr/semester; 2 hr/week)

- * Nuclear medicine physics History Basic principles of nuclear physics and radiation biology
- * Instrumentation of nuclear medicine Radiation detector systems Gamma camera Single photon emission computed tomography Positron emission computed tomography (PET), PET/CT
- * Radiopharmacology Tracer principle Production of radionuclides Radiopharmaceutical chemistry
- * Nuclear medicine in disorders of bones and joints Bone scintigraphy Joint scintigraphy Bone marrow scintigraphy Complementary investigations of the bones and joints
- * Nuclear cardiology I. Myocardial perfusion studies Curriculum 2017/2018 Faculty of Medicine – Clinical Module
- * Nuclear cardiology II. Radionuclide ventriculography (RNV) at rest RNV during stress ECG-gated RNV with SPECT Miscellaneous nuclear cardiological methods
- * Nuclear medicine investigations of the respiratory system Lung perfusion investigation Lung ventilation investigations Diagnosis of pulmonary embolism
- * Nuclear medicine in gastroenterology Hepatobiliary scintigraphy Differential diagnostics of focal liver lesions Scintigraphy of the salivary glands Oesophagus passage study Gastric motility study Gastrointestinal bleeding site detected by radioisotopes Meckel's diverticulum detection Investigations of intestinal inflammations Investigations in malabsorption (Schilling test)
- * In vitro nuclear medicine assays with radionuclides Principles of immunoassays Clinical applications of immunoassays
- * Endocrinological aspects of nuclear medicine Thyroid scintigraphy Parathyroid scintigraphy Adrenal scintigraphy Neuroendocrine tumor imaging techniques
- * Nuclear medicine in urogenital disorders Static renal scintigraphy Dynamic studies Vesicoureteric reflux study Evaluation of renal transplants Scrotum scintigraphy Radionuclide hysterosalpingography
- * Nuclear medicine of the central nervous system (CNS) Brain angioscintigraphy and blood-brain barrier scintigraphy Cerebrospinal fluid scintigraphy Brain SPECT studies Neuroreceptor SPECT Brain tumors evaluated by SPECT Brain PET studies
- * Nuclear oncology Tumour markers Tumouraffin radiopharmaceuticals and their applications Oncological aspects of bone marrow scintigraphy Scintigraphy of the lymphatic system, sentinel lymph node detection Oncological aspects of PET, PET/CT and SPECT/CT studies

* Nuclear medicine in therapy Thyroid disorders treated with radioisotopes Radiosynovectomy
 Palliative treatment of bone metastases Possibilities in radioimmunotherapy Neuroendocrine tumours
 treated with 131-I-MIBG 32-P treatment in polycythaemia vera

ORAL AND MAXILLOFACIAL SURGERY

8th and 10th semester

LECTURE (2 hrs/week)	
*	Cardiac risk patients in dental practice
*	Antibiotics in dentistry and oral surgery
*	Internal medicine questions in dental practice
*	Dental treatment of patients with bleeding disorders
*	Dental treatment of patients following radio/chemotherapy
*	Maxillary sinus diseases and their management
*	Stomato-oncological screening
*	Differential diagnosis of neck masses
*	Differential diagnosis of facial pain
*	Head and neck skin tumors
*	Odontogenic tumors
*	Sedoanalgesia
*	Written exam

SOCIAL AND HEALTH POLICY

8th, 10th semester

LECTURE (2 hrs/week)	
*	Introduction to health policy. The influence of international organisations (WHO, World Bank etc.) on national health policies.
*	Health and health policy in the European Union.
*	The basic principles of health care systems.
*	Health care services in selected European countries.
*	Health care services in North American countries.
*	Quality assurance in health care.
*	Human resource management in health care.
*	Introduction to social policy. The aim and task of social policy. The basic values and principles of social policy.
*	Social policy in welfare states.
*	The structure and function of social policy in the European Union. Social policy in developing countries.
*	Poverty, deprivation, patterns of inequalities.
*	Social policy of high-risk populations I. (immigrant, ethnicity, unemployed).
*	Social policy of high-risk populations II. (disabled, chronic diseased, elderly).

- * The evaluation of the social and health care reforms from the beginning of '90s – world tendencies (Final evaluation).

THE LANGUAGE OF EFFECTIVE DOCTOR-PATIENT COMMUNICATION I.

7th or 9th semester

PRACTICE (2 hrs/week)	
* An introduction to physician – patient communication 1	An overview of communication. Identifying the elements that make up communication
* An introduction to physician – patient communication 2	The patient centered approach: patient friendly language in history taking, instructing patients during examinations and discussing treatment options.
* Gastroenterology 1	Receiving patients: greeting them and putting them at ease. Introducing yourself as the attending physician and explaining your role.
* Gastroenterology 2	The presenting complaint. Encouraging patients to describe their problems in their own words.
* Gynecology and obstetrics 1	Asking for history of menstruation Encouraging withdrawn patients to speak
* Gynecology and obstetrics 2	Taking obstetric history: previous pregnancies, complications, deliveries, asking for present complaints
* Orthopedics	Patient's past medical history. Discussing family medical history. Taking effective notes during the interview.
* Endocrinology	Explaining medical terminology to a patient Updating patient notes
* Surgery 1	Giving results: explaining results to patients, giving a prognosis
* Surgery 2	Planning surgical treatment: explaining treatments/surgical interventions to a patient, discussing options
* Surgery 3	Describing benefits and side effects, negotiating treatment Informed decision making
* Pulmonology	Delivering bad news Writing concise and accurate notes
* Dental care	Preparing and reassuring the patient during the examination. Negotiating the treatment.
* Test/exam	

THE LANGUAGE OF EFFECTIVE DOCTOR-PATIENT COMMUNICATION II.

8th or 10th semester

PRACTICE (2 hrs/week)	
* Cardiology	Enquiring about patient's social history. Asking about life-style and environmental health
* Anesthesiology and intensive care	Anesthesiological assessment of a patient Describing types of anesthesia Postoperative care

* Oncology	Educating and counseling patients and their families Revision of the written documentation of patient care
* Dermatology	Discussing treatment options Showing sensitivity and respect to patients
* Pediatrics 1	Communicating with children and adolescents. Establishing and developing rapport with a child.
* Pediatrics 2	Reassuring a child. Child-friendly instructions. Asking about substance use.
* Psychology	Encouraging withdrawn patients to speak. Calming aggressive or angry patients.
* Neurology 1	Reassuring a patient or relative. Showing empathy.
* Neurology 2	Techniques for communicating with patients with neurological problems. Language to show sensitivity.
* Rheumatology	Encouraging patients to express their fears and concerns. Giving a prognosis.
* Oto-rhino-laryngology	Summarizing and structuring the interview Communicating with elderly patients
* Ophthalmology	Handling complaints Managing unrealistic requests (saying no)
* Urology	Encouraging patients to express their fears and concerns Advising on lifestyle
* Test/exam	

TROPICAL DISEASES

8th or 10th semester

LECTURE (2 hrs/week)	
*	General aspects of tropical diseases. Characteristic diseases of the gastrointestinal tract focusing on bacterial infections frequently seen in tropical areas. Pathogenesis, clinical and laboratory diagnosis, and therapeutic options. Travellers' diarrhoea. Pathogenesis, clinical and laboratory diagnosis.
*	Diarrhoea caused by protozoa: entamoebiasis, cryptosporidiasis, giardiasis, and diseases caused by <i>Isospora</i> , <i>Balantidium</i> , and <i>Capillaria</i> . Pathogenesis, clinical and laboratory diagnosis, and therapy. Epidemiology, life cycles clinical and laboratory diagnosis. Therapy.
*	Special aspects of viral infections in tropical areas. Geographical distribution, pathogenesis, clinical and laboratory diagnosis of arboviruses. Pathogenesis, clinical and laboratory diagnosis of viral haemorrhagic fevers; Marburg and Ebola viruses. Importance of the early diagnosis of imported viral infections in non-tropical countries. .
*	Arthropod-borne infections caused by various bacteria, and spirochetes in tropical areas. Distribution of various vectors which may influence the emergence of a disease. Plague. Clinical and laboratory diagnosis, and therapy.
*	SARS, avian flu, rabies, West Nile virus- and other rare viral infections characteristic in some tropical countries. Slow viruses. Clinical picture, pathogenesis, and diagnostic possibilities.
*	Malaria, schistosomiasis. Causative agents, distribution of vectors, pathogenesis, clinical and laboratory diagnosis, and therapy

*	Tuberculosis, leprosy, and other bacterial infections with special emphasis on tropical areas (meningitis caused by <i>N. meningitidis</i> , and rhinoscleroma). Clinical and laboratory diagnosis. Differences in clinical picture in the tropical areas compared to other countries. Therapy.
*	Sexually transmitted infections and diseases. Differences in the presentation of various bacterial and viral STDs in tropical areas. AIDS in Africa and in other undeveloped countries. Clinical symptoms, epidemiology, laboratory diagnosis, and therapy. AIDS-related infections and therapy.
*	A physician's experiences in the tropical area I.
*	Viral exanthemas and central nervous system infections in the tropical area. Clinical symptoms, epidemiology, laboratory diagnosis, and therapy.
*	A physician's experiences in the tropical area II.
*	Infections associated with immunosuppression and HIV. Clinical symptoms, epidemiology, pathogenesis, and laboratory diagnosis.
*	Lesser known viral infections in the tropical area. Clinical manifestation, pathogenesis, and diagnostic possibilities.
*	Written exam.

RHEUMATOLOGY

9th semester

LECTURE (2 hrs/week)

The course „Rheumatology” covers the whole spectrum of musculoskeletal diseases including the immune-mediated internal medical systemic inflammatory diseases. The aim of the course is to provide a more detailed and practical overview of various types of arthritis and systemic autoimmune diseases, in addition to the limited topics covered within the clinical immunology section of the Internal Medicine course (10th semester).

The topics are delivered in interactive, seminar-like lectures and in practicals at the Department of Rheumatology and Immunology. Special emphasis is put on „hands-on” training at bedside. The lectures are interactive, focus on live or slide-based patient presentation, and on critical thinking, decision-making and differential diagnostic thinking.

The immunological basis of the diseases, novel treatment paradigms, the principles of immunosuppressive therapy, the innovative biological therapies, and the systematic diagnostic work-up of patients with arthritis, and other immune-mediated manifestations, such as Raynaud's phenomenon, skin, renal, pulmonary, neurological, etc. involvements typical of systemic autoimmune diseases are detailed within the course „Rheumatology”.

*	Lecture – Introduction. Systemic lupus erythematosus, antiphospholipid syndrome; László Kovács
*	Practical – max. 20 students
*	Lecture – Rheumatoid arthritis, spondylarthritis; Attila Balog
*	Practical – max. 20 students
*	Practical – max. 20 students
*	Practical – max. 20 students
*	Lecture - Systemic sclerosis (scleroderma), Systemic vasculitides; László Kovács
*	Practical – max. 20 students
*	Lecture - Sjögren's syndrome, polymyositis, dermatomyositis; Attila Kovács
*	Practical – max. 20 students

- * Practical – max. 20 students
- * Practical – max. 20 students
- * Consultation; László Kovács

CARDIAC ELECTROPHYSIOLOGY AS A BASIC PROPERTY OF CARDIAC FUNCTION

4th and 8th semester

LECTURE AND PRACTICE (2 hrs/week)

- * Introduction.
- * Basic principles of electrophysiology, the impulse propagation in the heart I.
- * Basic principles of electrophysiology, the impulse propagation in the heart II.
- * The action potential of myocytes and the ionic channels determining the action potential I.
- * The action potential of myocytes and the ionic channels determining the action potential II.
- * Methods and techniques in cardiac electrophysiology.
- * Electro-mechanical coupling in the heart I.
- * Genetic background of ion-channel disturbances in the heart.
- * Electro-mechanical coupling in the heart II.
- * The mechanism of developing cardiac arrhythmias
- * Electrophysiological changes after the disturbances in blood supply to the myocardium.
- * Experimental methods and clinical relevance to investigate cardiac arrhythmias.
- * Investigational techniques in cardiac cellular electrophysiology
- * Practical and consultation

PHYSICS IN RADIOTHERAPY

8th Semester

LECTURE (1 hr/Week)

- * Basic Radiation Physics, electron interactions, photon interactions
- * Radiation dosimeters, Ionization chambers, Film dosimetry, Semiconductors
- * Treatment machines for external beam radiotherapy, LINACs, Calibration photon and electron beams
- * Commissioning of linear accelerators, quality assurance and quality control in RT
- * Clinical treatment planning in external photon beam radiotherapy
- * The role of imaging procedures in radiation therapy
- * Special procedures and techniques in radiotherapy, conformal radiotherapy. Intensity-modulated radiation therapy, Image-guided radiotherapy

FOUNDATIONS OF EVIDENCE BASED MEDICINE**6th, 8th, 10th semester****LECTURE
(2 hr/Week)**

- * Introduction of evidence-based medicine/healthcare: concepts, steps in practicing EBM
- * Asking structured questions (PICO), classification of clinical questions. The hierarchy of evidences.
- * Types of studies: RCT, cohort, case-control, cross-sectional studies.
- * Search the evidence – theoretical and practical knowledge
- * Critical appraisal process – theoretical and practical knowledge
- * Grading quality of evidence and strength of recommendations, GRADE approach
- * Development of evidence-based practice guidelines
- * Practical implementation of practice guidelines
- * Implementation of practice guidelines in the clinical practice and prevention
- * Health economic aspects of evidence-based medicine
- * Reporting scientific results – requirements of scientific papers
- * Reporting scientific results – requirements of oral presentations

MEDICAL REHABILITATION AND PHYSICAL MEDICINE**10th Semester****LECTURE
(2 hr/Week)****The aim of the course:**

The course represent the professional knowledge to the students dealing with people living with disability or threatened with disability. Its part is the survey of the person's threat level, the development of an appropriate and constructive disease awareness to construct the patients' motivation for successful coping with their situation. The course aims such a cooperation between the patient and the health care system that is based on self-care referring to the improvement of the patient's knowledge or setting up his physical training or diet. The course completes the traditional clinical medicine with a very important and overshadowed viewpoint. It contributes to the highest level of integration of most persons and a long term preservation of this integration level.

The output requirements of the course:

a) Knowledge:**to know**

- the definition of rehabilitation.
- aims and tasks of rehabilitation on individual clinical fields.
- the tasks of individual participants in the rehabilitation process.
- the difference between the acute and chronic system.
- the efficiency of self-care.
- the consequence of disadvantage originated in the disease.
- The student is well informed in the academic literature and is able to integrate with other fields of medicine.

- **Abilities:**
- The evaluation of the patient's functional status.
- Patient's motivation.
- The integration of the patient's relatives in the process of rehabilitation.
- The achievement of life-style change to reduce the risk factors.
- The student is able to phrase his opinion independently according to the professional and academic expectations.
- b) **Attitudes:**
- To accept the patient in the role of the primary and informed provider.
- To accept the patient's right to refuse health care supply.
- To accept the organizations supporting self-care.
- c) **Autonomy and responsibility:**
- Critical consciousness is characteristic in questions connected to his profession.
- He uses the acquired knowledge conscientiously and he never abuses it in any situation.
- He decides conscientiously about the functions delegated to the patient.
- To prepare the patient to decide about his situation.
- He guarantee the handling of situation from the side of the health supplying not belonging to the patient's competence.

Lectures:

- Introduction. The bases of prevention and rehabilitation.
- The role of the patient in the process of rehabilitation.
- Motivation interview. Patient education in practice.
- Rehabilitation of cardiac patients.
- Pulmonary rehabilitation.
- Use of medical aids in rehabilitation.
- The role of physiotherapy in rehabilitation.
- Rehabilitation of patients with spinal cord injury.
- Pediatric rehabilitation.
- Rehabilitation of psychiatric patients.
- Rehabilitation for patients with reumatic diseases.

Methods supporting learning outcomes:

Lectures and slides of lectures.

Notes and video lectures are planned.

Checking of the expected learning outcomes:

Written colloquium. In case of absence, oral exam.

The criterion of fulfillment of the exam is the right answer of minimum 50% of the question.

Students participating on every lecture have right to have half grade advantage.

Vow to be made by 1st year medical students

I, /
as the student of the University of Szeged /
promise solemnly /
that I will observe and adhere /
to the rules and regulations of Hungary. /
Also I will observe and adhere /
to the rules and regulations /
of the University of Szeged /
and I am aware of these. /
I devote all my best efforts /
to go through with my studies here /
as efficiently as possible. /
I will give my teachers /
the respect and gratitude /
which is their due. /
I will respect the secrets /
which are confided in me /
even after the patient has died. /
I will maintain by all means in my power /
the honor and the noble traditions /
of the medical profession. /
I will devote my time and efforts /
to learn the progressive achievements /
of the basic and clinical sciences /
in order to use this knowledge /
for advancing medicine, /
for the care of my patients /
and to promote man's progress on Earth. /
I will use the University's computer network and tools /
solely for the purpose of studying /
and I will adhere /
to the data protection /
and network usage regulations. /
I make these promises solemnly, /
freely, /
and upon my honor. /

Oath to be taken by medical graduates

I, name, / on this occasion / of my admission / to the ranks of the medical profession / swear on my honor / to
devote my talents and knowledge / to the benefit of mankind.
I shall hold / University of Szeged in esteem.
I shall count those / who have instructed me / in the science of medicine / as my masters, / and shall show them / gratitude and
respect at all times.
I shall impart my medical knowledge / and experience / to the generations of physicians to come. / I shall constantly labour / to
increase my erudition / with a view to developing / and advancing medical science. / I shall practice my profession /
conscientiously.
I vow to devote / my medical knowledge / to the protection of health / and to the benefit of the sick. / I shall treat / and advise
patients / in the best of their interest / and to the best of my knowledge / and convictions / and I shall strive / to safeguard their
health / against hazardous / and injurious effects.
I shall reveal no secret / concerning my fellow men / whether learned within my practice of medicine / or outside it / unless the
law demands this.
I shall inform the patients / and also their relatives / if the patients' interest so requires / as to the patients' condition / and the
method of treatment / in a timely and considerate manner. / I shall issue a medical certificate / only in accordance with my true
convictions.
I shall conduct myself / towards the patients / my fellow physicians and the society as a whole, / in a matter befitting my calling
as a physician. / I shall preserve the honor / of the medical profession / and its noble traditions.
I shall not be hampered / from fulfilling the duties of my profession / on the grounds of social, / political, / national, / racial / or
religious distinction.
I take this oath solemnly / and of my own free will.

