# UNIVERSITY OF SZEGED

Faculty of Medicine

*Where knowledge and challenge meet*

# CURRICULUM
# 2018/2019

# Content

## 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 Tudományegyem* (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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|---|---|
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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. ZOLTÁN AMBRUS KOVÁCS, M.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: Prof. habil. LÁSZLÓ PÁVICS, 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.

**Department of Traumatology** (TRAUMATOLÓGIAI KLINIKA)
(Szeged, Semmelweis u. 6. Tel.: + 36 62 545-531, Fax: + 36 62 545-530)
Head of Department: Prof. habil. ENDRE VARGA M.D., Ph.D.

**Department of Urology** (UROLÓGIAI TANSZÉK)
(Szeged, Kálvária sugárút 57. Tel./Fax: + 36 62 490-590/280)
Head of Department: Prof. habil. ZOLTÁN BAJORY, M.D., Ph.D.

**Pharmacy of the Faculty of Medicine** (ORVOSKARI GYÓGYSZERTÁR)
(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 | | |
| Medicine | **Dr. Endre Dobó**<br>**+** 36 (62) 544-000/6496<br>*dobo.endre@med.u-szeged.hu* | **Dr. Annamária Kovács** |
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| Dept. of Surgery | **Prof. Dr. András Petri**<br>+36 62/545 445<br>*petri.andras@med.u-szeged.hu* | **Dr. Zsolt Simonka** |
| Dept. of Dermatology and Allergology | **Dr. Almásiné Dr. Csoma Zsanett**<br>+36 62/545 29<br>*almasine.csoma.zsanett@med.u-szeged.hu* | **Dr. Zsuzsanna Bata**<br>+36 62/545 996<br>*bata.zsuzsa@med.u-szeged.hu* |
| Clinical Immunology: | **Dr. Zsuzsanna Bata**<br>+36 62/545 996<br>*bata.zsuzsanna@med.u-szeged.hu* | |
| 1st Department of Internal Medicine | **Dr. András Rosztóczy**<br>+36 62/545 195<br>*rosztoczy.andras@med.u-szeged.hu* | **Dr. Tamás Takács** |
| 2nd Department of Internal Medicine - Cardiology: | **Dr. Andrea Vass**<br>*vass.andrea@med.u-szeged.hu* | **Prof. Zita Borbényi**<br>*borbenyi.zita@med.u-szeged.hu* |
| - Hematology: | **Dr. Tímea P. Gurbity**<br>+ 36 62/545 226<br>*gurbity.palfi.timea@med.u-szeged.hu* | **Dr. Szabolcs Modok**<br>*modok.szabolcs@med.u-szeged.hu* |

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|---|---|---|---|
| Department of Emergency Medicine | | **Dr. Sándor Fiam**<br>**Dr. Dániel Töttösi**<br>**Dr. Nándor Csongrádi**<br>**Dr. Dóra Dinya**<br>**Dr. Gabriella Molnár** | |
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| Institute of Foreign Languages | | | |
| | - Year I-II: | **Margit Skadra**<br>skadramargit@gmail.com | |
| | - Year III-IV: | **Vanda Varga**<br>*varga.vanda@med.u-szeged.hu* | |
| | **-** Latin: | **Edit Vágvölgyi**<br>*vagvolgyi.edit@med.u-szeged.hu* | |
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| Dept. of Medical Genetics | | **Dr. Zsuzsanna László**<br>+36 62/546 127<br>*laszlo.zsuzsanna@med.u-szeged.hu* | **Dr. Nikoletta Nagy** |
| Dept. of Medical Physics and Informatics | | **Dr. Ferenc Peták**<br>+36 62/545 832<br>*petak.ferenc@med.u-szeged.hu* | **Dr. Ferenc Peták** |
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| Dept. of Nuclear Medicine | | **Tünde Krisztina Polanek**<br>*polanek.tunde.krisztina@med.u-szeged.hu* | **Dr. Zsuzsanna Besenyi** |
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| Dept. of Oncotherapy | **Dr. Gabriella Fábián**<br>+36 62/545 403<br>*fabian.gabriella@med.u-szeged.hu* | **Dr. Anikó Maráz** |
| Dept. of Ophthalmology | **Dr. Áron Szabó**<br>**+36 62-545-487**<br>*office.opht@med.u-szeged.hu* | **Dr. Edit Tóth-Molnár** |
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| Dept. of Pathology | **Dr. Anita Sejben**<br>+36/62 546 169<br>*sejben.anita@med.u-szeged.hu* | **Dr. András Vörös**<br>+36/62 546 171<br>*voros.andras@med.u-szeged.hu* |
| Dept. of Pathophysiology | **Dr. Zsófia Mezei**<br>+36 62/545 111<br>*mezeizsofia@gmail.com* | **Prof. Dr. Zoltán Rakonczay** |
| Dept. of Pediatrics | **Dr. Judit Mari**<br>+36 62/545 330<br>*office.pedia@med.u-szeged.hu* | **Dr. Pál Pásztor** |
| Dept. of Child and Adolescent Psychiatry | **Dr. Enikő Kiss**<br>*kiss.eniko@med.u-szeged.hu* | |
| Dept. of Pharmacology and Pharmacotherapy | **Dr. Andrea Orosz**<br>+36 62/545 674<br>*oroszandrea@yahoo.com* | **Dr. István Baczkó** |
| Dept. of Physiology<br>Medicine:<br><br>Pharmacy: | **Dr. Ferenc Domoki**<br>+36 62/545 100<br>*domoki.ferenc@med.u-szeged.hu*<br>**Dr. Gyöngyi Horváth**<br>+36 62/544 971<br>*horvath.gyongyi@med.u-szeged.hu* | **Dr. Ferenc Domoki** |
| Dept. of Psychiatry | **Dr. Hajnalka Nórándt-Pásztor**<br>*norandt-pasztor.hajnalka@med.u-szeged.hu*<br>**Dr. Anett Hotorán-Rosu**<br>*rosu.anett@med.u-szeged.hu* | |
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| Dept. of Radiology | **Dr. Zsigmond Tamás Kincses**<br>*kincses.zsigmond.tamas@med.u-szeged.hu* | **Dr. Erika Vörös** |
| Dept. of Rheumatology and Immunology | **Dr. Sonja Dulic**<br>*office.reumak@med.u-szeged.hu* | |
| Dept. of Traumatology | **Dr. Endre Varga**<br>+36 62/545 531<br>*varga.endre@med.u-szeged.hu*<br>*office.trauma@med.u-szeged.hu* | **Dr. Sándor Pintér**<br>+36 62/341-493<br>*pinter.sandor@med.u-szeged.hu* |
| Dept. of Urology | **Dr. Sándor Molnár**<br>+ 36 (62) 341440<br>*molnar.sandor@med.u-szeged.hu* | **Dr. Bajory Zoltán** |

## ACADEMIC CALENDAR

**2018/2019**

### ACADEMIC PERIODS

**1st (Fall) semester:**

| | |
|---|---|
| **Education period:** | from September 03 to December 08, 2018 |
| **Examination period:** | from December 10 to December 21, 2018 and from January 02 to January 25, 2019 |
| **Repeat examination period:** | from January 28 to February 02, 2019 |
| **Winter break:** | from December 24, 2018 to January 01, 2019 (School is closed. No exams.) |
| **Fall break:** | from October 22 to October 24, 2018 |
| **Holidays:** | October 22-23, November 01-02, 2018 |

**2nd (Spring) semester:**

| | |
|---|---|
| **Education period:** | from February 04 to May 18, 2019 |
| **Examination period:** | from May 20 to June 29, 2019 |
| **Repeat Examination period:** | from July 01 to July 06, 2019 |
| **Spring break:** | from March 25 to March 29, 2019 |
| **Holidays:** | March 15, April 19, April 22, May 01, June 10 |

*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 three or more compulsory subjects | 100% of one semester's tuition fee* |
| Fee of attending one or two 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. **LATE REGISTRATION IS NOT POSSIBLE.**

**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.
  *Please note that you have to apply at the Immigration Office for a renewal of your residence permit card 30 days before it expires!*
- 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 University 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*

**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. Documents justifying the absence have to be presented at the Department concerned. To get the ticket to your next examination, please see the fee schedule below.

- 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 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 case of even one unjustified absence in an examination the student will not be entitled to any further equities and exceptional permissions in any subject in the respective examination period (e.g. 3rd repeat examination chance).
- 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.

**Please take into consideration that all matters not regulated in the Study and Examination Regulations will be evaluated on individual basis by the Academic Board (eg. 4th course registration)!**

*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 Academic Board. 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 2018/2019, 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 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 Behavioral Science**
  (comprehensive exam, year 4, fall semester)

- 5 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 - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **1st (fall) semester (9001AK_N_2013)** | | **1st YEAR** | | | | | | **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, AOK-KUA013 |
| AOK-KUA012 | Dissection Practice I. | Dept. of Anatomy | Prof. Antal Nógrádi | - | 3 | Term Mark(5) | 3 | P:AOK-KUA011, AOK-KUA013 |
| AOK-KUA013 | Anatomy Seminar | Dept. of Anatomy | Prof. Antal Nógrádi | - | 2 | Signature | - | P:AOK-KUA011, AOK-KUA012 |
| AOK-KUA041 | Basic Life Support | Deparment of Emergency Medicine | Dr. Zoltán Pető | - | 2 | Term Mark(5) | 2 | - |
| AOK-KUA501 | Medical Physics I. | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | 2 | - | Examination | 3 | P: AOK-KUA502 |
| AOK-KUA502 | Medical Physics I. | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | - | 2 | Signature | - | P: AOK-KUA501 |
| AOK-KUA061 | Medical Chemistry I. | Dept. of Med. Chemistry | Prof. Gábor Tóth | 3 | - | Examination | 6 | P: AOK-KUA062 |
| AOK-KUA062 | Medical Chemistry I. | Dept. of Med. Chemistry | Prof. Gábor Tóth | - | 3 | Signature | - | P: AOK-KUA061 |
| AOK-KUA071 | Cell Biology and Molecular Genetics I. | Dept. of Med. Biology | Prof. Zsolt Boldogkői | 2 | - | Examination | 4 | P: AOK-KUA072 |
| AOK-KUA072 | Cell Biology and Molecular Genetics I. | Dept. of Med. Biology | Prof. Zsolt Boldogkői | - | 2 | Signature | - | P:AOK-KUA071 |
| AOK-KUA391 | Introduction to Medicine | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | 1 | - | Evaluation(5) | 2 | P: AOK-KUA392 |
| AOK-KUA392 | Introduction to Medicine | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | - | 1 | Signature | - | P: AOK-KUA391 |
| **Criteria Subjects** | | | | | | | | |
| AOK-KUA251 | Hungarian Language I.* | Dept. of Foreign Lang. | Dr. Éva Demeter | - | 4 | Term Mark(5) | - | - |
| AOK-KUA351 | Medical Latin Language I. | Dept. Of Foreign Lang. | Dr. Éva Demeter | - | 2 | Signature | - | |
| XT0011-PHE | Physical Education (P.E.)** | Sport Center | Andrea Böröcz Hézsőné | - | 2 | Signature | - | - |
| **Compulsory Elective Subjects** ***(Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)*** | | | | | | | | |
| AOK-KA1311 | Basics in Molecular Biology | 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 | 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 regulatin of cell functions | Dept. of Pharmacology | Prof. András Varró | 2 | - | Evaluation(5) | 2 | - |
| AOK-KA1922 | Electrophysiology: ion channels and ion transport mechanisms in the regulatin of cell functions | Dept. of Pharmacology | Prof. András Varró | - | 6 hours in total | Signature | - | P:AOK-KA1921 |
| AOK-KA081 | Introduction to Medical Informatics | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | 1 | - | Evaluation(5) | 3 | - |
| AOK-KA082 | Introduction to Medical Informatics | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | - | 2 | Signature | - | P:AOK-KA081 |

* 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.

**SUGGESTED STUDY PLAN - MEDICINE - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **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 P: AOK-KUA015, AOK-KUA016 |
| AOK-KUA015 | Dissection Practice II. | Dept. of Anatomy | Prof. Antal Nógrádi | - | 3 | Term Mark(5) | 3 | SR: AOK-KUA012, AOK-KUA013, P:AOK-KUA014 |
| AOK-KUA016 | Histology Practice I. | Dept. of Anatomy | Prof. Antal Nógrádi | - | 2 | Term Mark(5) | 2 | SR: AOK-KUA012, AOK-KUA013,P:AOK-KUA014 |
| AOK-KUA503 | Medical Physics II. | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | 2 | - | Examination | 4 | ER: AOK-KUA501 P: AOK-KUA504 |
| AOK-KUA504 | Medical Physics II. | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | - | 2 | Signature | - | P: AOK-KUA503 |
| AOK-KUA505 | Medical Statistics | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | 1 | - | Examination | 1 | P: AOK-KUA506 |
| AOK-KUA506 | Medical Statistics | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | - | 2 | Term Mark(5) | 2 | P: AOK-KUA505 |
| AOK-KUA063 | Medical Chemistry II. | Dept. of Med. Chemistry | Prof. Gábor Tóth | 3 | - | Examination | 6 | ER: AOK-KUA061, P: AOK-KUA064 |
| AOK-KUA064 | Medical Chemistry II. | Dept. of Med. Chemistry | Prof. Gábor Tóth | - | 3 | Signature | - | P: AOK-KUA063 |
| AOK-KUA073 | Cell Biology and Molecular Genetics II. | Dept. of Med. Biology | Prof. Zsolt Boldogkői | 2 | - | Examination | 4 | ER: AOK-KUA071, P: AOK-KUA074 |
| AOK-KUA074 | Cell Biology and Molecular Genetics II. | Dept. of Med. Biology | Prof. Zsolt Boldogkői | - | 2 | Signature | - | P: AOK-KUA073 |
| AOK-KUA083 | Introduction to Psychology, Communication | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | 1 | - | Evaluation(5) | 2 | P: AOK-KUA084 |
| AOK-KUA084 | Introduction to Psychology, Communication | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | - | 1 | Signature | - | P:AOK-KUA083 |
| **Criteria Subjects** | | | | | | | | |
| AOK-KUA252 | Hungarian Language II.* | Dept. of Foreign Lang. | Dr. Éva Demeter | - | 4 | Term Mark(5) | - | SR: AOK-KUA251 |
| AOK-KUA352 | Medical Latin Language II. | Dept. Of Foreign Lang. | Dr. Éva Demeter | - | 2 | Signature | - | SR: AOK-KUA351 |
| XT0011-2PHE | Physical Education (P.E.)** | Sport Center | Andrea Böröcz Hézsőné | - | 2 | Signature | - | - |
| AOK-KUA211 | Nursing Practice* | | | - | 4x30 | Signature | - | - |

**SUGGESTED STUDY PLAN - MEDICINE - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **Compulsory Elective Subjects** *(Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)* | | | | | | | | |
| AOK-KA1312 | Basics in Molecular Biology | 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 | ER: AOK-KA091 |
| AOK-KA1322 | Frontiers in Molecular Biology | 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-KA1231 | Introduction to Chemistry | Dept. of Med. Chemistry | Prof. Gábor Tóth | 1 | - | Evaluation(5) | 2 | - |
| AOK-KA1232 | Introduction to Chemistry | Dept. of Med. Chemistry | Prof. Gábor Tóth | - | 1 | Signature | - | P:AOK-KA1231 |
| AOK-KA151 | Modern Instrumental Analysis and Separation Methods | Dept. of Med. Chemistry | Prof. Gábor Tóth | 1 | - | Evaluation(5) | 1 | - |
| AOK-KA121 | Neurocytology | Dept. of Anatomy | Prof. Antal Nógrádi | 2 | - | Evaluation(5) | 2 | - |
| AOK-KA161 | Steric Strucure of Biopolimers | Dept. of Med. Chemistry | Prof. Gábor Tóth | 1 | - | Evaluation(5) | 1 | - |
| **Elective Subjects** *(Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)* | | | | | | | | |
| AOK-KUA261 | Chemical Misconceptions | Dept. Of Med. Chemistry | Prof. Gábor Tóth | 2 | - | Evaluation(5) | 2 | - |
| AOK-KUA381 | Medical Hungarian Language - English Program I. year | Department of Foreign Lang. | Dr. Éva Demeter | - | total 14 | 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 - 2018/2019

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **3rd (fall) semester (9001AK_N_2013)** | | **2nd YEAR** | | | | | | **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, AOK-KUA016 ER:AOK-KUA014 P:AOK-KUA018, AOK-KUA019 *** |
| AOK-KUA018 | Dissection Practice III. | Dept. of Anatomy | Prof. Antal Nógrádi | - | 3 | Term Mark(5) | 3 | SR: AOK-KUA015, AOK-KUA016 P:AOK-KUA017, AOK-KUA019 |
| AOK-KUA019 | Histology Practice II. | Dept. of Anatomy | Prof. Antal Nógrádi | - | 2 | Term Mark(5) | 2 | SR: AOK-KUA015, AOK-KUA016 P:AOK-KUA017, AOK-KUA018 |
| AOK-KUA021 | Biochemistry I. | Dept. of Biochemistry | Prof. László Dux | 4 | - | Examination | 6 | SR:AOK-KUA063, ER:AOK-KUA073 P: AOK-KUA022*** |
| AOK-KUA022 | Biochemistry I. | Dept. of Biochemistry | Prof. László Dux | - | 2 | Signature | - | P:AOK-KUA021 |
| AOK-KUA031 | Medical Physiology I. | Dept. of Physiology | Prof. Gyula Sáry | 4 | - | Examination | 8 | SR:AOK-KUA053 (from 2019/2020 AOK-KUA503, AOK-KUA505), AOK-KUA073, ER:AOK-KUA014 P: AOK-KUA032 *** |
| AOK-KUA032 | Medical Physiology I. | Dept. of Physiology | Prof. Gyula Sáry | - | 4 | Signature | - | P:AOK-KUA031 |
| **Criteria Subjects** | | | | | | | | |
| AOK-KUA253 | Hungarian Language III.* | Dept. of Foreign Lang. | Dr. Éva Demeter | - | 4 | Term Mark(5) | - | SR:AOK-KUA252 |
| XT0011-PHE | Physical Education (P.E.)** | Sport Center | Andrea Böröcz Hézsőné | - | 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 Sáry | - | 4 | Evaluation(5) | 4 | P:AOK-KUA031 |
| 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. András Varró | 2 | - | Evaluation(5) | 2 | - |
| AOK-KA1922 | Electrophysiology: ion channels and ion transport mechanisms in the regulatin of cell functions | Dept. of Pharmacology | Prof. András Varró | - | 6 hours in total | Signature | - | P:AOK-KA1921 |
| 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-KA1771 | Body Development and Diseases and a Molecular Biological Background | Dept. of Biochemistry | Prof. László Dux | 2 | - | Evaluation(5) | 2 | - |
| AOK-KN511 | Terminologie**** | Dept. Of Foreign Lang. | Dr. Éva Demeter | - | 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, AOK-KUA041, AOK-KUA051 (from 2019/2020: AOK-KUA501), AOK-KUA061, AOK-KUA071

**** 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 - 2018/2019

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **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,AOK-KUA053 (from 2019/20: AOK-KUA503, AOK-KUA505),AOK-KUA063 ER:AOK-KUA017, AOK-KUA073 |
| AOK-KUA111 | Basic Surgical Skills | Inst. of Surgical Research | Prof. Mihály Boros | 1 | - | Examination | 3 | P: AOK-KUA112 |
| AOK-KUA112 | Basic Surgical Skills | Inst. of Surgical Research | Prof. Mihály Boros | - | 2 | Signature | - | P:AOK-KUA111 |
| AOK-KUA023 | Biochemistry II. | Dept. of Biochemistry | Prof. László Dux | 4 | - | Comprehensive Exam | 6 | ER:AOK-KUA021, P: AOK-KUA024 |
| AOK-KUA024 | Biochemistry II. | Dept. of Biochemistry | Prof. László Dux | - | 2 | Signature | - | P:AOK-KUA023 |
| AOK-KUA033 | Medical Physiology II. | Dept. of Physiology | Prof. Gyula Sáry | 6 | - | Comprehensive Exam | 10 | ER:AOK-KUA031, P: AOK-KUA034 |
| AOK-KUA034 | Medical Physiology II. | Dept. of Physiology | Prof. Gyula Sáry | - | 4 | Signature | - | P:AOK-KUA033 |
| **Criteria Subjects** | | | | | | | | |
| AOK-KUA254 | Hungarian Language IV.* | Dept. of Foreign Lang. | Dr. Éva Demeter | - | 4 | Prel.Exam | - | SR:AOK-KUA253 |
| XT0011-2PHE | Physical Education (P.E.)** | Sport Center | Andrea Böröcz Hézsőné | - | 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 |
| AOK-KA352N | Medical Physiology (Seminar) II. | Dept. of Physiology | Prof. Gyula Sáry | - | 4 | Evaluation(5) | 4 | P:AOK-KUA033 |
| AOK-KA1632 | Biochemistry: Selected Chapters from Medical Biochemistry | Dept. of Biochemistry | Prof. László Dux | 2 | - | Evaluation(5) | 2 | P:AOK-KUA023 |
| AOK-KA861 | Cardiac Electrophysiology as a Basic Property of Cardiac Function | Dept. of Pharmacology | Prof. András Varró | 1 | - | Evaluation(5) | 2 | - |
| AOK-KA862 | Cardiac Electrophysiology as a Basic Property of Cardiac Function | Dept. of Pharmacology | Prof. András Varró | - | 1 | Signature | - | - |
| AOK-KA881 | Molecular Developmental-Biology | Dept. of Biochemistry | Prof. László Dux | 2 | - | Evaluation(5) | 2 | SR:AOK-KUA073 |
| AOK-KA621 | Medical Anthropology | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | - | 1 | Evaluation(5) | 1 | SR:AOK-KA601,AOK-KA602 ( from 2019/2020: AOK-KUA391, 392) |
| AOK-KA1221 | Biochemical Basics of Preventive Medicine | Dept. of Biochemistry | Prof. László Dux | 2 | - | Evaluation(5) | 2 | SR: AOK-KUA021 |
| **Elective Subjects** *(Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)* | | | | | | | | |
| AOK-KUA281 | Clinical Anatomy | Dept. of Anatomy | Prof. Antal Nógrádi | - | 3 | Term Mark(5) | 3 | SR: AOK-KUA018, AOK-KUA019 |
| AOK-KA99051 | Mathematical and Statistical Modelling in Medicine Lecture | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | 1 | - | Evaluation(5) | 2 | SR:AOK-KUA053 |
| AOK-KA99052 | Mathematical and Statistical Modelling in Medicine Practice | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | - | 1 | Signature | - | P:AOK-KA99051 |
| AOK-KA092 | Developmental Genetics II. | Dept. of Med. Biology | Prof. Zsolt Boldogkői | 1 | - | Evaluation(5) | 1 | - |
| AOK-KN091 | Einführung in die klinische Medizin**** | Dept. Of Surgery | Prof. György Lázár | - | 2 | Term Mark(5) | 2 | - |
| 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 - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **5th (fall) semester (9001AK_N_2013)** | | **3rd YEAR** | | | | | | **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/ Prof. Tamás Forster | 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/ Prof. Tamás Forster | - | 2 | Signature | - | P:AOK-KUA121 |
| AOK-KUA171 | Pathophysiology I. | Dept. of Pathophysiology | Prof. Gyula Szabó | 3 | - | Examination | 5 | **see below**** |
| AOK-KUA172 | Pathophysiology I. | Dept. of Pathophysiology | Prof. Gyula Szabó | - | 2 | Signature | - | P:AOK-KUA171 |
| 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 |
| AOK-KUA131 | Basics of Emergency Medicine | Dept. of Anesthesiology and Intensive Therapy | Prof. Zsolt Molnár | 1 | - | Signature | - | P:AOK-KUA132 |
| AOK-KUA132 | Basics of Emergency Medicine | Dept. of Anesthesiology and Intensive Therapy | Prof. Zsolt Molnár | - | 2 | Term Mark(5) | 2 | **see below**** |
| 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 |
| **Criteria Subjects** | | | | | | | | |
| AOK-KUA255 | Hungarian Language V.* | Dept. of Foreign Lang. | Dr. Éva Demeter | - | 3 | Term Mark(5) | - | ER:AOK-KUA254 |
| **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-KA1462 | Advanced Surgical Skills | Inst. of Surgical Research | Prof. Mihály Boros | - | total: 12 | Signature | - | P: AOK-KA1461 |
| AOK-KA1451 | Microsurgery | Inst. of Surgical Research | Prof. Mihály Boros | total: 8 | - | Evaluation(5) | 2 | SR: AOK-KUA111 |
| AOK-KA1452 | Microsurgery | Inst. of Surgical Research | Prof. Mihály Boros | - | total: 20 | Signature | - | P:AOK-KA1451 |
| 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. Zsolt Molnár | 1 | - | Evaluation(5) | 1 | SR: AOK-KUA033 |
| AOK-KA1921 | Electrophysiology: ion channels and ion transport mechanisms in the regulatin of cell functions | Dept. of Pharmacology | Prof. András Varró | 2 | - | Evaluation(5) | 2 | - |
| AOK-KA1922 | Electrophysiology: ion channels and ion transport mechanisms in the regulatin of cell functions | Dept. of Pharmacology | Prof. András Varró | - | 6 hours in total | Signature | - | - |
| **Elective Subjects** *(Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)* | | | | | | | | |
| AOK-KADEM011 | Demonstrator Activity | The department where the student's demonstrator activity application was accepted | | - | 2 | Evaluation(5) | 2 | SR: AOK-KUA014, AOK-KUA053, AOK-KUA063, AOK-KUA073, AOK-KUA211 |
| AOK-KA1771 | Body Development and Diseases and a Molecular Biological Background | Dept. of Biochemistry | Prof. László Dux | 2 | - | Evaluation(5) | 2 | - |
| AOK-KA1027 | Cerebral Blood Flow and Metabolism | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | 2 | - | Evaluation(5) | 2 | - |
| AOK-KUA261 | Chemical Misconceptions | Dept. Of Med. Chemistry | Prof. Gábor Tóth | 2 | - | Evaluation(5) | 2 | - |

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

** SR: AOK-KUA017, AOK-KUA023, AOK-KUA033, AOK-KUA041, AOK-KUA053 (from 2020/2020: AOK-KUA503, AOK-KUA505), AOK-KUA063, AOK-KUA073, AOK-KUA082 (2020/21: AOK-KUA083), AOK-KUA111, AOK-KUA211, AOK-KUA101

**SUGGESTED STUDY PLAN - MEDICINE - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **6th (spring) semester (9001AK_N_2013)** | | | | | | | | **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, SR: AOK-KUA017,023,033,041, 053 (from 2020/21: AOK-KUA503, 505), 063, 073, 082 (from 2020/21: AOK-KUA083), 111, 211 |
| AOK-KUA162 | Internal Medicine I. | 1st Dept. of Int.Med. | Prof. Csaba Lengyel | - | 2 | Signature | - | P:AOK-KUA161 |
| AOK-KUA173 | Pathophysiology II. | Dept. of Pathophysiology | Prof. Gyula Szabó | 3 | - | Comprehensive Exam | 5 | ER:AOK-KUA171 |
| AOK-KUA174 | Pathophysiology II. | Dept. of Pathophysiology | Prof. Gyula Szabó | - | 2 | Signature | - | P:AOK-KUA173 |
| AOK-KUA203 | Pathology II. | Dept. of Pathology | Dr. Tibor Hortobágyi | 2 | - | Comprehensive Exam | 6 | ER:AOK-KUA201 |
| AOK-KUA204 | Pathology II. | Dept. of Pathology | Dr. Tibor Hortobágyi | - | 4 | Signature | - | P:AOK-KUA203 |
| AOK-KUA093 | Microbiology II. | Dept. of Med. Microbiology | Dr. Katalin Burián | 3 | - | Comprehensive Exam | 5 | ER: AOK-KUA091 |
| AOK-KUA094 | Microbiology II. | Dept. of Med. Microbiology | Dr. Katalin Burián | - | 2 | Signature | - | P:AOK-KUA093 |
| AOK-KUA141 | Surgical Propedeutics | Dept. of Surgery | Prof. György Lázár | 2 | - | Examination | 4 | SR: AOK-KUA017,023,033,041, 053 (from 2020/21: AOK-KUA503, 505), 063, 073, 082, 111, 211 |
| AOK-KUA142 | Surgical Propedeutics | Dept. of Surgery | Prof. György Lázár | - | 2 | Signature | - | P:AOK-KUA141 |
| AOK-KUA193 | Medical Psychology I. | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | 1 | - | Evaluation(5) | 2 | SR: AOK-KUA017,023,033,041, 053 (from 2020/21: AOK-KUA503, 505), 063, 073, 082 (from 2020/21: AOK-KUA083), 111, 211 |
| AOK-KUA194 | Medical Psychology I. | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | - | 1 | Signature | - | P:AOK-KUA191 |
| AOK-KUA181 | Ethics in Medicine | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | 1 | - | Examination | 3 | SR: AOK-KUA017,023,033,041, 053 (from 2020/21: AOK-KUA503, 505), 063, 073, 082 (from 2020/21: AOK-KUA083), 111, 211 |
| AOK-KUA182 | Ethics in Medicine | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | - | 2 | Signature | - | P:AOK-KUA181 |
| **Criteria Subjects** | | | | | | | | |
| AOK-KUA256 | Hungarian Language VI.* | Dept. of Foreign Languages | Dr. Éva Demeter | - | 3 | Term Mark(5) | - | SR:AOK-KUA255 |
| AOK-KUA221 | Internal Medicine Practice* | | | | 4x30 | Signature | - | P:AOK-KUA161, SR: AOK-KUA017,023,033,041, 053 (from 2020/21: AOK-KUA503, 505), 063, 073, 082 (from 2020/21: AOK-KUA083), 111, 211 |

**SUGGESTED STUDY PLAN - MEDICINE - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **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 |
| AOK-KA1462 | Advanced Surgical Skills | Inst. of Surgical Research | Prof. Mihály Boros | - | 1 | Signature | - | P: AOK-KA1461 |
| AOK-KA881 | Molecular Developmental-Biology | Dept. of Biochemistry | Prof. László Dux | 2 | - | Evaluation(5) | 2 | SR:AOK-KUA073 |
| AOK-KA821 | Microbiological Probems in Med. Practice | Dept. of Med. Microbiology | Dr. Katalin Burián | 1 | - | Evaluation(5) | 1 | P:AOK-KUA091 |
| AOK-KA1451 | Microsurgery | Inst. of Surgical Research | Prof. Mihály Boros | total: 8 | - | Evaluation(5) | 2 | SR: AOK-KUA111 |
| AOK-KA1452 | Microsurgery | Inst. of Surgical Research | Prof. Mihály Boros | - | total: 20 | Signature | - | P:AOK-KA1451 |
| AOK-KA831 | Pathophysiological Aspects of Laboratory Medicine | Dept. of Laboratory Medicine | Dr. Földesi Imre | 2 | - | Evaluation(5) | 2 | SR:AOK-KUA171 |
| AOK-KA671 | Gerontology | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | 1 | - | Evaluation(5) | 2 | SR:AOK-KUA081, AOK-KUA082 (from 2020/21: AOK-KUA083) |
| AOK-KA672 | Gerontology | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | - | 1 | Signature | - | P:AOK-KA671 |
| AOK-KUA361 | Foundations of Evidence Based Medicine | Department of Public Health | Dr. Edit Paulik | 2 | - | Evaluation(5) | 2 | SR: AOK-KA631, AOK-KUA051 |
| AOK-KA861 | Cardiac Electrophysiology as a Basic Property of Cardiac Function | Dept. of Pharmacology | Prof. András Varró | 1 | - | Evaluation(5) | 2 | - |
| AOK-KA862 | Cardiac Electrophysiology as a Basic Property of Cardiac Function | Dept. of Pharmacology | Prof. András Varró | - | 1 | Signature | - | - |
| **Elective Subjects** *(Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)* | | | | | | | | |
| AOK-KA1023 | Basic Immunpathology | Inst. of Surgical Research | Prof. Mihály Boros | 1 | - | Evaluation(5) | 1 | SR: AOK-KUA091 |
| AOK-KA1711 | Biotechnology from a Business Perspective | Dept. of Biotechnology | Prof. Kornél Kovács L. | 2 | - | Evaluation(5) | 2 | SR:AOK-KUA073 |
| AOK-KA99051 | Mathematical and Statistical Modelling in Medicine Lecture | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | 1 | - | Evaluation(5) | 2 | SR:AOK-KUA053 |
| AOK-KA99052 | Mathematical and Statistical Modelling in Medicine Practice | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | - | 1 | Signature | - | P:AOK-KA99051 |
| AOK-KUA291 | Introduction to Toxicology | Dept. of Med. Chemistry | Prof. Gábor Tóth | 2 | - | Evaluation(5) | 2 | SR: AOK-KUA023, AOK-KUA033 |
| AOK-KADEM011 | Demonstrator Activity | The department where the student's demonstrator activity application was accepted | | - | 2 | Evaluation(5) | 2 | SR: AOK-KUA014, AOK-KUA053, AOK-KUA063, AOK-KUA073, AOK-KUA211 |

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

**SUGGESTED STUDY PLAN - MEDICINE - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **7th (fall) semester (9001AK_N_2013)** | | **4th YEAR** | | | | | | **CLINICAL MODULE** |
| **Compulsory Subjects** | | | | | | | | |
| AOK-KA201 | Internal Medicine II. | 2nd Dept. of Int.Med. | Prof. Tamás Forster | 5 | - | Examination | 5 | SR: Basic and Pre-Clinical Module |
| AOK-KA202 | Internal Medicine II. | 2nd Dept. of Int.Med. | Prof. Tamás Forster | - | 2 | Signature | - | P: AOK-KA201 |
| AOK-KA231 | Pharmacology I. | Dept. of Pharmacology | Prof. András Varró | 3 | - | Examination | 5 | SR: Basic and Pre-Clinical Module |
| AOK-KA232 | Pharmacology I. | Dept. of Pharmacology | Prof. András Varró | - | 2 | Signature | - | P: AOK-KA231 |
| 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 |
| AOK-KA291 | Orthopedics | Dept. of Orthopedics | Prof. Kálmán Tóth | 2 | - | Examination | 3 | SR: Basic and Pre-Clinical Module |
| AOK-KA292 | Orthopedics | Dept. of Orthopedics | Prof. Kálmán Tóth | - | 2 | Signature | - | P: AOK-KA291 |
| AOK-KA311 | Pulmonology | Dept. of Pulmonolgy | Prof. Attila Somfay | 1 | - | Examination | 2 | SR: Basic and Pre-Clinical Module |
| AOK-KA312 | Pulmonology | Dept. of Pulmonolgy | Prof. Attila Somfay | - | 2 | Signature | - | P: AOK-KA311 |
| AOK-KA321 | Radiology I. | Dept. of Radiology | Prof. András Palkó | 1 | - | Evaluation(5) | 2 | SR:Basic and Pre-Clinical Module |
| AOK-KA322 | Radiology I. | Dept. of Radiology | Prof. András Palkó | - | 1 | Signature | - | P: AOK-KA321 |
| 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 |
| 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 |
| AOK-KA381 | Clinical Oncology | Dept. of Oncology | Prof. Zsuzsanna Kahán | 2 | - | Examination | 2 | SR: Basic and Pre-Clinical Module |
| AOK-KA961 | Medical Psychology II. | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | 1 | - | Evaluation(5) | 1 | SR: Basic and Pre-Clinical Module |
| AOK-KA962 | Medical Psychology II. | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | - | 1 | Signature | - | P: AOK-KA962 |
| **Criteria Subjects** | | | | | | | | |
| AOK-KA4717 | Hungarian Language VII.* | Dept. of Foreign Lang. | Dr. Éva Demeter | - | 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 |
| AOK-KA591 | Examination in Behavioural Sciences | Dept.of Behavioural Sciences | Dr. Oguz Kelemen | - | - | Comprehensive Exam | - | SR: Basic and Pre-Clinical Module<br>ER: having completed the required number of Behavioural Science subjects |

* 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 - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **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 Bari | 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 Bari | 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 |
| AOK-KA1452 | Microsurgery | Inst. of Surgical Research | Prof. Mihály Boros | - | total 20 | Signature | - | P: AOK-KA1451K |
| AOK-KA421 | Nuclear Medicine | Dept. of Nuclear Med. | Prof. László Pávics | 1 | - | Evaluation(5) | 1 | |
| AOK-KA1061 | Pharmacology Cases I. | Dept. of Pharmacology | Prof. András Varró | - | 2 | Term Mark(5) | 2 | |
| AOK-KA1581 | The Language of Effective Doctor-Patient Communication | Dept. of Foreign Lang. | Dr. Éva Demeter | - | 2 | Term Mark(5) | 2 | |
| AOK-KA1921 | Electrophysiology: ion channels and ion transport mechanisms in the regulatin of cell functions | Dept. of Pharmacology | Prof. András Varró | 2 | - | Evaluation(5) | 2 | - |
| AOK-KA1922 | Electrophysiology: ion channels and ion transport mechanisms in the regulatin of cell functions | Dept. of Pharmacology | Prof. András Varró | - | 6 hours in total | Signature | - | - |
| **Elective Subjects** *(Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)* | | | | | | | | |
| AOK-KADEM011 | Demonstrator Activity | The department where the student's demonstrator activity application was accepted | | - | 2 | Evaluation(5) | 2 | SR: AOK-KUA014, AOK-KUA053, AOK-KUA063, AOK-KUA073, AOK-KUA211 |
| 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 | Illicite 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 | |

**SUGGESTED STUDY PLAN - MEDICINE - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **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 |
| AOK-KA204 | Internal Medicine III. | 1st Dept. of Internal Med. | Prof. Csaba Lengyel | - | 2 | Signature | - | P: AOK-KA203 |
| AOK-KA233 | Pharmacology II. | Dept. of Pharmacology | Prof. András Varró | 4 | - | Comprehensive Exam | 5 | ER: AOK-KA231 |
| AOK-KA234 | Pharmacology II. | Dept. of Pharmacology | Prof. András Varró | - | 2 | Signature | - | P: AOK-KA233 |
| AOK-KA273 | Public Health and Preventive Medicine II. | Department of Public Health | Dr. Edit Paulik | 2 | - | Comprehensive Exam | 3 | ER:AOK-KA271 |
| AOK-KA274 | Public Health and Preventive Medicine II. | Department of Public Health | Dr. Edit Paulik | - | 2 | Signature | - | P: AOK-KA273 |
| AOK-KA323 | Radiology II. | Dept. of Radiology | Prof. András Palkó | 1 | - | Examination | 2 | ER:AOK-KA321 |
| AOK-KA324 | Radiology II. | Dept. of Radiology | Prof. András Palkó | - | 1 | Signature | - | P: AOK-KA323 |
| AOK-KA333 | Surgery II. | Dept. of Surgery | Prof. György Lázár | 2 | - | Examination | 3 | ER: AOK-KA331 |
| AOK-KA334 | Surgery II. | Dept. of Surgery | Prof. György Lázár | - | 2 | Signature | - | P: AOK-KA333 |
| AOK-KA354 | Obstetrics and Gynaecology II. | Dept. of Obstetrics and G. | Dr. Gábor Németh | 3 | - | Evaluation(5) | 4 | ER: AOK-KA351 |
| AOK-KA355 | Obstetrics and Gynaecology II. | Dept. of Obstetrics and G. | Dr. Gábor Németh | - | 2 | Signature | - | P: AOK-KA354 |
| **Criteria Subjects** | | | | | | | | |
| AOK-KA4718 | Hungarian Language VIII.* | Dept. of Foreign Lang. | Dr. Éva Demeter | - | 3 | Comprehensive Exam | - | SR: AOK-KA4717 |
| 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 |
| AOK-KA701 | Surgery Summer Practice | | | - | 4x30 | Signature | - | 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 - 2018/2019

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **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 Bari | 2 | - | Evaluation(5) | 2 | SR: AOK-KA431 |
| AOK-KA1461 | Advanced Surgical Skills | Inst. of Surgical Research | Prof. Mihály Boros | 1 | - | Evaluation(5) | 2 | SR: AOK-KUA111 |
| AOK-KA1462 | Advanced Surgical Skills | Inst. of Surgical Research | Prof. Mihály Boros | - | 1 | Signature | - | P: AOK-KA1461 |
| AOK-KA211 | Child and Adolescent Psychiatry, Mentalhygiene | Dept. Of Child and Adolescent Psychiatry | Dr. Ágnes Vetró | 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 |
| AOK-KA1452 | Microsurgery | Inst. of Surgical Research | Prof. Mihály Boros | - | total 20 | Signature | - | P: AOK-KA1461 |
| AOK-KA881 | Molecular Developmental-Biology | Dept. of Biochemistry | Prof. László Dux | 2 | - | Evaluation(5) | 2 | - |
| AOK-KA1511 | Oral and Maxillofacial Surgery | Dept. Of Oral and Maxillofacial Surgery | Prof. József Piffkó | 1 | - | Evaluation(5) | 2 | |
| AOK-KA1521 | Oral and Maxillofacial Surgery | Dept. Of Oral and Maxillofacial Surgery | Prof. József Piffkó | - | 1 | Signature | - | |
| AOK-KA1062 | Pharmacology Cases II. | Dept. of Pharmacology | Prof. András Varró | - | 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. of Foreign Lang. | Dr. Éva Demeter | - | 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. András Varró | 1 | - | Evaluation(5) | 2 | - |
| AOK-KA862 | Cardiac Electrophysiology as a Basic Property of Cardiac Function | Dept. of Pharmacology | Prof. András Varró | - | 1 | Signature | - | - |
| 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, AOK-KUA051 |
| **Elective Subjects** *(Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)* | | | | | | | | |
| AOK-KADEM011 | Demonstrator Activity | The department where the student's demonstrator activity application was accepted | | - | 2 | Evaluation(5) | 2 | SR: AOK-KUA014, AOK-KUA053, AOK-KUA063, AOK-KUA073, AOK-KUA211 |
| 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 | Prof. László Dux | 2 | - | Evaluation(5) | 2 | |
| AOK-KA1621 | Clinical Aspects of Tropical Diseases | Dept. Of Psychiatry | Prof. János Kálmán | 2 | - | Evaluation(5) | 2 | |
| AOK-KA1831 | Illicite 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. Zsuzsanna Kahán | 2 | - | Term Mark(5) | 2 | SR: AOK-KA381 |
| AOK-KA1861 | Intensive Course on Radiation Oncology | Dept. of Oncology | Prof. Zsuzsanna Kahán | 1 | - | Evaluation(5) | 1 | SR: AOK-KA381 |
| AOK-KA1911 | Chemical Misconceptions | Dept. Of Medical Chemistry | Prof. Gábor Tóth | 2 | - | Evaluation(5) | 2 | |
| AOK-KUA291 | Introduction to Toxicology | Dept. of Med. Chemistry | Prof. Gábor Tóth | 2 | - | Evaluation(5) | 2 | SR: AOK-KUA023, AOK-KUA033 |
| AOK-KUA311 | Physics in Radiotherapy | Dept. of Oncology | Prof. Zsuzsanna Kahán | - | 1 | Evaluation(5) | 1 | SR: AOK-KA381 |
| AOK-KUA371 | Travel Medicine | Dept. Of Aviation and Space Medicine | Prof. Sándor Szabó | total 30 | - | Evaluation(5) | 1 | SR: Basic and Pre-Clinical Module |

**SUGGESTED STUDY PLAN - MEDICINE - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **9th (fall) semester (9001AK_N_2013)** | | **5th YEAR** | | | | | | **CLINICAL MODULE** |
| **Compulsory Subjects** | | | | | | | | |
| AOK-KA191 | Anesthesiology and Intensive Therapy I. | Dept. of Anesthesiology and Intensive Therapy | Prof. Zsolt Molnár | 2 | - | Evaluation(5) | 1 | ER: AOK-KA233 |
| AOK-KA192 | Anesthesiology and Intensive Therapy I. | Dept. of Anesthesiology and Intensive Therapy | Prof. Zsolt Molnár | - | 1 | Signature | - | P: AOK-KA191 |
| AOK-KA205 | Internal Medicine IV. Practice | 1st Dept. of Int.Med. / 2nd Dept. of Int.Med. | Prof. Csaba Lengyel / Prof. Tamás Forster | - | 2 | Signature | 0 | P: AOK-KA0211 |
| AOK-KA0211 | Infectology - Infectious Diseases | 1st Dept. of Int.Med. / 2nd Dept. of Int.Med. | Prof. Csaba Lengye / Prof. Tamás Forster | 2 | - | Examination | 3 | ER:AOK-KA233, P: AOK-KA205 |
| AOK-KA335 | Surgery III. | Department of Surgery | Prof. György Lázár | 1 | - | Evaluation(5) | 2 | ER: AOK-KA333 |
| AOK-KA336 | Surgery III. | Department of Surgery | Prof. György Lázár | - | 1 | Signature | - | P: AOK-KA335 |
| AOK-KA257 | Pediatrics I. Lecture | Department of Pediatrics | Dr. Csaba Bereczki | 1 | - | Signature | - | P: AOK-KA256, 257 |
| AOK-KA256 | Pediatrics I. Seminar | Department of Pediatrics | Dr. Csaba Bereczki | - | 2 | Term Mark(5) | 5 | ER: AOK-KA233, AOK-KA203 P: AOK-KA255, 257 |
| AOK-KA255 | Pediatrics I. Practice | Department of Pediatrics | Dr. Csaba Bereczki | - | 2 | Signature | - | P: AOK-KA255, 256 |
| AOK-KA281 | Neurology I. | Department of Neurology | Prof. László Vécsei | 1 | - | Examination | 3 | ER: AOK-KA203, AOK-KA233 |
| AOK-KA282 | Neurology I. | Department of Neurology | Prof. László Vécsei | - | 2 | Signature | - | P: AOK-KA281 |
| AOK-KA301 | Psychiatry I. | Department of Psychiatry | Prof. János Kálmán | 1 | - | Signature | - | P: AOK-KA302 |
| AOK-KA302 | Psychiatry I. | Department of Psychiatry | Prof. János Kálmán | - | 1 | Term Mark(5) | 2 | ER: AOK-KA203, AOK-KA233 |
| AOK-KA261 | Forensic Medicine I. | Department of Forensic Medicine | Dr. Éva Kereszty | 1 | - | Examination | 3 | ER: AOK-KA203 |
| AOK-KA262 | Forensic Medicine I. | Department of Forensic Medicine | Dr. Éva Kereszty | - | 2 | Signature | - | P: AOK-KA261 |
| AOK-KA221* | Dermatology | Department of Dermatology | Prof. Lajos Kemény | 2 | - | Examination | 4 | ER: AOK-KA203 |
| AOK-KA222* | Dermatology | Department of Dermatology | Prof. Lajos Kemény | - | 3 | Signature | - | P: AOK-KA221 |
| AOK-KA341* | Ophthalmology | Department of Ophthalmology | Dr. Edit Tóth-Molnár | 2 | - | Examination | 3 | ER: AOK-KA203 |
| AOK-KA342* | Ophthalmology | Department of Ophthalmology | Dr. Edit Tóth-Molnár | - | 2 | Signature | - | P: AOK-KA341 |
| AOK-KA241** | Oto-Rhino-Laryngology | Department of Oto-Rhino-Laryngology | Dr. László Rovó | 2 | - | Examination | 4 | ER: AOK-KA203 |
| AOK-KA242** | Oto-Rhino-Laryngology | Department of Oto-Rhino-Laryngology | Dr. László Rovó | - | 3 | Signature | - | P: AOK-KA241 |
| AOK-KA371** | Urology | Department of Urology | Dr. Zoltán Bajory | 1 | - | Examination | 2 | ER: AOK-KA203 |
| AOK-KA372** | Urology | Department of Urology | Dr. Zoltán Bajory | - | 2 | Signature | - | P: AOK-KA371 |
| AOK-KASZD201 | Thesis plan I. | Faculty of Medicine | | - | 2 | Term Mark(5) | 10 | Basic and Pre-Clinical Module |

*For groups 1, 2, 3, 4 ** for groups 5, 6, 7, 8

**SUGGESTED STUDY PLAN - MEDICINE - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **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 Bari | 2 | - | Evaluation(5) | 2 | |
| 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-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 Bari | 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 |
| AOK-KA1452 | Microsurgery | Inst. of Surgical Research | Prof. Mihály Boros | - | total 20 | Signature | - | P: AOK-KA1451K |
| AOK-KA421 | Nuclear Medicine | Dept. of Nuclear Med. | Prof. László Pávics | 1 | - | Evaluation(5) | 1 | |
| AOK-KA1061 | Pharmacology Cases I. | Dept. of Pharmacology | Prof. András Varró | - | 2 | Term Mark(5) | 2 | |
| AOK-KA1581 | The Language of Effective Doctor-Patient Communication | Dept. of Foreign Lang. | Dr. Éva Demeter | - | 2 | Term Mark(5) | 2 | |
| AOK-KA1691 | Tropical Medicine | Department of Psychiatry | Prof. János Kálmán | 2 | - | Evaluation(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 regulatin of cell functions | Dept. of Pharmacology | Prof. András Varró | 2 | - | Evaluation(5) | 2 | - |
| AOK-KA1922 | Electrophysiology: ion channels and ion transport mechanisms in the regulatin of cell functions | Dept. of Pharmacology | Prof. András Varró | - | 6 hours in total | Signature | - | - |
| **Elective Subjects** *(Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)* | | | | | | | | |
| AOK-KADEM011 | Demonstrator Activity | The department where the student's demonstrator activity application was accepted | | - | 2 | Evaluation(5) | 2 | SR: AOK-KUA014, AOK-KUA053, AOK-KUA063, AOK-KUA073, AOK-KUA211 |
| 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 | |
| AOK-KA1672 | Diseases of the Temporomandibular System | Department of Prosthodontics and Oral Biology | Dr. Márta Radnai | - | 1 | Signature | - | |
| AOK-KA1831 | Illicite 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-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. of Foreign Lang. | Dr. Éva Demeter | - | 2 | Term Mark(5) | 2 | SR: AOK-KA4718 |

**SUGGESTED STUDY PLAN - MEDICINE - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **10th (spring) semester (9001AK_N_2013)** | | | | | | | | **CLINICAL MODULE** |
| **Compulsory Subjects** | | | | | | | | |
| AOK-KA193 | Anesthesiology and Intensive Therapy II. | Dept. of Anesthesiology and Intensive Therapy | Prof. Zsolt Molnár | 2 | - | Examination | 2 | ER: AOK-KA191 |
| AOK-KA194 | Anesthesiology and Intensive Therapy II. | Dept. of Anesthesiology and Intensive Therapy | Prof. Zsolt Molnár | - | 1 | Signature | - | P: AOK-KA193 |
| AOK-KA207 | Internal Medicine V. | 1st Dept. of Int.Med. / 2nd Dept. of Int.Med. | Prof. Csaba Lengyel / Prof. Tamás Forster | 2 | - | Examination | 3 | ER:AOK-KA233 |
| AOK-KA208 | Internal Medicine V. | 1st Dept. of Int.Med. / 2nd Dept. of Int.Med. | Prof. Csaba Lengyel / Prof. Tamás Forster | - | 16 in total | Signature | - | P: AOK-KA207 |
| AOK-KA258 | Pediatrics II. Practice | Department of Pediatrics | Dr. Csaba Berecki | - | 2 | Signature | 0 | ER: AOK-KA255, AOK-KA256 |
| AOK-KA259 | Pediatrics II. Seminar | Department of Pediatrics | Dr. Csaba Berecki | - | 2 | Term Mark(5) | 4 | P: AOK-KA258 |
| AOK-KA283 | Neurology II. | Department of Neurology | Prof. László Vécsei | 1 | - | Signature | 2 | P:AOK-KA284 |
| AOK-KA284 | Neurology II. | Department of Neurology | Prof. László Vécsei | - | 1 | Term Mark(5) | - | ER: AOK-KA281 |
| AOK-KA303 | Psychiatry II. | Department of Psychiatry | Prof. János Kálmán | 2 | - | Examination | 3 | ER: AOK-KA301 |
| AOK-KA304 | Psychiatry II. | Department of Psychiatry | Prof. János Kálmán | - | 1 | S | - | P: AOK-KA303 |
| AOK-KA263 | Forensic Medicine II. | Department of Forensic Medicine | Dr. Éva Kereszty | 1 | - | Examination | 3 | ER: AOK-KA261 |
| AOK-KA264 | Forensic Medicine II. | Department of Forensic Medicine | Dr. Éva Kereszty | - | 2 | Signature | - | P: AOK-KA263 |
| AOK-KA221** | Dermatology | Department of Dermatology | Prof. Lajos Kemény | 2 | - | Examination | 4 | ER: AOK-KA203 |
| AOK-KA222** | Dermatology | Department of Dermatology | Prof. Lajos Kemény | - | 3 | Signature | - | P: AOK-KA221 |
| AOK-KA341** | Ophthalmology | Department of Ophthalmology | Dr. Edit Tóth-Molnár | 2 | - | Examination | 3 | ER: AOK-KA203 |
| AOK-KA342** | Ophthalmology | Department of Ophthalmology | Dr. Edit Tóth-Molnár | - | 2 | Signature | - | P: AOK-KA341 |
| AOK-KA241* | Oto-Rhino-Laryngology | Department of Oto-Rhino-Laryngology | Dr. László Rovó | 2 | - | Examination | 4 | ER: AOK-KA203 |
| AOK-KA242* | Oto-Rhino-Laryngology | Department of Oto-Rhino-Laryngology | Dr. László Rovó | - | 3 | Signature | - | P: AOK-KA241 |
| AOK-KA371* | Urology | Department of Urology | Dr. Zoltán Bajory | 1 | - | Examination | 2 | ER: AOK-KA203 |
| AOK-KA372* | Urology | Department of Urology | Dr. Zoltán Bajory | - | 2 | Signature | - | P: AOK-KA371 |
| AOK-KA361 | Traumatology | Department of Traumatology | Prof. Endre Varga | 2 | - | Examination | 3 | ER: AOK-KA335 |
| AOK-KA362 | Traumatology | Department of Traumatology | Prof. Endre Varga | - | 2 | Signature | - | P: AOK-KA361 |
| AOK-KUA401 | Neurosurgery | Department of Neurosurgery | Prof. Pál Barzó | 1 | - | Evaluation(5) | 2 | SR: AOK-KA335, P: AOK-KUA402 |
| AOK-KUA402 | Neurosurgery | Department of Neurosurgery | Prof. Pál Barzó | - | 1 | Signature | - | P: AOK-KUA401 |
| AOK-KASZD202 | Thesis Plan II. | Faculty of Medicine | | - | 2 | Term Mark(5) | 10 | SR: AOK-KASZD201 |

* For groups 1, 2, 3, 4 ** For groups 5, 6, 7, 8

**SUGGESTED STUDY PLAN - MEDICINE - 2018/2019**

| Course Code | Course | Department | Head of Department | Theory Hrs/week | Practice Hrs/week | Form of exam | Credit | **Course Requirement** (SR=Subject requirement; ER=Examination requirement; P=Parallel Completion) |
|---|---|---|---|---|---|---|---|---|
| **Compulsory Elective Subjects** *(Complete 45 credits worth of compulsory elective subjects by the end of the fifth year.)* | | | | | | | | |
| AOK-KA411 | Clinical Genetics | Department of Medical Genetics | Dr. Széll Márta | 2 | - | Evaluation(5) | 2 | SR: 9th sem. |
| AOK-KA4321 | Advanced Biostatistics | Dept. of Med. Physics and Informatics | Prof. Ferenc Bari | 2 | - | Evaluation(5) | 2 | SR: AOK-KA431 |
| AOK-KA1461 | Advanced Surgical Skills | Inst. of Surgical Research | Prof. Mihály Boros | 1 | - | Evaluation(5) | 2 | SR: AOK-KUA111 |
| AOK-KA1462 | Advanced Surgical Skills | Inst. of Surgical Research | Prof. Mihály Boros | - | 1 | Signature | - | P: AOK-KA1461 |
| AOK-KA861 | Cardiac Electrophysiology as a Basic Property of Cardiac Function | Dept. of Pharmacology | Prof. András Varró | 1 | - | Evaluation(5) | 2 | - |
| AOK-KA862 | Cardiac Electrophysiology as a Basic Property of Cardiac Function | Dept. of Pharmacology | Prof. András Varró | - | 1 | Signature | - | - |
| 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. Ágnes Vetró | 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 |
| AOK-KA1452 | Microsurgery | Inst. of Surgical Research | Prof. Mihály Boros | - | total 20 | Signature | - | P: AOK-KA1461 |
| AOK-KA881 | Molecular Developmental-Biology | Dept. of Biochemistry | Prof. László Dux | 2 | - | Evaluation(5) | 2 | - |
| AOK-KA1511 | Oral and Maxillofacial Surgery | Maxillofacial Surgery Clinic | Prof. József Piffkó | 1 | - | Evaluation(5) | 2 | |
| AOK-KA1512 | Oral and Maxillofacial Surgery | Maxillofacial Surgery Clinic | Prof. József Piffkó | - | 1 | Signature | - | |
| AOK-KA1062 | Pharmacology Cases II. | Dept. of Pharmacology | Prof. András Varró | - | 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. of Foreign Lang. | Dr. Éva Demeter | - | 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 Rehabiliation and Physical Medicine | Dr. István Kósa | 2 | - | Evaluation(5) | 2 | SR: AOK-KUA121, AOK-KUA131 |
| AOK-KUA361 | Foundations of Evidence Based Medicine | Department of Public Health | Dr. Edit Paulik | 2 | - | Evaluation(5) | 2 | SR: AOK-KA631, AOK-KUA051 |
| AOK-KUA371 | Travel Medicine | Dept. Of Aviation and Space Medicine | Prof. Sándor Szabó | total 30 | - | Evaluation(5) | 1 | SR: Basic and Pre-Clinical Module |
| **Elective Subjects** *(Complete 18 credits worth of compulsory elective subjects by the end of the fifth year.)* | | | | | | | | |
| AOK-KADEM011 | Demonstrator Activity | The department where the student's demonstrator activity application was accepted | | - | 2 | Evaluation(5) | 2 | SR: AOK-KUA014, AOK-KUA053, AOK-KUA063, AOK-KUA073, AOK-KUA211 |
| 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 | Prof. László Dux | 2 | - | Evaluation(5) | 2 | |
| AOK-KA1621 | Clinical Aspects of Tropical Diseases | Dept. Of Psychiatry | Prof. János Kálmán | 2 | - | Evaluation(5) | 2 | |
| AOK-KA1831 | Illicite Drug Use | Dept. Of Psychiatry | Prof. János Kálmán | 2 | - | Evaluation(5) | 2 | |
| AOK-KA1842 | Medical History Taking in Hungarian II. | Dept. of Foreign Lang. | Dr. Éva Demeter | - | 2 | Term Mark(5) | 2 | SR: AOK-KA4718 |
| AOK-KA1851 | Modern Complex Therapy of Malignant Diseases in Clinical Practice | Dept. of Oncology | Prof. Zsuzsanna Kahán | 2 | - | Term Mark(5) | 2 | SR: AOK-KA381 |
| AOK-KA1861 | Intensive Course on Radiation Oncology | Dept. of Oncology | Prof. Zsuzsanna Kahán | 1 | - | Evaluation(5) | 1 | SR: AOK-KA381 |
| AOK-KA1911K | Chemical Misconceptions | Dept. Of Medical Chemistry | Prof. Gábor Tóth | 2 | - | Evaluation(5) | 2 | |
| AOK-KA1331 | Multidisciplinary Care of Breast Cancer | Dept. of Oncology | Prof. Zsuzsanna Kahán | 2 | | Evaluation(5) | 2 | |
| AOK-KUA291 | Introduction to Toxicology | Dept. of Med. Chemistry | Prof. Gábor Tóth | 2 | - | Evaluation(5) | 2 | SR: AOK-KUA023, AOK-KUA033 |

**SUGGESTED STUDY PLAN - MEDICINE - 2018/2019**

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|---|---|---|---|---|---|---|---|---|
| **(9001AK_N_2013)** | | **6th YEAR** | | | | | | **FINAL MODULE** |
| **Compulsory Subjects** | | | | | | | | |
| AOK-KA901 | Internal Medicine | 1st and 2nd Departments of Internal Medicine | Prof. Csaba Lengyel / Prof. Tamás Forster | 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. László Vécsei | 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**

**6 th year (11th and 12th semester)**
**Academic year 2018/2019**

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. The next practice can be started only following a successful examination.**

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: Test (Multiple Choice Questions), Oral examination (theory) and Practical examination (bedside examination).

*Further details are available in the relevant Clerkship 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 2019. 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 radiopharmaneuticals 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 int he ICU.**
Mrs Csányiné Dr. Ilona Dóczi

**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. Czigner Jenő

**Department of Forensic Medicine**

**1. Illegal drug use**
Dr. Antia Reka Tóth

**2. Laboratory investigation of drug abuse**
Dr. László Institoris

**3. The role of alcohol in traffic**
Prof. Tibor Varga

**4. Forensci point of DNA investigations**
Dr. Bernadett Csányi

**5. Evaluation of permanent disability**
Dr. Beáta Havasi

**6. Problems of the health legislation**
Dr. Éva Kereszty

**7. Death detection in the clinical practice**
Dr. Éva Kereszty

**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 Sághy

**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 patomechanisms 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. Laszló 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 arrhyhtmias.

    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 Informatics**

**1. Oscillation mechanics of the human respiratory system**
Prof. Zoltán Hantos

**2. Computer analysis of lung sounds**
Prof. Zoltán Hantos

**3. Studies on regulation of cerebral blood flow**
Prof. Ferenc Bari

**4. Experimental models for cortical spreading depression**
Dr. Eszter Fazekas

**5. Computer aided modelling in Pharmacy and Medicine**
Dr. János Karsai

**6. Investigation of the role of enviromental factors in aetiology of childhood cancers**
Dr. Tibor Nyári

**7. Investigation of the role of human papilloma virus in cervical carcinoma**
Dr. Tibor Nyári

**8. 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 sircle Topics (TDK)** | |
|---|---|
| **Tutor** | **Topic** |
| Gyula Szabó, MD, Ph.D. DSc. | Computer based education of pathophysiology (usage of internet in medical education) |
| | Investigation of specific opiate ligands in animal experiments |
| | Elective subject from pathophysiology |
| Gyula Szabó, MD, Ph.D. DSc.<br>Júlia Szakács M.D. | Study of the behavioral effects of neuropeptides |
| Zsófia Mezei, M.D., Ph.D. | Effects of peptides on the function of platelets and vessels in chronic alcohol treated rat |
| | Effects of peptides on the function of platelets and vessels in diabetic rat |
| | Effects of peptides on the function of platelets and vessels in alzheimer rat |
| | Effects of peptides on the function of platelets in smoking men |
| Gyula Telegdy, MD, PhD. DSc. HAS<br>Gyula Szabó, MD, Ph.D. DSc.<br>Miklós Jászberényi, M.D., Ph.D. DSc. | The Pathophysiology of Alzheimer's Disease |
| | The role of neuropeptide mediators in the control off affective, emotional and cognitive processes |
| | The Effect of Neuropeptides on the Hypothalamus-Pituitary-Adrenal system |
| Gyula Telegdy, MD, PhD. DSc. HAS<br>Zsolt Bagosi, M.D., Ph.D. | The role of CRF and urocortins in social interaction |

| | |
|---|---|
| Gyula Szabó, MD, Ph.D. DSc.<br>Zsolt Bagosi, M.D., Ph.D. | The role CRF and urocortins in drug addiction |
| Zsolt Bagosi, M.D., Ph.D.<br>Miklós Jászberényi, M.D., Ph.D. | The effects of neuropeptides on hypothalamic neurohormones |
| Zsolt Bagosi, M.D., Ph.D.<br>Krisztina Anna Csabafi, MD, Ph.D. | The effects of neuropeptides on extrahypothalmic neurotransmitters |
| Krisztina Anna Csabafi, MD, Ph.D. | Role of neuropeptides in anxiety and the development of anxious phenotype |
| | Effect of neuropeptides on nociception and morphine induced analgesia, tolerance |
| | The effect of kisspeptin on amyloid-beta neurotoxicity |
| Zoltán Rakonczay, M.D., Ph.D. DSc.<br>Lorand Kiss Ph.D. | The pathomechanism of experimental acute pancreatitis and therapeutic investigations |

**Recommended textbooks for first year medical students**

It is recommended to purchase the latest edition of the following textbooks!

**ANATOMY, HISTOLOGY AND EMBRYOLOGY**

I. **Obligatory textbooks:**

- K. Won Chung: **Gross Anatomy**, Lippincott Williams & Wilkins
- Drake, Vogl & Mitchel: **Gray's Anatomy for Students**, Churchill Livingstone
- Drake, Vogl, Mitchell, Tibbitts & Richardson: **Gray's Atlas of Anatomy**, Churchill Livingstone
- McMinn and Abrahams: **Clinical Atlas of Human Anatomy;** *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. Kuehnel: **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*

**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

**FIRST AID**

- 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, BASICS OF NURSING**

- 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 AND STATISTICS**
- Damjanovich-Fidy-Szöllősi (eds): Medical Biophysics. Medicina, 2009.
- M.J. Campbell, D. Machin: Medical Statistics. A Commonsense Approach. John Wiley & Sons Chichester-New York- Brisbane-Toronto-Singapore , 1993.
- Rice Virtual Lab in Statistics http://onlinestatbook.com/rvls.html

**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. Kuehnel: **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 Biochemsitry
  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

**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**

- Erzsébet Balogh & Margit Skadra: Multikulti Magyar nyelv külföldieknek – Hungarian for foreigners. ISBN: 978 963 226 599 5. Medicina, 2016
- GYŐRFFY, Mária: Mi a panasz? Idióma Bt. Pécs, 1999, ISBN 963 04 8860 4

**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. Szilagyi, Peter Gabor Szilagyi, 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

**MEDICAL MICROBIOLOGY AND IMMUNOLOGY**

- ABBAS et al., Cellular and Molecular Immunology, Sanders, Elsevier, 6th ed., 2007.
- Greenwood at al., Medical Microbiology; Churchill, Livingstone, Elsevier; 17th ed., 2007.
- Murphy et al., Janeway's Immunology, Garland Science; 7th ed., 2008.
- Murray et al., Medical Microbiology, Elsevier, Mosby 6th ed. 2009.
- 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, 2017. ISBN: 9780323353175

**PATHOPHYSIOLOGY**

**Texbooks**

- Gayton and Hall: Texbook of Medical Physiology 12th ed. 2011
  ISBN: 978-1-4160-4574-8/978-0-8089-2400-5
- Damjanov: Pathophysiology, Elsevier (Saunders title), 2008,
  ISBN: 978-1-4160-0229-1
- McPhee, Hammer: Pathophysiology of Disease 6th ed., McGraw-Hill Medical, 2009,
  ISBN- 0071621679/9780071621670
- Silbernagl, Lang: Color Atlas of Pathophysiology, George Thieme Verlag, 2000,
  ISBN: 9780865778665/9783131165510
- Kumar, Abbas, Fausto, Aster: Robbins & Cotran Pathologic Basis of Disease, 8th ed, Elsevier (Saunders title) 2010,
  ISBN: 978-1-4160-3121-5
- Goldman, Schafer: Goldman's Cecil Medicine, 24th ed., Elsevier (Saunders title), 2012,
  ISBN: 978-1-4377-2788-3
- Longo, Fauci, Kasper, Hauser, Jameson, Loscalzo: Harrison's Principles of Internal Medicine, 18th ed.,
  McGraw-Hill Medical, 2012, ISBN 9780071748896/007174889X
- Khan: Rapid ECG Interpretation 3rd ed., Humana Press Inc, 2008, ISBN: 978-1-58829-979-6
- Foster: Twelve-lead electrocardiography: theory and interpretation, 2nd ed., Springer-Verlag, 2007,
  ISBN-10: 1-84628-592-5 ISBN-13: 978-1-84628-592-9
- Wagner: Marriott's Practical Electrocardiography, 11th ed., Lippincott Williams & Wilkins, 2007,

ISBN-10: 0781797381 ISBN-13: 9780781797382
- Bayés de Luna: Basic electrocardiography: normal and abnormal ECG patterns, Blackwell Publishing, 2007, ISBN: 978-1-4051-7570-8
- Abedin & Conner: ECG Interpretation - The Self-Assessment Approach, 2nd ed., Blackwell Publishing, 2008, ISBN: 978-1-4051-6749-9
- Morris, Edhause, Brady, Camm: ABC of Clinical Electrocardiography, BMJ Publishing Group, 2003, ISBN 0 7279 1536 3

**Handouts (for practice)**
- Fekete M.: Pathophysiology exercises II. 1987.
- Szabó G.: Introduction to Electrocardiography 1999.

**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

**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 Melvilla NY
- Principles and Practice of Radiation Oncology Editors Carios A. Perez Luther W. Brandy., 1998 Lippincott-Raven
- Radiation Oncology: Management Devisions. 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**

- Richard Shepeherd: Simson's Forensic Medicine 12th edition, 2003 Hodder Arnold and Hachette UK Company ISBN 978 0 340 76422 0
- 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:

- Erzsébet Balogh & Margit Skadra: Multikulti Magyar nyelv külföldieknek – Hungarian for foreigners. ISBN: 978 963 226 599 5. Medicina, 2016
- GYŐRFFY, Mária: Mi a panasz?, Idióma Bt. Pécs, 1999, ISBN 963 04 8860 4

**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

**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**

H.J. Biersack and L.M. Freeman. Clinical Nuclear Medicine; Springer 2007, ISBN 978-5-540-28025-5

**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, Zth 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)

- Differiential 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 RudolfPfaltz: 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: Harrisons'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**

- Karen Marcdante, MD and Robert M. Kliegman, MD: Nelson Essentials of Pediatrics, 7th Edition 2015, ISBN: 978-1-4557-5980-4
- Tom Lissauer, Graham Clayden: Illustrated Textbook of Pediatrics, Mosby 2nd ed. 2001., ISBN: 0723431787

**PSYCHIATRY**

- Please See the list of 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), and Kelley's Textbook of Rheumatology 9th edition, 2013 (Firestein, Budd, Gabriel, McInness, O'Dell editors – ISBN 978-1-4377-1738-9

**RADIOLOGY**

- Richard B. Gunderman, Essential Radiology, 3rd edition, Thieme, New Yorik, 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 Treatmnet 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) | ANATOMY SEMINAR (2 hrs/week) |
|---|---|---|---|
| 1. | Introduction to human anatomy (anatomical nomenclature, planes, directions, axes).<br>General osteology.<br>General syndesmology. | *Injury preventive directives and dissecting room regulations.*<br>Bones of the upper limb. | Joints of the upper limb. |
| 2. | General myology.<br>General angiology. | Joints of the upper limb. | Muscles of the upper limb.<br>Thoracohumeral muscles. |
| 3. | General neuroanatomy.<br>The spinal cord segment.<br>General features and organization of the brachial and lumbosacral plexuses. | Dissection of the muscles of the upper limb. | Blood vessels and lymphatics of the upper limb. |
| 4. | Epithelial and connective tissues. | Anatomy of the bones, joints and muscles of the upper limb.<br>Blood vessels of the upper limb. | Nerves of the upper limb. |
| 5. | Cartilage and bone tissues. | Nerves of the upper limb. | Bones and joints of the pelvic girdle and the lower limb. |
| 6. | Functional and clinical anatomy of the upper limb. | Anatomy of the blood vessels and nerves of the upper limb.<br>Bones of the free lower limb. | Joints and muscles of the hip and the lower limb. |
| 7. | Muscle tissues. | Joints of the lower limb. | Blood vessels and nerves of the lower limb. |
| 8. | General embryology.<br>Development of the embryo: gastrulation and neurulation. | Muscles of the lower limb. | Anatomy of the bones, joints of the trunk.<br>Anatomy of the thoracic cage. |
| 9. | General embryology.<br>Development of the amnion and the yolk sac. | Blood vessels and nerves of the lower limb. | Anatomy of the bones, joints of the trunk.<br>Anatomy of the thoracic cage. |
| 10. | Anatomy and histology of the upper airways. | Anatomy of the lower limb.<br>Anatomy of the bones, joints of the trunk.<br>Anatomy of the thoracic cage. | Superficial and deep back muscles.<br>The diaphragm. |

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| 11. | Anatomy and histology of the lung.<br><br>Development of the respiratory system. | Superficial and deep back muscles.<br><br>The diaphragm. | Layers of the chest wall.<br><br>Surface projection of the organs of the chest.<br><br>Anatomy of the mediastinum. |
| 12. | Functional and cross-sectional anatomy of the thorax. | Surface anatomy of the thoracic wall.<br><br>Projection of the thoracic organs onto the chest wall.<br><br>Supracardiac mediastinum. | Anatomy and topography of the lung, bronchial tree and pleura. |
| 13. | Nerve tissue 1. | Anatomy of the nasal cavity, paranasal sinuses, larynx, lungs and the pleura. | General recapitulation.<br><br>Repetition. |
| 14. | Nerve tissue 2. | Anatomy of the trunk, the thorax and the respiratory system.<br><br>Recapitulation. | Discussion of the topics of the semester. |

**2nd semester**

| | LECTURE<br>(2 hrs/week) | DISSECTION PRACTICE<br>(3 hrs/week) | HISTOLOGY PRACTICE<br>(2 hrs/week) |
|---|---|---|---|
| 1. | **Alimentary System**<br>The anatomy and histology of the oral cavity; teeth, large salivary glands, and the tongue. | **Thoracic Cavity, Cardiovascular and Respiratory System**<br>The anatomy of the mediastinum. Dissection of the superior mediastinum. | Basic tissues I.:<br>Epithelial tissues:<br>*Kidney (HE)*<br>*Trachea (HE)*<br>*Esophagus (HE)*<br>*Skin (HE)* |
| 2. | The anatomy and histology of the, pharynx and the oesophagus.<br>The anatomy of the peritoneum. | The anatomy of the heart and the pericardium. | Basic tissues II.:<br>Connective and supporting tissues:<br>*Skin (HE)*<br>*Ear (Orcein)*<br>*Bone (ground section)*<br>*Enchondral ossification (HE)* |
| 3. | The anatomy and histology of the stomach, small intestine, large intestine and the rectum.<br>The topography, anatomy and histology of the spleen. | Removal and dissection of the lungs and the bronchial tree.<br>Dissection of the posterior mediastinum and the intercostal space. | Basic tissues III.:<br>Muscle tissues and nervous tissue<br>*Smooth muscle (HE)*<br>*Skeletal muscle (HE)*<br>*Cardiac muscle (HE)*<br>*Peripherial nerve (HE)*<br>*Sensory ganglion (HE)* |
| 4. | The anatomy, blood circulation and histology of the liver and the gall bladder.<br>The anatomy and histology of the pancreas. | The anatomy of the nasal cavity, nasopharynx and the paranasal sinuses.<br>The anatomy of the larynx. | Histology of the blood vessels and the respiratory system<br>*Aorta (resorcin-fuchsin)*<br>*Artery & Vein (HE)*<br>*Trachea (HE)*<br>*Lung (HE)* |

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| 5. | Blood supply, lymphatic drainage and innervation of the organs of the abdominal cavity.<br>Topography of the abdominal organs. | **<u>Practical assessment</u>: Anatomy of the thoracic cavity, mediastinum, heart, and the respiratory system. (nasal cavity, larynx, trachea and lungs)** | Histology of the digestive system I.<br>*Lip (HE)*<br>*Dorsum linguae (HE)*<br>*Circumvallate papilla (HE)*<br>*Parotid gland (HE)*<br>*Submandibular gland (HE)* |
| 6. | **<u>Urogenital System</u>**<br>Gross anatomy, blood supply and histology of the kidney.<br>Anatomy and histology of the ureter, urinary bladder and the urethra. | **<u>Abdominal Cavity and the Digestive System</u>**<br>Abdominal regions, abdominal situs and projection of the viscera.<br>Opening of the abdominal cavity, inspection of the viscera.<br>Dissection of the lesser and greater omentum, the omental bursa, the recesses of the peritoneum. | Histology of the digestive system II.<br>Esophagus (HE)<br>Cardia (HE)<br>Fundus, corpus (HE)<br>Duodenum (HE)<br>Jejunum (HE)<br>Jejunum (PAS)<br>Ileum (HE) |
| 7. | The anatomy and histology of the male genital organs. | Dissection of the stomach, the small and large intestines.<br>Examination of the liver and the pancreas.<br>Dissection of the hepatoduodenal ligament. | Histology of the digestive system III.<br>Large intestine (HE)<br>Vermiform appendix (HE)<br>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>**<br>**Histology of the heart and blood vessels**<br>**Histology of the respiratory and digestive systems** |
| 9. | The anatomy of the male and female perineum.<br>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<br>*Liver (HE)*<br>*Liver (Kupffer-cells)*<br>*Gall bladder (HE)*<br>*Pancreas (HE)* |
| 10. | **<u>Blood, Hematopoies and the Lymphatic System</u>**<br>Histology of the blood.<br>Hematopoiesis | **<u>Lesser Pelvis and Perineum</u>**<br>Dissection of the scrotum, testis and epididymis.<br>Topography of the male pelvis. | Uropoietic system:<br>*Kidney (HE)*<br>*Ureter (HE)*<br>*Urinary bladder (HE)*<br>*Urethra (HE)* |
| 11. | Histology of the immune system and lymphoid organs. | Dissection of the female genital organs.<br>Topography of the female pelvis. | Male genital organs I.:<br>*Testis-epididymis(HE)*<br>*Spermatic cord(HE)*<br>*Seminal vesicle(HE)*<br>*Prostate (HE)*<br>*Penis(HE)* |

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| 12. | **<u>Endocrine System</u>**<br>The pituitary gland and the neuroendocrine regulation. | Dissection of the male and female perineum.<br>Ischiorectal fossa, pudendal canal. | Female genital organs:<br>*Ovary (HE)*<br>*Oviduct(HE)*<br>*Uterus(HE)*<br>*Uterine cervix(HE)* |
| 13. | The anatomy and histology of the thyroid and parathyroid glands.<br>The endocrine pancreas and the enteroendokrin system. | **<u>Practical assessment:</u>**<br>**Anatomy of the lesser pelvis and urogenital organs** | General recapitulation<br>Repetition |
| 14. | The suprarenal gland, and the endocrine cells of the gonads.<br>Histology of the diffuse neuroendocrine system. | General recapitulation<br>Repetition | **<u>Practical assessment:</u>**<br>**Histology of the urogenital system**<br>**Histology of the liver and the pancreas** |

**3rd semester**

| | LECTURE<br>(2 hrs/week) | DISSECTION PRACTICE<br>(3 hrs/week) | HISTOLOGY PRACTICE<br>(2 hrs/week) |
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| 1. | Anatomy and blood supply of the spinal cord.<br>Fine structure of the grey and white matter.<br>Rexed's laminae and corresponding nuclei.<br>Arrangement of the spinal cord tracts. | *Injury preventive directives and dissecting room regulations.*<br><br>The cranial base: External and internal surfaces. | **Skull**<br>The temporal and sphenoid bones. |
| 2. | Neuroanatomy and fine structure of the medulla oblongata, pons and mesencephalon.<br>Cranial nerve nuclei and the reticular formation. | Opening of the skull, duplications of the dura mater, meningeal spaces.<br><br>Vertebral canal, meninges of the spinal cord and spinal cord preparation. | **Skull**<br>Calvaria.<br>Bony nasal and oral cavities.<br>Infratemporal and pterygopalatine fossae. |
| 3. | Diencephalon: organization.<br>Thalamus and hypothalamus.<br>Blood supply to the diencephalon. | Cerebral hemispheres: gyri and sulci.<br>Blood supply to the brain, the cerebral arterial circle. | **Histology**<br>Blood smear (MGG)<br>Red bone marrow (HE)<br>Thymus (HE)<br>Lymph node (HE)<br>Spleen (HE)<br>Palatine tonsil (HE) |
| 4. | Neuroanatomy, synaptology, histology of the cerebellum.<br>Neuroanatomy of the cerebellar movement regulation. | Diencephalon.<br>Lateral and third ventricles.<br>Flechsig's cut.<br>The extreme, external and internal capsules. | **Histology**<br>Sensory nerve ending (HE)<br>Sensory nerve ending (Ag)<br>Spinal cord (HE)<br>Spinal cord (myelin staining)<br>Cerebellum (HE)<br>Cerebellum (Ag) |

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| | | Basal nuclei (ganglia). | Neocortex (HE)<br>Astrocytes (GFAP IHC) |
| 5. | Neuroanatomy of the cerebral cortex.<br>The 'module-concept' in cerebral cortex architecture.<br>The limbic system, the hippocampus. | Structure of the brainstem, the fourth ventricle, rhomboid fossa.<br>Exits of the cranial nerves (from the brainstem and the skull). | Blood, hematopoiesis, lymphatic system, nervous system. |
| 6. | Basal forebrain: amygdaloid complex.<br>Basal nuclei and their functions in the movement regulation. | Cerebellum: topography, blood supply, parts.<br>Cerebellar nuclei.<br>Cerebellar peduncules.<br>Frontal sections of the brain.<br>Hippocampus and other limbic areas. | **CNS seminar**<br>Cross-sections of the brainstem 1: the fine structure of the medulla. |
| 7. | Development of the nervous system. | Macroscopic anatomy of the CNS.<br>Muscles of neck.<br>Regions of neck: the cervical triangles.<br>Fascial system of the neck.<br>Surface anatomy of the neck. | **CNS seminar**<br>Cross-sections of the brainstem 2: the fine structure of the pons. |
| 8. | Anatomy and histology of the eye.<br>Parts and layers of the retina.<br>Blood supply to the retina. | Facial and masticatory muscles.<br>Regions of head.<br>Arterial supply, venous and lymphatic drainage of the head and cervical regions. | **CNS seminar**<br>Cross-sections of the brainstem 3: the fine structure of the midbrain.<br>Blood supply to the brainstem. |
| 9. | Accessory visual structures: eyelids, lacrimal apparatus and extraocular muscles. | Facial and masticatory muscles.<br>Regions of head.<br>Arterial supply, venous and lymphatic drainage of the head and cervical regions. | **CNS seminar**<br>Functional anatomy of the ascending and descending pathways. |
| 10. | Neuroanatomy of the visual pathway.<br>Light reflex of the pupil.<br>Accomodation reflex.<br>Horizontal and vertical gaze control. | The cranial nerves V and VII: ganglia and peripheral branches.<br>Topography of the orbit. | **Histology**<br>Hypophysis (HE)<br>Thyroid gland(HE)<br>Parathyroid gland (HE)<br>Adrenal gland (HE)<br>Corpus luteum (HE)<br>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.<br>Topography of the middle and | **Histology**<br>Eye (HE)<br>Eyelid (HE) |

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| | | inner ears. | Lacrimal gland (HE) |
| 12. | Organ of Corti.<br>Fine structures of the cristae and maculae.<br>Auditory and vestibular pathways. | Cervical plexus.<br>Cervical part of the sympathetic trunk.<br>Organization of the peripheral parasympathetic system in the head.<br>Pterygopalatin fossa.<br>Thyroid gland. | **Histology**<br>Finger pad (HE)<br>Hairy skin (HE)<br>Cochlea (HE) |
| 13. | Development of the eye and ear. | Regions of the head and neck.<br>Anatomy of the eye. | **Histology**<br>Resting mammary gland (HE)<br>Lactating mammary gland (HE)<br>Placenta (HE)<br>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 and laboratory work |
| * | Enzymology: enzyme classes, coenzymes, characterisation of enzymes, isoenzymes, multienzyme systems | Substrate specificity and temperature optimum of amylase enzyme activity |
| * | Enzymology: molecular mechanism of catalysis, enzyme kinetics, modulation and regulation of enzyme activity | Determination of protein concentration |
| * | Carbohydrate metabolism: Digestion and absorption of carbohydrates, glycolysis, gluconeogenesis, pyruvate dehydrogenase enzyme complex | Seminar: proteins and enzymes* |
| * | Carbohydrate metabolism: glycogen metabolism, pentose phosphate cycle and glucuronide shunt | Assay of activity of alkalnine phosphatase |

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| * | Carbohydrate metabolism: Fructose and galactose metabolism, glycoproteins, regulation of blood glucose level, diabetes mellitus | Seminar: carbohydrate metabolism* |
| * | Lipid metabolism: Digestion and absorption of lipids, lipoprotein metabolism, lipid mobilisation, oxidation of fatty acids, ketone bodies | Determination of glucose-6-phosphatase enzyme activity |
| * | Lipid metabolism: Synthesis of fatty acids, synthesis of triacyl glycerols and sphingolipids, cholesterol and steroid metabolism | Seminar: lipid metabolism* |
| * | Amino acid metabolism: Digestion and absorption of proteins, catabolism of amino acids, fate of amino group, urea cycle | MTO |
| * | Amino acid metabolism: catabolism of amino acids, fate of carbon skeleton of amino acids, one-carbon units, glutathione | Determination of uric acid concentration |
| * | Synthesis of hem and porphyrine, enterohepatic circulation of hem degradation products | Seminar: amino acid metabolism* |
| * | Nucleotide metabolism: synthesis and degradation of purine and pirimidine nucleotides, salvage pathways, synthesis of deoxyribonucleotides | Investigation of oxygen consumption of isolated mitochondria |
| * | Citric acid cycle: steps and regulation of the cycle, relationship between the cycle and other metabolic pathways | Seminar: nucleotide metabolism, citric acid cycle, respiratory chain, oxidative phosphorylation* |
| * | Mitochondrial transport systems, mechanism of respiratory chain and oxidative phosphorylation | Consultation |

**4th semester**

| | LECTURE | SEMINAR | PRACTICE |
|---|---|---|---|
| * | Proteins and bioenergetics: 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)** | |
| * | Carbohydrate metabolism: Fructose and galactose metabolism, glycogen metabolism, pentose phosphate cycle and glucuronide shunt | | **Assay of activity of alkaline phosphatase** |

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| * | Carbohydrate metabolism: regulation of blood glucose level, glycoproteins<br>Lipid metabolism: Eicosanoids, digestion and absorption of lipids, lipoprotein metabolism | **SEMINAR (carbohydrate metabolism)** | |
| * | Lipid metabolism: lipid mobilisation, oxidation of fatty acids, ketone bodies, diabetes mellitus | | **Determination of glucose-6-phosphatase activity** |
| * | Lipid metabolism: Synthesis of fatty acids, synthesis of triacyl glycerols and phospholipids, sphingolipids, cholesterol and steroid metabolism | **1st MTO** | |
| * | Amino acid metabolism: Digestion and absorption of proteins, catabolism of essential amino acids, fate of amino group, urea cycle | SEMINAR (lipid metabolism) | |
| * | Amino acid metabolism: metabolism of non-essential amino acids, fate of carbon skeleton of amino acids, one-carbon units, glutathione | | Determination of triacyl glycerol and cholesterol |
| * | Amino acid metabolism: **Synthesis of hem and porphyrine, enterohepatic circulation of hem degradation products** | SEMINAR (amino acid metabolism) | |
| * | Citric acid cycle: steps and regulation of the cycle, relationship between the cycle and other metabolic pathways | **SEMINAR (citric acid cycle, respiratory chain, oxidative phosphorylation)**<br>2nd MTO | |
| * | Mitochondrial transport systems, mechanism of respiratory chain and oxidative phosphorylation | | **Investigation of the oxygen consumption of isolated mitochondria** |
| * | Nucleotide metabolism: synthesis and degradation of purine and pirimidine nucleotides, salvage pathways, synthesis of deoxyribonucleotides | | Nucleotide metabolism<br>Determination of uric acid concentration |

## CELL BIOLOGY AND MOLECULAR GENETICS

**1st semester**

| | **LECTURE (2 hrs/week)** | **PRACTICE (2 hrs/week)** |
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| * | Structure and operation of the cell | Handling of technical devices |
| * | The DNA | Microscopy-1 |

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| * | 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)** |
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| * | 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 (Rautek manoeuvre). |

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| * | 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)** | **SEMINAR (1 hr/week)** | **PRACTICE (2 hrs/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, SI units, simple chemical calculations involving Avogadro's number and moles. | Review of laboratory requirements. Fire and safety precautions. Demonstration of laboratory equipments. |
| 2. | Chemical bonding. Octet rule. Ionic bonding. Ionic solids, monatomic and polyatomic ions. Metallic bonding. Covalent bonds. Characterization of molecules. Dipole moment. Molecular geometry. | Atomic models, electronic configuration of atoms. Chemical calculations: concentration of solutions. | Background of volumetric analysis. Using a pipette and a burette. Titration calculations. |
| 3. | Intermolecular forces: hydrogen bonding and van der Waals forces (dipole-dipole and London forces).<br>Introduction to inorganic chemistry. Properties of the most important metals and their compounds. Biological importance and usage. Complex ions. | The application of the periodic table. Continuation of practicing simple chemical calculations. | The principle of photometry, Lambert-Beer law. |

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| 4. | Properties of the most important nonmetals and their compounds. Biological importance and usage. Formation and physiological effects of free radicals. Types of metathesis reactions. | Intra- and intermolecular chemical bonds. Continuation of practicing simple chemical calculations. | Potentiometry, pH measurements. |
| 5. | States of matter. Gas laws and Avogadro's law. Properties of liquids, dependence of phase changes on pressure and temperature. Properties of solids, types of crystalline lattice. Homogenous and heterogenous systems. Colloids. Solutions. Types of solutions. The solution process. Ways of expressing concentration. Colligative properties. Osmosis and its biological importance. | Metals and nonmetals and their compounds. Complexes. Summary of inorganic chemical reactions. | During weeks 5 to 12 students work in rotation and conduct one of the following experiments each week:<br><br>I) Quantitative determination of HCl content by titration with NaOH solution.<br><br>II) Determination of pKa of a known concentration weak acid solution through the preparation of different buffers.<br><br>III) Measurement of buffer capacity.<br><br>IV) Qualitative analysis (2 weeks).<br><br>V) Quantitative determination of Fe(II)-content by permanganometric titration measuring the redox potential.<br><br>VI) Complexometric determination of calcium and magnesium.<br><br>VII) Photometric determination of iron.<br><br>VIII) Photometric determination of glucose. |
| 6. | Chemical equilibrium. LeChatelier's principle. Electrolytic dissociation, strong and weak electrolytes. Acid-base concepts. Equilibrium in electrolytes, pH and pOH. Acid-base ionization equilibrium. Salts. Solubility of electrolytes. Hydrolysis of salts. | Solutions. Osmosis. | |
| 7. | Acidic and basic anhydrides. Acid-base titration. Buffers and their biological importance. Thermochemistry. Basic terms. First, second and third laws of thermodynamics. | Chemical equilibrium. Application of LeChatelier's principle. Acid-base concepts. Simple pH calculations. | |
| 8. | Entropy and disorder. Change in Gibb's 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. | Brief summary of chemical thermodynamics. Electrochemistry. Electrode potential. Balancing redox reaction equations. | |

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| 10. | General principles of organic chemistry. Classification of organic compounds. Functional groups. Types of organic chemical reactions: substitution, addition, and elimination. Types of isomerism. Alkanes (paraffin hydrocarbons). Cycloalkanes. | Voltaic cells. Calculations involving the Nernst equation. Reaction kinetics. Catalysis. | |
| 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. | Saturated hydrocarbons: alkanes and cycloalkanes. Unsaturated hydrocarbons: alkenes and alkynes. | |
| 12. | Aromatic hydrocarbons. Structure and reactions of benzene and its derivatives. | Inductive and conjugation effects in organic compounds. | Weeks 12 and 14: make-up laboratory practicals. |
| 13. | Organic halogen compounds. Hydroxyl group containing organic compounds: alcohols, enols and phenols. Classification, nomenclature and chemical properties of alcohols. Some important alcohols. | Aromatic hydrocarbons. | |
| 14. | Esters of alcohols formed with inorganic acids.<br>Phenols. Acidity of phenols. Nomenclature and chemical reactions of phenols. Oxidation of phenols, quinones.<br>Ethers.<br>Thioalcohols, thioethers, sulfoxides and sulfones. | Organic halogen compounds. Alcohols and phenols. Ethers and sulfur-containing organic compounds. | |

**2nd smester (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. | Summary of organic chemical reactions. | Demonstration of laboratory equipments used for preparative organic chemistry.<br>Examination of some important functional groups:<br>- detection of the double bond<br>- electrophilic substitution of aromatic compounds<br>- reactions of alcohols |

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| 2. | Classification and nomenclature of amines. Basicity of amines, salt formation.<br>Biologically important amines and aminoalcohols. Amines as neurotransmitters. Reactions of amines. Azodyes, sulfonamides and their chemotherapy.<br>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: nicotinamide, flavonoids. Six-membered heterocycles with two heteroatoms: pyrimidines, barbituric acid and barbiturates. Purines. Uric acid.<br>Oxo compounds. Structure of the carbonyl group. Chemical reactions of aldehydes and ketones: addition and condenzation reactions. | Amines. | Examination of some important functional groups:<br>- reactions of amines<br>- reactions of oxo compounds<br>- acidity and basicity of organic compounds |
| 4. | Enol-oxo tautomerism and aldol dimerization of oxo compounds. The role of these reactions in biochemical processes. Oxidation and reduction reactions.<br>Important oxo compounds: quinones, coenzyme Q and vitamin K.<br>Classification and nomenclature of carboxylic acids. Acidity, salt formation. Homologous series of saturated and unsaturated carboxylic acids. Fatty acids. The role of eicosapentaenic and docosahexaenic acids in biological membranes. Prostaglandines. | Heterocyclic compounds. | During weeks 4 to 11 students work in rotation and conduct one of the following experiments each week:<br>I) Complexometric determination of calcium and magnesium.<br>II) Photometric determination of iron.<br>III) Photometric determination of glucose.<br>IV) Kinetic examination of the hydrolysis of an ester.<br>V) Polarimetric determination of sugar.<br>VI) Quantitative determination of a protein by photometric method. |

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| 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. | Aldehydes, ketones, and quinones. | VII) Photometric cholesterol determination. VIII) Quantitative determination of vitamin C content by bromatometric titration. |
| 6. | Acid-catalyzed esterification and hydrolysis of esters. Soaps, detergents. Phosphoglycerydes. Plasmalogens. Sphingolipids. The structure of biological membranes. Classification and nomenclature of amino acids. Proteinogenic amino acids. Amphoteric character: isoelectric points. Essential amino acids, biological importance. | Carboxylic acids. Substituted carboxylic acids. | |
| 7. | Qualitative tests, preparation and separation of amino acids. Chemical properties. Peptides. Stereochemistry of the peptide bond. Principles of sequence analysis. Synthesis of peptides. | Carboxylic acid derivatives. Lipids. | |
| 8. | Biological importance of peptides. Naturally occurring peptides. Important peptide hormones, analogues and peptide antibiotics. 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. 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. | |

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| 10. | Important monosaccharides: aldoses and ketoses and their derivatives. Structure of disaccharides. Nonreducing disaccharides: sucrose and trehalose. Reducing disaccharides: maltose, cellobiose, lactose. Oligosaccharides. Complex oligosaccharides. Mucopolysaccharides: hyaluronic acid, chondroitin and its sulfate, dermatane sulfate and heparine. | Mono- and disaccharides. | |
| 11. | Polysaccharides: starch, glycogen, cellulose. Structure of bacterial cell wall. Steroids. Classification of steroids. Cholesterol, cholesterolesters. Ergosterol. Vitamins D2 and D3. Bile acids and their detergent effect. Steroid hormones. Corticosteroids: mineralo- and glucocorticosteroids. Sex hormones. | Oligo- and polysaccharides. | Bioorganic chemistry: some chemical reactions of proteins and carbohydrates. |
| 12. | Structure and properties of nucleosides and nucleotides. Nucleic acid bases (uracil, thymine, cytosine, adenine, guanine). Nucleotide coenzymes:NAD and NADH. Nucleic acids: RNA and DNA. Hydrolysis, purification and properties of nucleic acids. Sequence analysis and synthesis of nucleic acids. Structure of DNA: double helix. B-DNA, A-DNA and Z-DNA. Denaturation of DNA. DNA-protein complexes. | Steroids. | Weeks 12 to 14: make-up laboratory practicals. |
| 13. | Biological importance of nucleic acids. Classification of RNA. Molecular mechanism of protein biosynthesis, genetic code. Water-soluble vitamins and their coenzymes. Fat-soluble vitamines. Hypo- and hypervitaminosis. | Nucleosides, nucleotides, nucleic acids. | |

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| 14. | Alkaloids, most important representatives. Antibiosis. Classification of antibiotics. Most important antibiotics. Porphin-ring containing compounds. Protoporphyrin-IX and heme. Structure and biological importance of hemoglobin and myoglobin. Intermediates of heme: biliverdin and bilirubin. Chlorophyll. | Vitamins. |

## MEDICAL PHYSICS AND STATISTICS

**1st semester**

| **LECTURE (2+1 hours a week)** | **SEMINAR (2 hours every 2nd week)** | **PRACTICE (2 hours every 2nd week)** |
|---|---|---|
| Introduction: the significance of physics in the medical profession Introduction. Course requirements, training objectives, subject, structure. Introductory examples. Types of data | Fundamentals of mechanics 1 | Introduction to the use of the Biopac measurement system |
| Mechanics of the human body 1 Population and sample characteristics. Definitions, examples, distribution of a sample, measures of the centre and variability, and their properties. Displaying data | | |
| Mechanics of the human body 2 The basics of probability theory. Experiments, events, operations with events, the concept of probability, rules of probability calculus in special cases. Conditional probability, measures of a diagnostic test | Fundamentals of mechanics 2 | Anthropometric measurements. Fundamental aspects of measurements: derived quantities, measurement error |
| Muscle function Distribution of variables, some important distributions (uniform, binomial, Poisson, exponential, normal). | | |
| Mechanical oscillations in the living organism Statistical estimation, confidence interval. The standard error of mean | Oscillations and waves | Sound as a mechanical wave |

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| Fundamentals of wave theory. Doppler effect. Sound – ultrasound: describing the physical process, interaction of ultrasound with human tissue, medical applications<br>The aim and steps of hypothesis testing, one-sample t-test | | |
| Principles of fluid mechanics 1<br>Paired t-test, two-sample t-tests. Assumptions. F test for testing equality of variances | Flow of fluids | Blood pressure measurement principles and their application |
| Principles of fluid mechanics 2<br>Statistical errors, ANOVA models | | |
| Physics of biological membranes, diffusion, osmosis<br>Correlation, models of linear and nonlinear regression. The significance of the correlation coefficient, hypothesis tests for the coefficients of regression line | Thermodynamics | Analysis of blood pressure data |
| Thermal interaction between the human body and its environment. Temperature, its measurement, heat, heat transport<br>Contingency table. The chi-square test for independence | | |
| Thermodynamic aspects of transport processes<br>Special case: a 2 × 2 table. Odds ratio, relative risk, measuring agreement using kappa statistic | | |
| Eyesight, corrections. Optical instruments in medicine<br>Non-parametric tests using ranks | Optics | Optics of the eye |
| Biophysics of the senses: hearing and vision<br>Survival analysis, life tables, Kaplan-Meier method | | |

**2nd semester**

| **LECTURE (2+1 hours a week)** | **SEMINAR (2 hours every 2nd week)** | **PRACTICE (2 hours every 2nd week)** |
|---|---|---|
| Electricity | Electricity | Measurement of lung volumes (spirometry) |
| Magnetism and electromagnetism | | |
| Bioelectric phenomena | Magnetism, electromagnetism, bioelectricity | Electrophysiology 1: Electromyography |
| Signals, signal processing and data visualisation | | |
| Quantum physical phenomena in life (and medical) sciences | The electromagnetic spectrum. Spectroscopy. Lasers | Electrophysiology 2: Electrocardiography |

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| | 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 | Spectroscopy |
| | 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 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, erythropoesis 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 |

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| * | 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<br>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. | |

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| * | 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 *–val*, *-vel* 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 *fáj(t)*; *to be* past tense. |
| 4. | Past tense (first person singular only, indefinite conjugation); the *–kor* ending; the *–tól*, *-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. |

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| 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, -tól, -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. | Medical specialties. |
| 4. | Daily routine of hospitals. |
| 5. | Body weight, height, blood pressure, temperature, pulse. |
| 6. | The most common problems and complaints. |
| 7. | The most common problems and complaints. |
| 8. | TEST 1. |
| 9. | SPRING BREAK |
| 10. | Giving advice, -hat/het. |
| 11. | Imperative. |
| 12. | Most common medications. |
| 13. | Revision of grammar and vocabulary. |
| 14. | Practising role-play and picture description. |
| 15. | Practising role-play and picture description. |

**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.<br>Briefing English case histories taken from the field of Internal Medicine in Hungarian. Final tests (written and oral). |

**6th semester**

| | **PRACTICE (2 hrs/week)** |
|---|---|
| * | 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. |
| * | 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. |

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| * | 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.<br>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. |
| * | 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<br>(2 hrs/week)** |
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| * | The role of the Latin language in medicine. Pronunciation. Groups of nouns - typical forms. |
| * | 1st declension. Grammatical gender. Noun - adjective agreement. Cases - Possession. Praes. Imp. Act. Forms of the verb „to be”. |
| * | 2nd declension. Examples from anatomy. Prepositions. |
| * | The verb. |
| * | Miscellaneous exercises on the covered subjects. |
| * | Mid-term test. |
| * | 3rd declension. Nouns. Typical endings, typical gender. |
| * | 3rd declension nouns + adjectives ending in -us, -a -um. |
| * | Adjectives ending in -is, -e, -ns. Adjective formation. |
| * | Noun + adjective use (examples from anatomy). |
| * | Cardinals, their use. Clinical and pathological diagnoses. |
| * | 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 SEMINAR

**1st semester (not announced in 2017/2018)**

| | **LECTURE (2 hrs/week)** |
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| * | Characterization of proteins (protein structure, folding, chaperones, and central role of heat shock proteins) |
| * | Enzimology (molecular mechanism of enzyme action, regaulation 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 sphyngolipids, detailed characterization of fatty acids, eiokazoids) |
| * | 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 (pathobiochemistry of plasma proteins and biochemical background of blood coagulation) |
| * | Biochemistry of blood (ion determination and blood-gas analysis) |
| * | Inherited metabolic disorders |
| * | Pathobiochemical aspects of connective tissue. |
| * | Pathobiochemical aspects of adhesion receptors and cytoskeleton. |
| * | Biochemical background of risk factors of cardiovascular diseases. |
| * | Biochemistry of vision. |
| * | Pathobiochemistry and diagnostics of liver. |
| * | Pathobiochemistry and diagnostics of diabetes mellitus. |
| * | Signaling |
| * | Biochemistry of nutrition |
| * | Molecular biology diagnostics |
| * | Exam |

## BIOINORGANIC CHEMISTRY

**2nd semester**

| | **LECTURE (1 hr/week)** |
|---|---|
| * | Macro and micro elements. Alkali metals and their compounds. Complexes of alkali metals. Function of Na-K pump. Biological role of lithium, sodium and potassium ions. Important alkaline earth metals. Calcium signal. Calcium binding proteins. Calcium transport systems. |
| * | Characterization of d-transition metals. Complex formation. Chelate complexes. Role of complexes in biological systems. |
| * | Iron and its compounds. Biological role of iron: heme, carrying of oxygen. Electron transport and cytochromes. Catalase, peroxidase. Metabolism of iron. Metabolism problems. |
| * | Copper and its compounds. Copper-metalloenzymes and their role: cytochrome oxidase, superoxide dismutase, amine oxidases. Hemocyanin. Problems in the metabolism of copper. |
| * | Zinc and its compounds. Role of zinc metalloenzymes in hydrolytic reactions. Carbonic anhydrase, carbopeptidase, alcohol dehydrogenase, alkaline phosphatase. Zinc-finger protein and their binding to DNA. Zinc-peptide complexes, zinc-insulin. Poisoning effect of cadmium and mercury. |
| * | Molybdenum and its complexes, molybdenum metalloenzymes (aldehyde oxydase, xanthine oxydase and dehydrogenase). Manganese and its compounds, role of manganese in photosynthesis. Vanadium, vanadates and bone formation. Toxic effect of chromium. Cobalt and its complexes: vitamin B-12. |
| * | Hydrogen and its compounds. Isotopes of hydrogen. Application of radioactive isotopes: tracing, isotope dilution analysis. Medical therapy and diagnosis: application of technetium and iodine isotopes. Iradiation therapy. |
| * | Boron and its compounds. Bactericid and fungicid effects of boron. Aluminum and its compounds, medical usage. Toxic effect of aluminium ions. Lead and its compounds, toxic effect, lead poisoning and its therapy. Tin and its compounds. |
| * | Carbon. Carbon monoxide, carbon dioxide, carbonic acid, carbonates. Hydrogen cyanide, cyanides. Silicon and its compounds. Effect of silicates in the development of diseases, silicosis. Application of silicates in medicine. |
| * | Halogens and their compounds. Biological role of fluoride ion, fluoroapatite. Biological role of chloride ions, chloride transport. Medical usage of iodine and its compounds. |
| * | Nitrogen and its compounds. Nitrogen oxides: Medical usage of dinitrogen monoxide in medicine, biological role of nitrogen monoxide. Nitric and nitrous acids. Nitrates, nitrites, detection, toxic effect. |
| * | Phosphorus and its poisoning effect. Phosphoric acids. The role of high-energy phosphate bonds in the energy production of cells. |
| * | Oxygen and ozone. Oxides, peroxides. Reactive particles formed from oxygen. Oxygen activating enzymes, oxygenases and oxydases. Formation, toxic effect and elimination of oxygen radicals in biological systems. Oxygen poisoning |
| * | Sulphur. Hydrogen sulphide and sulphides. Sulphur dioxide and trioxide, sulphurous and sulphuric acids, sulphites and sulphates. Selenium and its compounds. Selenium as an essential micro element. |

## 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. |

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| * | 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 intermedier 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 ptoteins. The vesicular transport and secretion. |
| * | Transport across membranes. Internalization of macromolecules and viruses. Phagocytosis. Receptor-indiced 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 INFORMATICS

**1st semester**

| **LECTURE (1 hr/week)** | **PRACTICE (2 hrs/week)** |
|---|---|
| Why do we learn and teach medical informatics? | Hardware and software environment (login, rights, sharing resources) of the practice. ETR CooSpace. Creating presentation: IT in health care. |
| The information system of the health. | |
| History of computing hardware. (From the mechanical devices to supercomputers). | Examination of medical data with spreadsheets (validation, sorting, filtering). |
| Software. The operating system, viruses. | Evaluation of medical data with spreadsheets (calculations). |
| Computer networks, internet, data protection. | Evaluation of health information (functions, sub-total tables). |

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| Development and integration of software application. Data presentation, documents handling, spreadsheets, data analysis and reports. | Health data presentation (tables, charts, graphs, images). |
| Internet browsers, search engines, metadata, web documents, Web 2.0 | 1st practical test |
| Virtual reality. Telemedicine. | Literature reference; well-known databases and queries. |
| Integrated IT support of scientific research. | Documents |
| Data and information in health care. Health care data types: text, signs, images, sounds, videos, codes, medical code systems. | Formatting large documents templates and styles. |
| Integrated hospital information systems. (Database and standards). Digital medical image communication systems and standards (PACS, DICOM). | Advances document editing, embedding tables, graphs and images. |
| Digital medical images, basic image processing. | 2nd practical test |
| New trends in medical informatics. Advanced systems | Conclusion remarks and discussion of practical marks |

## INTRODUCTION TO MEDICINE

**1st semester**

**LECTURE**
**(1 hr/week)**

* Introduction to the course

* Health philosophy and behavioral Medicine I. Health and disease

* Health philosophy and behavioral Medicine II. What influences health?

* Health philosophy and behavioral Medicine III. From molecules to society: stress and coping

* Community medicine I. Descriptive epidemiology

* Community medicine II. Analytic epidemiology

* Community medicine III. Prevention, screening and health promotion

* History of Medicine I. Ancient medicine

* History of Medicine II. Modern medicine

* 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**

**(1 hr/week)**

* Studying medicine: attitudes, professional socialization

* Medicalization in health care

* Nature or nurture, culture and lifestyle

* Stress and health

* Handling health information and (online) health literacy

* Epidemiologic study designs – case studies

* Prevention in practice

* Modelling technological development in medicine through the history

* Curiosities from medical history

* Case studies of the ethics of medical profession

* Case studies of the theories of bioethics

* Cultural bioethics

## INTRODUCTION TO PSYCHOLOGY, COMMUNICATION

**2nd semester**

| | **LECTURE (1 hr/week)** | **(PRACTICE (2 hrs/week)** |
|---|---|---|
| * | Scope of psychology. Contemporary themes, perspectives of psychology | Briefing |
| * | Making sense of the physical environment. Sensation, perception, schemas, top-down processes | Introduction, Sympathy/Empathy |
| * | Attention and memory | Basic elements of communication |
| * | The mechanism of human behavior (classical conditioning, and it's practical utility) | Factors which disturb the communicational process I |
| * | The mechanism of human behavior (instrumental, observational, and complex learning, and it's practical utility) | Factors which disturb the communicational process II |
| * | Motivation (drives, Maslow's hierarchy of needs). Emotions | Non-verbal communication I. |
| * | The psychology of social interactions | Non-verbal communication II. |
| * | Attitudes and cognitive dissonance | Setting the context, reflective listening skills |
| * | Intelligence | Skill lab |
| * | The personality. Behaviorist, cognitive approaches | Skill lab |

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| * | The personality. Psychoanalytic, humanistic approaches | Coping with stress |
| | | Coping with stress |
| | | Summary |

## 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)** |
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* 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. Development, division, research fields of medical sociology.

* The medical profession.

* Professional socialisation among medical students.

* Gender differences among medical students in their professional socialisation. Role conflicts between family and professional roles.

* Doctor-patient interaction, models of the doctor-patient relationship. Parsons' concept of the sick and doctor roles.

* Illness behaviour. Going to the doctor.

* Sociology of disability.

* Labelling and stigma. Illness as deviance, primary, secondary deviance.

* Deviance behaviours. Theories of deviance: biological, physical, psychological, sociological theories.

* Stratification and class. Social mobility. Social causes of illness, social patterns of illness (social

aetiology of disease).

* Global inequality. Race, ethnicity and migration. Social inequalities and health. Poverty, social exclusion and welfare.

* Families and intimate relationships. The life-course.

## 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 ovarium: 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 tounge: 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 appendix 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 vesels and endothel cells, multipotent stem cells, blood cell renewal. Fibroblasts and their transformations. The movement and muscle types. The origin a nd potency of stem cells. |
| * | Seminary (lecture 8) |

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| * | The cancer as a microevolutionary process. |
| * | Tumor formation nand 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 exocytotis 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 |

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| | 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 bulbus. 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 contradictive 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. Kruskall-Wallis, Jonckheere-Terpstra and Nemenyi tests | Nonparametric ANOVA. Kruskall-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, citotoxicity tests, etc.). |
| * | Diagnostic methods beased on nucleic acid hybridization (Northern and Southern analysis, in situ hybidization, 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. |

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| * | 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. |

## MICROBIOLOGY I.

**4th semester**

| | **LECTURE (3hrs/week)** | **PRACTICE (2 hrs/weeks)** |
|---|---|---|
| * | Introduction to microbiology. Characterization and classification of bacteria Structure of bacteria. Growth and nutrition of bacteria. | Introduction to microbiology. Laboratory Safety. Aspetic techniques- Wet-mount preparation. |
| * | General Characteristics of viruses, viral replication, antiviral therapy Structure of viruses and classification | Preparatio of bacterial smear. Simple and Gram staining. |
| * | Herpesviriade | Ziehl-Neelsen, Schaffer-Fulton and Neisser staining |
| * | Papilloma and polyoma viruses Poxviridae, Rhabdoviridae | Methods of sterilization. Sterility testing |
| * | Orthomyxoviridae, Paramyxoviridae Togaviridae, adenoviridae | Methods for counting bacteria. Methods for disinfection |
| * | Retroviridae Picornaviridae | Serological reactions I. (precipitation, CFT) |
| * | HIV Reoviridae, Astroviridae, Coronaviridae | Serological reactions II. Agglutination, ELISA. Laboratory methods for detection of cellular immunity |
| * | „Slow" viruses. Parvoviridae, Bunyaviridae | MTO |
| * | Hepatitis viruses, Flaviviridae Arenaviridae, Filoviridae | Bacteriophages, Molecular methods |
| * | Oncoviruses Growth and nutrition of bacteria | Virology I. Cultivation of viruses Signs of Viral replication |
| * | Mivrobial genetics Immune response against pathogens | Virology II. Quantification of viruses Virus |
| * | Pathogenesis of bacterial infection Immune response against pathogens | Virology III. HAG, ELISA, IF Neutralization test |
| * | Antimicrobial chemotherapy I., II. | Antimicrobial susceptibility testing |

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| * | Antimicrobial chemotherapy III. Microbial antigens | Consultation |

## IMMUNOLOGY I.

**4th semester**

| | **LECTURE (2hrs/week)** |
|---|---|
| * | Introduction to immunology. Basic principles |
| * | Phagocytic cells, phagocytosis. Innate immunity |
| * | The structure and activation of the complement system |
| * | Ontogeny of B cells. Antigen recognition |
| * | B cell activation. Humoral immune response |
| * | Ontogeny of T cells. Antigen recognition |
| * | Major histocompatibility complex (MHC) |
| * | Antigen processing |
| * | Cytokines I. |
| * | Cytokines II. |
| * | Hypersensitivity reactions |
| * | Tumonrimmunity |
| * | Transplantation immunity |
| * | Tolerance, autoimmunity |

## 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 |

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| * | 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 foetuses; Ethical issues of human reproduction |

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| * | Informed Consent | Ethical problems of medical genetics |
| * | Moral dilemmas in reproductive medicine. Family planning | Ethical issues of organ transplantation and 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. |

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| * | Chronic constipation<br>Colonic diverticular disease, Anorectal<br>Hyperuricemia, gout | Practical aspects of insulin therapy. Treatment of dyslipoproteinemias |
| * | Therapeutic endoscopy<br>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 lsitening 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.

**5th semester**

| | **LECTURE (3 hrs/week)** | **PRACTICE (2 hrs/week)** |
|---|---|---|
| * | Brucella. Listeria Yersinia. Francisella. Human pathogenic Salmonellae | Safety rules, Yersinina, Salmonellae, Shigellae |
| * | Vibrio cholerae. Campylobacter. Helicobacter. Burkholderia, Pseudomonas | Pseudomonas, Camplyobacter, Heliobacter |
| * | Anaerobic bacteria. | Listeria, Bacillus |
| * | Corynebacterium | |
| * | Mycobacterium, Legionella Bordetella, Haemophilus | Mycobacterium, Haemophilus |
| * | Treponema, Leptospira, Borrelia Bacillus | Corynebacterium, Bordetella |
| * | Mycoplasma, Chlamydia. Rickettsia. | Bacteroides. Clostridium. Mycoplasma. Leptospira. |
| * | General characteristics of viruses, viral replication, antiviral chemotherapy. Structure of viruses and classification | Bacteriophages. Molecular methods |
| * | Herpesviridae Papilloma and plyoma viruses | Clinical bacteriology |
| * | Orthomyxoviridae, Paramyxoviridae Togaviridae, adenoviridae | Vaccination |
| * | Retroviridae, HIV Poxviridae, Rhabdoviridae | Virology I. Cultivation of viruses Signs of Viral Replication |
| * | Hepatitis viruses, Flaviviridae Slow viruses. | Virology II. Quantification of viruses Virus serology (HAG, ELISA, IF) Neutralization test |
| * | Human pathogenic protozoa. Picornaviridae | Bunyaviridae, Filoviridae, Arenaviridae, Parvoviridae |
| * | Human pathogenic helminthes. | Protozoa, helminthes. |
| * | Important human pathogenic fungi. Reoviridae, Astroviridae, Coronaviridae | Mycology |

## PATHOLOGY

**5th semester**

| | LECTURE (3 hrs/week) | SEMINAR (1 hour/week) | PRACTICE (2 hrs/week) |
|---|---|---|---|
| * | Pathology of cellular injury and death (necrosis, apoptosis, degenerations). Cellular adaptations of growth and differentiation (hyperplasia, hypertrophy, atrophy, metaplasia). Calcification. Oedema, hyperaemia, congestion. Haemorrhage. | Cellular injury and death. Cellular adaptations of growth and differentiation. Oedema, hyperaemia, congestion. Haemorrhage. | Histopathology of cellular injury and death/Autopsy |
| * | Disseminated intravascular coagulation. Thrombosis. Embolism. Shock. Consequences of vascular occlusion. Infarction. | 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 degeneration |
| * | Immunopathology I. Immunopathology II. | Immunopathology | Histopathology of degeneration/Autopsy |
| * | Immunopathology III. Pathology of transplant rejection. Neoplasia I. | Immunopathology | Autopsy/Histopathology of degeneration |
| * | Neoplasia II. Carcinogenesis. Amyloidosis. Cystic fibrosis. Pathology of bed rest. Pathology of alcohol abuse. Pathology of smoking. | Neoplasia. | Histopathology of circulation disorders/Autopsy |
| * | Diabetes. Pathology of obesity. Diseases of the blood vessels I. | Carcinogenesis. Pathology of alcohol abuse. Pathology of smoking. Diabetes. Pathology of obesity. | Autopsy/Histopathology of circulation disorders |
| * | Diseases of the blood vessels II. Diseases of the heart I. | Diseases of the blood vessels | Autopsy/Oncohistopathology |
| * | Diseases of the heart II. Essential hypertension. Nephropathology I. | Diseases of the heart | Oncohistopathology/Autopsy |
| * | Nephropathology II. Nephropathology III. | Diseases of the heart | Autopsy/Repetition |
| * | Nephropathology IV. Diseases of the lung I. | Nephropathology | Repetition/Autopsy |
| * | Diseases of the lung. II. Diseases of the lung III. | Diseases of the lung | Autopsy/Repetition |

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|---|---|---|---|
| * | Oral pathology Gastrointestinal pathology | Gastrointestinal pathology | Repetition/Autopsy |

**6th semester**

| | **LECTURE (2 hrs/week)** | **SEMINAR (1 hr/week)** | **PRACTICE (3 hrs/week)** |
|---|---|---|---|
| * | Gastrointestinal pathology. | Gastrointestinal pathology. | Histopathology of the cardiovascular system/Autopsy |
| * | Pathology of the liver. | Pathology of the liver. | Histopathology of the respiratory tract/Autopsy |
| * | Pathology of the biliary tract and pancreas. | Pathology of the biliary tract and pancreas. | Histopathology of the gastrointestinal system/Autopsy |
| * | Pathology of soft tissue tumours. Pathology of the bones, joints and muscles. | Pathology of soft tissue tumours. Pathology of the bones, joints and muscles. | Histopathology of the liver and pancreas/Autopsy |
| * | Endocrine pathology I. | Endocrine pathology | Haematohistopathology/ Autopsy |
| * | Endocrine pathology II. | Endocrine pathology | Histopathology of the urogenital tract/Autopsy |
| * | Pathology of female genital system I. | Pathology of female genital system | Histopathology of the female genital tract/Autopsy |
| * | Pathology of female genital system II. Breast pathology. | Pathology of female genital system. Breast pathology. | Histopathology of the breast/Autopsy |
| * | Neuropathology I. | Neuropathology | Endocrine histopathology/Autopsy |
| * | Neuropathology II. | Neuropathology | Histopathology of the bones, joints and muscles/Autopsy |
| * | Immune pathology | Immune pathology. | Histopathology of the nervous system/Autopsy |
| * | Pathology of male genital system. | Pathology of male genital system. | Repetition/Autopsy |
| * | Haematopathology I. | Haematopathology | Repetition/Autopsy |
| * | Haematopathology II. | Haematopathology | Repetition/Autopsy |

## PATHOPHYSIOLOGY

**5th semester**

| | LECTURE (3 hrs/week) | PRACTICE/SEMINAR (2 hrs/week) |
|---|---|---|
| * | **Introduction to Pathophysiology; Basics of ECG** | Safety regulations. Review of physiologic background of circulation. Registration of ECG Determination of spirometric parameters. |
| * | **Inflammation I.:** Definition, causes and forms of inflammation. Mediators of acute inflammation. | Review of physiologic background of normal ECG. Registration and analysis of ECG Determination of spirometric parameters. (Lecture topic of the 1st week). |
| * | **Inflammation II.:** Cellular elements of acute inflammation. Regulation and outcome of acute inflammation. | **Seminar:** Inflammation I. (Lecture topic of the 2nd week). |
| * | **Inflammation III.:** Chronic inflammation. Local and generalized reactions of inflammation: fever, inflammatory pain. | **Seminar:** Inflammation II. (Lecture topic of the 3rd week). |
| * | **Pathophysiology of leukocytes I.:** **Immunology I.:** *In vivo* allergic reactions, autoimmunity, immunodeficiencies, oncogenesis. **Arrhythmia I.:** Development, mechanisms and classification of arrhythmias. Premature beats. | **Seminar:** Inflammation III. (Lecture topic of the 4th week). |
| * | **Endocrinology I.:** Diseases of hypothalamus, adenohypophysis, thyroid, and adrenal (cortex and medulla) glands. | **Seminar:** Pathophysiology of leukocytes I.: Immunology Arrhythmias I.(Lecture topic of the 5th week) |
| * | **Endocrinology II.:** Male and female reproductive endocrinology. Diseases of neurohypophysis and parathyroid glands. Hypo- and hypercalcemias. **Arrhythmia II.:** Bradyarrhythmias and blocks. | **Seminar:** Endocrinology I. (Lecture topic of the 6th week). |
| * | **Starvation and obesity. Diabetes mellitus I**: definition, diagnosis and classification. | **Seminar:** Endocrinology II. Arrhythmias II. (Lecture topic of the 7th week). |
| * | **Diabetes mellitus II:** Type 1 and 2 diabetes mellitus pathogenesis and consequences. Hypoglycemia. **Arrhythmia III.**: Tachyarrhythmias. | **Seminar:** Starvation, obesity Diabetes mellitus (Lecture topic of the 8thweek). |
| * | **Cardiovascular system I.:** Pathophysiology of plasma lipoprotein metabolism. Atherosclerosis (development and consequences). | **Seminar:** Diabetes mellitus, hypoglycemia. Arrhythmias III. (Lecture topic of the 9th week). |
| * | **Cardiovascular system II.:** Pathophysiology and ECG of acute coronary syndromes: angina pectoris, myocardial infarction, sudden ischemic death. | **Seminar:** Cardiovascular system I. (Lecture topic of the 10th week). |

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| * | **Cardiovascular system III.:** Hypertension (essential & secondary) development, risk factors and consequences. Congenital heart diseases I. | **Seminar:** Cardiovascular system II. **ECG:** Myocardial ischemia, injury and infarction (Lecture topic of the 11th week). |
| * | **Cardiovascular system IV.:** Congenital heart diseases II. Adaptation of the heart, hypertrophy. Mitral, aortic stenosis and regurgitation. Compensated and decompensated heart function, left, right and combined heart failure. | **Seminar:** Cardiovascular system III. (Lecture topic of the 12th week). **ECG**: Hypertrophy and repetition of ECG |
| * | **Peripheral circulatory diseases:** Volume depletion. Syncope. Circulatory shock (development, stages). Multiple organ dysfunctions in shock. Hypotension. | **Seminar:** Cardiovascular system IV. (Lecture topic of the 13th week). |

**6th semester**

| | **LECTURE (3 hrs/week)** | **PRACTICE/SEMINAR (2 hrs/week)** |
|---|---|---|
| * | **Pathophysiology of kidney diseases I.:** Kidney stones. Polyuria, oliguria and anuria. Acute renal failure and tubulointerstitial nephropathies. | Safety regulations. **Seminar:** Thermoregulation. (Please download and study the material from our website or coospace, before class). |
| * | **Pathophysiology of kidney diseases II.:** Major glomerular diseases: nephrotic and nephritic syndrome, RPGN, asymptomatic and chronic GN. Chronic renal failure. Tubular transport diseases. **Pathophysiology of salt-water balance I.** hyper- and hyponatremia | **Seminar:** Kidney diseases I., Pathophysiology of salt-water balance I. (Lecture topic of the 1st week) **In the practice room:** Investigation of urine and renal function: proteinuria, hematuria, pyuria, hemoglobinuria, ketone bodies, urobilinogen, urine sediment and casts. |
| * | **Pathophysiology of salt-water balance II.** Volume excess, development of edemas. Changes of potassium, calcium, magnesium, phosphate, chloride and trace elements under pathological conditions; ECG signs of electrolyte disturbances. | **Seminar:** Pathophysiology of salt-water balance I (Lecture topic of the 2nd week) **In the practice room:** Investigation of urine and renal function: proteinuria, hematuria, pyuria, hemoglobinuria, ketone bodies, urobilinogen, urine sediment and casts. |
| * | **Pulmonary diseases I:** Abnormal breathing patterns, dyspneas. Obstructive pulmonary diseases: CODP, asthma bronchiale, cystic fibrosis, bronchiectasis, bronchiolitis acuta. | **Seminar:** Pathophysiology of salt-water balance II (Lecture topic of the 3rd week) |
| * | **Pulmonary diseases II:** Restrictive pulmonary diseases**,** hypoxias, disorders of pleura, pulmonary edema, hypertension, embolisation, hypoxic conditions, respiratory failure. Cor pulmonale. | **Seminar:** Pathophysiology of pulmonary diseases I. (Lecture topic of the 4th week). |

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| * | **Disturbances of acid-base metabolism:** Laboratory changes in acid-base diseases. Respiratory acidosis and alkalosis. Normo- and hyperchloremic metabolic acidosis. Chloride responsive and non-responsive metabolic alkalosis. | **Seminar:** Pathophysiology of pulmonary diseases II. (Lecture topic of the 5th week). |
| * | **Gastrointestinal diseases I.:** Nausea, vomiting, dysphagia. Abnormalities of gastric juice secretion, peptic ulcer. | **Seminar:** Disturbances of acid-base metabolism (Lecture topic of the 6th week). |
| * | **Gastrointestinal diseases II.:** Diseases of absorption**,** diarrhea, constipation: Irritable bowel syndrome. Intestinal obstruction. Acute and chronic pancreatitis. | **Seminar:** Gastroenterology I. (Lecture topic of the 7th week). |
| * | **Diseases of liver and biliary tract:** Abnormal liver function. Diseases of bilirubin metabolism: hemolytic, hepatocellular and obstructive jaundice. Cirrhosis hepatic. Liver failure. Alcoholic, immune and genetic liver diseases. Cholelithiasis. | **Seminar:** Gastroenterology II. (Lecture topic of the 8th week). |
| * | **Pathophysiology of leukocytes II.:** Leucopenia. Proliferative diseases: reactive and malignant diseases (leukemias, lymphomas). | **Seminar:** Pathophysiology of liver diseases (Lecture topic of the 10th week). |
| * | **Red blood cell diseases I.:** Anemias - ineffective erythropoesis, blood loss, hemolysis. | **Seminar:** Pathophysiology of leucocytes II. (Lecture topic of the 11th week) |
| * | **Hemostasis:** Bleeding disorders (platelet, vascular, clotting factor disturbances), thrombosis and embolism. | **Seminar:** Anemias (Lecture topic of the 12th week).<br>**In the practice room:** Determination of WBC, RBC, platelet, eosinophyl and reticulocyte count. Staining and analysis of blood smear. |
| * | **Pathophysiology of the CNS I.:** Multiple sclerosis, neurodegenerative diseases: Alzheimer's, Parkinson's and Huntington's disease. Circulatory diseases of the CNS. | **Seminar:** Hemostasis (Lecture topic of the 13th week).<br>**In the practice room:** Determination of WBC, RBC, platelet, eosinophyl and reticulocyte count. Staining and analysis of blood smear. |
| * | **Pathophysiology of the CNS II.:** Cerebral edema. Pain, headaches, seizures and epilepsy. | **Seminar:** Pathophysiology of the CNS. (Lecture topic of the 14th week). |

## 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. Would 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. Conicotomry. Tacheostomy. | The Minor Skin Procedures computer program. Local anesthesia. Ellipse excision of skin. Removal of encapsulated structures (cysts, tunors). 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

**6th 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 | Injections. Puncture and cannulation of veins (braunule). Taking blood samples. Venous cut-down *ex vivo*. The Seldinger technique. Practising on phantoms and a Virtual Reality simulator (Cathsim). Fluid therapy in practice. Infusions, infusion pumps |

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|---|---|---|
| * | 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 | Injections. Puncture and cannulation of veins (braunule). Taking blood samples. Venous cut-down *ex vivo*. The Seldinger technique. Practising on phantoms and a Virtual Reality simulator (Cathsim). Fluid therapy in practice. Infusions, infusion pumps |
| * | Monitoring of respiration and gas exchange. Clinical respiratory patterns. Spirometry. Airway gas ($CO_2$) monitoring (capnography, capnometry). Air embolism, pulmonary embolism (diagnosis, prevention, treatment) | 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 |
| * | Monitoring of oxygenation and hypoxia. Inadequate external respiration, $O_2$ 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 $pCO_2$ (clinical tonometry). Blood acid-base status, blood gas analysis. Extracorporal membrane oxygenation | 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 |
| * | 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) | 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) |

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|---|---|---|
| * | Monitoring of gastrointestinal tract. Measurement of intrabdominal pressure (direct, indirect methods; intravesical pressure), abdominal compartment syndrome (etiology, pathopysiology). 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 (postagression syndromes). Enemas, laxation | 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) |
| * | Written test exam | Practical exam |

## 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 *ex vivo* (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, citotoxicity tests, etc.). |
| * | Diagnostic methods beased on nucleic acid hybridization (Northern and Southern analysis, in situ hybidization, 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 |

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| | 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<br>Preanalytical processes, test requesting, sampling, common preanalytical errors<br>Analytical processes: quality control, traceability of measurements, precision, biological variation, reference range, point of care testing.<br>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<br>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<br>Hypo-, and hyperkalemia: causes and differential diagnosis, diagnostic algorithms and treatment |
| * | Laboratory diagnosis of liver diseases |
| * | Endocrinology I.<br>Laboratory diagnosis of disorders of endocrine regulation. Diseases of hypothalamus, hypophysis, thyroid and parathyroid glands. |
| * | Endocrinology II.<br>Laboratory diagnosis of disorders of the adrenal gland and the reproductive system |

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| * | Laboratory diagnosis of disorders of lipid metabolism<br>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<br>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 acut coronary syndrome<br>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**<br>**(2 hrs/every 2nd week)** | **PRACTICE**<br>**(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. |

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| * | 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. |
| * | | 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. Mehanisms 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. Breathing, oxygen therapy |
| 3. | Applied physiology – II. Circulation, circulation management |
| 4. | Applied physiology – III. Acid-base balance, blood-gas analysis |
| 5. | Monitoring airway, circulation, sleep in the operating room |
| 6. | Methods of air flow management |
| 7. | Fluid therapy – fluid resuscitation |
| 8. | Assessment of operation hazards, preoperative preparation |
| 9. | Respirator, respiratory system |
| 10. | General anaesthesia, anaesthetics |
| 11. | Regional anaesthesia, local anesthetics |
| 12. | Postoperative patient care, postoperative complications, significance of PACU |
| 13. | Postoperative and acute analgesia |

**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<br>Genitourinary malignancies<br>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 immunpathologic 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. Papulosquamosus 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. |

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|---|---|---|
| * | Cutaneous manifestations in metabolic disorders. Benign malign tumours of the skin. | Physical therapies in Dermatology I. Surgical excision, currettage, electrodessication, 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 insufficienties. 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. Dermatosurgery. | Case presentations and discussions. |

## FORENSIC MEDICINE

**9th semester**

| | **LECTURE (1 hr/week)** | **PRACTICE (2 hrs/week)** |
|---|---|---|
| 1. | Introduction. Essential law | Time of death Changes after death |
| 2. | - | How to fill out a death certificate? |
| 3. | What to do with a dead body? Recommendation on autopsy rules | Autopsy |
| 4. | - | Hystology (vitality signs) |
| 5. | Types of injuries I. (blunt force, sharp object injuries) | Classification of wounds |
| 6. | - | Autopsy |
| 7. | Types of injuries II. (heat, cold, shot wounds) | Scene investigation, sample collection |
| 8. | - | Toxicology |
| 9. | **Fall break** | |
| 10. | Midterm demonstration (written) Scientific session | Autopsy |
| 11. | Forensic psychiatry | Poisoning |
| 12. | | Suicide |
| 13. | Forensic aspects of alcohol consumption | Autopsy |
| 14. | | Consultation |
| 15. | Asphyxia, drowning | Supplementary practice |

**10th semester**

| | LECTURE (2 hrs/every second week) | PRACTICE (2 hrs/week) |
|---|---|---|
| 1. | Traffic accidents I. | Hystology (sudden death in adults) |
| 2. | - | Toxicology |
| 3. | Traffic accidents II. | Autopsy |
| 4. | - | Malpractice |
| 5. | Forensic aspects of drug abuse | Reconstruction of accidents and criminal cases |
| 6. | - | Autopsy |
| 7. | Medical duties in relation to custody | Midterm demonstration |
| 8. | - | Visit in the county jail |
| 9. | Social insurance systems | Use of DNA in forensic medicine |
| 10. | **Spring break** | |
| 11. | Identification of the living and of the dead | Autopsy |
| 12. | - | Identification |
| 13. | Sexual offences. Battered child, infanticide | Assessment of working ability and disability |
| 14. | - | Autopsy |
| 15. | Consultation | Autopsy |

## 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. Myocardtitis 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 theraputic 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. |

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|---|---|---|
| * | 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 | Bone marrow smears examination, physical signs of pancytopenic patients |
| * | syndromes. Aplastic anemia) | |
| * | 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. | Lymp nodes palpation |
| * | (Classification, Hodgkin disease) | |
| * | Aggressive lymphomas | Examination of blood and bone marrow smears with lymphomatic infiltration |
| * | Malignant lymphomas. | X ray consultation, physical examinations |
| * | (Indolent lymphomas, multiple myeloma) | |
| * | 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<br>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<br>Renal failure (acute, chronic, dialysis treatment) | Upper gastrointestinal endoscopy |
| * | Hypertension II: therapy and complications<br>Tubulointerstitial nephritis (bacterial, non bacterial), polycystic kidney disease | Symptomatic evaluation of the liver patient.<br>Problem oriented laboratory investigation of the liver patient. |
| * | Renal involvement in systemic diseases, kidnes neoplasias<br>Pregnancy and nephropathy | Symptoms of biliary obstruction, investigative methods for patients with biliary obstruction (symptoms, biochemistry, ultrasonography, ERCP) |
| * | Hyperlipidaemia<br>Diabetes mellitus | Symptoms of patients with acute pancreatitis<br>Diagnostic work up of patients with acute pancreatitis |
| * | Diabetes mellitus (acute and chronic complications)<br>Diabetes mellitus (therapy)<br>Introduction to endocrinology. Endocrine regulation. Anterior pituitary | Diagnostic work up of patients with chronic pancreatitis and pancreatic cancer<br>Diagnostic work up of patients with CU and Crohn's disease. |

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|---|---|---|
| * | 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, c13 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: hypadrenia | 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, gynecologial 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.) |

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|---|---|---|
| * | Infections in immunosuppression. AIDS. Vaccination. | Antimicrobal therapy |
| * | Sepsis, septic shock | Nosocomial infections |
| * | Antimicrobal 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 erythematodes, antiphospholipid sy., principles of immunsuppressive 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.<br>b. Physical examination. Neurological status. | Neurological investigation related to the lecture |
| * | a. The organization of the sensory system.<br>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.<br>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. Neurologicallocalization. | Neurological investigation related to the lecture |

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|---|---|---|
| * | a./ Electrical activity and examination of muscles and nerves<br>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 |

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|---|---|---|
| * | 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. |

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| * | Erythroblastosis fetalis. | Curettage, cervical biopsy, electrocauterisation, conisation. |
| * | Dystocia (difficult labor) pelvic dystocia due to uterine dysfunction, dystocia of fetal origin, dystocia of placental origigin. | 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. | |

## OPHTALMOLOGY

**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 conjuctiva | General Practical |
| * | The cornea, The lens | Angiography and laser therapy |

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|---|---|---|
| * | 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 auditoy 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. |

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|---|---|---|
| * | 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 (3 hrs/week)** | **PRACTICE (2 hrs/week)** |
|---|---|---|
| * | The ill child and his doctor | History taking, Iatrogenic infections |
| * | The interview, The problems, Mortality | Examination of the child and infant, Rickets, tetany |
| * | Genes | Newborn, preterm and small for dates infants |
| * | Chromosomes and chromosome abnormalities, Common autosomal abnormalities, Common sex chromosome abnormalities, Single gene (Mendelian) inheritance, Multifactorial (polygenic) inheritance, Recent advances in molecular genetics, Genetic counselling | O2, incubator, mechanical ventillation |
| * | Fetus | Paediatric surgery: malformations |

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|---|---|---|
| * | Periconceptional medicine, The placenta, Examination of the fetus, Drugs which cross the placenta, Fetal transplacental infections, Infections acquired during passage through the birth canal, Maternal immunoglobulins | Developmental and nutritional state |
| * | Newborn | Healthy babies' care and nutrition |
| * | Routine examination of the newborn, Birth injuries, Birth asphyxia, Size at birth, Respiratory problems in the newborn, Jaundice in the newborn, Gastrointestinal problems, Neural tube anomalies, Cleft lip and palate, Neonatal infections, Neonatal convulsions and jitters | Prevention and treatment of infections |
| * | Nutrition | Immunological procedures, tuberculin test |
| * | Breast feeding, Artificial feeding, Feeding problems, Nutritional deficiencies, Malnutrition, Obesity | Management of the poisoned child |
| * | Infection | Treatment of burns, shock, unconsciousness |
| * | Measles, Rubella, Mumps, Chicken pox (Varicella), Herpes simplex infections, Glandular fever, Kawasaki disease (mucocutaneous lymph node syndrome), Erythema infectiosum (5th disease), Roseola infantum (Exanthema subitum), Hand, foot and mouth disease, Hepatitis A (infectious jaundice), Poliomyelitis, Diphtheria, Pertussis (whooping cough), Scarlet fever, Tuberculosis, Malaria, Human immunodeficiency virus, Immunisation, Immune deficiency | Respiratory tract diseases, Asthma, Allergens and respiratory function testing |
| * | Hazards | Examination: murmurs, heart failure, congenital heart disease |
| * | Injuries, Burns and scalds, Drowning, Choking, Poisoning, Other hazard | Cardiological diagnostics |
| * | Airways and lungs | Dehydration, Infusion therapy, Malabsorption, Liver diseases |
| * | Upper respiratory tract infections, Upper airway obstruction, Lower respiratory tract infections, Cystic fibrosis, Asthma | Paediatric surgery: appendicitis, inguinal hernias and disorders of the testes |
| * | Heart | Diagnosis and treatment of UT, renal diseases |
| * | Acyanotic lesions with a left to right shunt, Atrial septal defect (Ostium secundum), Atrial septal defect (Ostium primum), Ventricular septal defect, Patent ductus arteriosus, Pulmonary hypertension, Obstructive lesions, Aortic stenosis, Coarctation of the aorta, Hypoplastic left heart, Pulmonary stenosis, Cyanotic heart disease, Fallot tetralogy, Transposition of the great arteries, Cardiac arrhythmias, Subacute bacterial endocarditis, Rheumatic fever, Hypertension Hyperlipoproteinaemia | Emergency treatment, resuscitation, intensive care |
| * | Gut | Blood and bone marrow diagnostics, anaemia, bleeding disorders, Transfusion |
| * | Acute abdominal pain, Recurrent abdominal pain, Gastroenteritis, Malabsorption, Chronic diarrhoea, Intestinal parasites, Constipation, Liver disease, Liver enzyme deficiencies | |
| * | Urinary tract and testes | |

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|---|---|
| * | Renal function tests, Urinary tract malformations, Urinary tract infections, Haematuria, Acute nephritic syndrome, Nephrotic syndrome, Renal tubular disorders, Acute renal failure, Chronic renal failure, The testes, The prepuce |
| * | Blood |
| * | Iron deficiency anaemia, Aplastic anaemia, Haemolytic anaemias, Bleeding disorders |

**10th semester**

| | **LECTURE/PRACTICE (2 hrs/week, 2 hrs/week)** |
|---|---|
| * | Malignancy |
| * | The management of children with cancer, Acute leukaemia, Lymphomas, Neuroblastoma, Brain and spinal tumors, Soft tissue sarcomas, Renal tumors, Germ cell tumors, Bone tumors, Other tumors, Histiocytic disorders |
| * | Growth |
| * | Head growth, Height and weight, Short stature, Excessive height |
| * | Endocrine |
| * | Puberty, Disorders of sexual differentiation, Adrenal glands, Thyroid, Parathyroid glands, Diabetes, Hypoglycaemia |
| * | Skin |
| * | Rashes of early infancy, Atopic eczema, Infections and infestations, Congenital skin lesions, Other common skin disorders |
| * | Bone and joint |
| * | Arthritis, Osteomyelitis, Normal postural variations, Scoliosis, Hip disorders, Knee disorders, Talipes (clubfoot), Genetic bone and joint disorders, Bone tumors and allied disorders |
| * | Brain, cord, nerve, muscle |
| * | Intracranial infection, Encephalitis, Epilepsy and convulsions, Neuromuscular disorders, Headache, Ataxia, Cerebral palsy |
| * | Vision, hearing, speech |
| * | Hearing, Speech and language |
| * | Mental handicap |
| * | The identification and treatment of mentally handicapped children, Mentabolic and other cerebral degenerative disorders, Specific treatment and general management |
| * | Emotions and behavior |
| * | Brain disorders, The interaction between the child and his world, Behavioral problems, Emotional disorders, Management, The maltreatment of children |

## 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. | MTO: General pharmacology. |

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|---|---|---|
| | Ganglion stimulants, inhibitors. Cholinomimetics. | |
| * | 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, desinfectants. | Prescripton writing. |
| * | Chemotherapy III. Macrolid-antibiotics. Chemotherapy of neoplastic diseases. | Treatment of mycobacterium infections (TBC). |
| * | Chemotherapy IV: Antiviral and antifungal agents. Treatment of protozoon 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**<br>**1 hr/week** | **PRACTICE**<br>**1hr/week** |
|---|---|---|
| * | Introduction to Psychiatry | Psychiatric patient examination related to the lecture |
| * | Disorders of Attachment | Psychiatric patient examination related to the lecture |
| * | Attention-Deficit /Hyperactivity Disorder | Psychiatric patient examination related to the lecture |
| * | Obsessive-Compulsive and Related Disorders | Psychiatric patient examination related to the lecture |
| * | Sleep-Wake Disorders | Psychiatric patient examination related to the lecture |
| * | Trauma and Stressor-Related Disorders | Psychiatric patient examination related to the lecture |
| * | Disruptive, Impulse-Control, and Conduct Disorders | Psychiatric patient examination related to the lecture |
| * | Autism Spectrum Disorder | Psychiatric patient examination related to the lecture |
| * | Delusional Disorder | Psychiatric patient examination related to the lecture |
| * | Schizophrenia Spectrum and Other Psychotic Disorders | Psychiatric patient examination related to the lecture |
| * | Bipolar and Related Disorders | Psychiatric patient examination related to the lecture |
| * | Dissociative Disorders | Psychiatric patient examination related to the lecture |
| * | Forensic and Ethical Issues in Psychiatry | Psychiatric patient examination related to the lecture |
| * | Personality Disorders | Psychiatric patient examination related to the lecture |

**10th semester**

| | **LECTURE**<br>**(2 hrs/week)** | **PRACTICE**<br>**(1 hr/week)** |
|---|---|---|
| * | Anxiety Disorders | Psychiatric patient examination related to the lecture |
| * | Personality Disorders | Psychiatric patient examination related to the lecture |
| * | Depressive Disorders | Psychiatric patient examination related to the lecture |

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| * | Suicide Behavior | Psychiatric patient examination related to the lecture |
| * | Alcohol Related Disorders | Psychiatric patient examination related to the lecture |
| * | Schizophrenia Spectrum and Other Psychotic Disorders | Psychiatric patient examination related to the lecture |
| * | Delirium Syndrome | Psychiatric patient examination related to the lecture |
| * | Neurocognitive Disorders | Psychiatric patient examination related to the lecture |
| * | Behavioral and Psychological Symptoms of Dementia | Psychiatric patient examination related to the lecture |
| * | Psychiatric Aspects of Pain | Psychiatric patient examination related to the lecture |
| * | Substance Related and Addictive Disorders | Psychiatric patient examination related to the lecture |
| * | Feeding and Eating Disorders | Psychiatric patient examination related to the lecture |
| * | Somatoform Disorders | Psychiatric patient examination related to the lecture |
| * | Sexual Dysfunction | 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.<br><br>Epidemiology of mental disorders, suicide and accidents. | Epidemiological studies: interventional studies. Planning and preparation of epidemiological surveys. |

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| * 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 health care associated infections (infection control, nosocomial surveillance). | 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: toxicoinfections. Epidemiology of infectious diseases: enteric diseases | Practical aspects of vaccination. Students' presentations: epidemiological studies III. |
| * HOLIDAY | HOLIDAY |
| * Antimicrobial resistance, bioterrorism. Epidemiology of infectious diseases: airborne diseases. | Sterilization, disinfection (hand hygiene), disinsection, deratisation. Students' presentations: epidemiological studies IV. |
| * Epidemiology of infectious diseases: hematogenic, cutaneous and sexually transmitted diseases. | Demonstration. Practical aspects of the prevention of selected infectious diseases I. Enteric and airborne diseases. Case studies. Students' presentations: epidemiological studies V. |
| * 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. Case studies. Students' presentations: epidemiological studies VI. |

## 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 diet and physical activity in the prevention of chronic diseases. | Requirements, questionnaire. Measuring nutritional status. Dietary guidelines, healthy nutrition. |
| * | 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 I. (Students' presentations) |
| * | Treatment of obesity. Food quality and safety. Epidemiology of drug 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 | Smoking cessation guidelines for health professionals. Prevention of alcohol and drug |

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| | outdoor). General toxicology. | consumption. |
| * | Water pollutants and their effects on human health. Sewage, soil pollutions, waste management. Toxicology of metals, solvents and gases. | Heath influencing factors. Health promotion in various settings (community, workplace, school). |
| * | Toxicology of persistent organic pollutants, plastics and agrochemicals. | Demonstration. 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 provocation tests, skin test, IgE. |
| * | Malignant neoplasm of lung | 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. |

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|---|---|---|
| * | 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 peripheric vessels | Heart and peripheric 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 |

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|---|---|---|
| * | Radiology of the kidneys & the urinay tract | Radiology of the kidneys & the urinay 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)** |
|---|---|---|
| * | 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 | |
| * | Vascular surgery | |
| * | Vascular surgery | |
| * | Vascular surgery | |
| * | Cardiac Surgery | |
| * | Cardiac Surgery | |
| * | Cardiac Surgery | |
| * | Benign diseases of the breast | |
| * | Surgery of the breast cancer | |
| * | Breast-reconstruction. Oncoplastic surgery in the surgical treatment of breast cancer | |

**8th semester**

| | **LECTURE (2 hrs/week)** | **PRACTICE (2 hrs/week)** |
|---|---|---|
| * | 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. |
| * | Benign diseases of the oesophagus | The practicals take place in the Department of Surgery. |
| * | The malignant disease of oesophagus | |

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|---|---|
| * | Gastric surgery. Malignant disease |
| * | Gastric surgery. Benign disease |
| * | Surgery of gallbladder and biliary ways |
| * | Surgery of the liver |
| * | Surgery of the spleen |
| * | Bleeding of the GI tract |
| * | Benign diseases of the colon and rectum |
| * | Malignant diseases of the colon and rectum |
| * | Proctology, the care of patients wearing of intestional stoma |
| * | Test |

**9th semester**

| | **LECTURE (1 hr/week)** | **PRACTICE (1 hr/week)** |
|---|---|---|
| * | Endocrine surgery I. | The syllabus of the practicals are synchronized with the lectures. |
| * | Endocrine surgery II. | The patients examinations and the discussion of the symptoms and illnesses follow the topics of the lectures. |
| * | Surgical immunology | The practicals take place in the Department of Surgery. |
| * | Peritonitis | |
| * | Appendicitis | |
| * | Organ Transplantation | |
| * | Minimal invasive surgery | |
| * | Ileus | |
| * | Bedside exercise | |

## TRAUMATOLOGY

**10th semester**

| | **LECTURE (2 hrs/week)** | **PRACTICE (2 hrs/week)** |
|---|---|---|
| * | General traumatology. Injuries of soft tissues. Types of fractures. Bone bealing. 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 ijuries. Treatment of skin defects. Plastic reconstructive surgery of the hand. | Operative treatment of fractures. Presentation of cases. |

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| * | 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. Avasular 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. |
| * | Politraumatization and multiple injuries. First aid and transportation. Priorities in polytrauma. Primary and secondary treatment of fractures. | Plevic fractures. Fractures of the femoral neck. Intertrochaenteric 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. |

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|---|---|---|
| * | 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:** |
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| | 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)** |
|---|---|
| * | 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. |
| * | 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. |
| * | Practising doctor-patient communication: role-play, history taking and giving advice to patients concerning treatment and medication. |
| * | 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. Revising Adverbs of Manner. |
| * | Practising doctor-patient situations: role-play, history taking in Urology. |
| * | Briefing English case histories taken from the field of Urology in Hungarian. Final tests (written and oral). |
| * | 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. |
| * | History taking, patient examination and specific instructions in the field of Pulmonology. |

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| * | 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 and Urology. |

**8th semester**

| | **PRACTICE (3 hrs/week)** |
|---|---|
| * | Neurology. Parts of the nervous system. Revising Time Clauses. |
| * | Some diseases of the nervous system. Most frequent patient complaints at the Neurology Department. Symptoms and signs of certain neurological conditions. |
| * | History taking and patient examination in Neurology. Giving specific instructions to patients. Mid-term test. |
| * | Practising doctor-patient communication at the Neurology Department: role-playing history taking and discussing possible treatment methods with the patient. Revising the Conditional Mood. |
| * | Briefing simple English case histories taken from the field of Neurology in Hungarian. |
| * | Final exam practice: written. |
| * | Final exam practice: oral. |
| * | Paediatrics. Locomotor, cognitive, emotional and social development. The most important milestones. |
| * | Paediatrics. Asking the child's parents about symptoms and signs. Giving advice concerning treatment options. Revising the Auxiliary Verbs. |
| * | The most common paediatric problems. Discussing and arguing with parents. Revising vocabulary in connection with delivery and breast feeding. |
| * | Acute cases in the field of paediatrics. Interviewing parents presenting their child with accidents, meningitis or febrile convulsion. Management of acute cases. |
| * | Practising doctor-patient communication: role-play, history taking and giving advice to patients' parents concerning treatment and medication. Reading simple Hungarian case histories taken from the field of Paediatrics. Explaining medical procedures and giving advice to patients. |
| * | 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. Final test. |

## 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 | Calculation of RR and OR by hand and by |

| | | |
|---|---|---|
| | risk, odds ratio | computer. Comparison of methods. |
| * | Logistic regression: equation, use, meaning | Simple logistic regression problem soving by computer program |
| * | Logistic regression: ogisticc 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 gourps: 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 sensutitvity, 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 |
| * | Assessment, formulation |
| * | Classification |
| * | Psychological examinations |
| * | Normal child development, risk and protective factors in childhood psychiatric disorders |
| * | Conduct disorder |
| * | Juvenile delinquency, School non-attendance |
| * | Hyperactivity / ADHD |
| * | Emotional disorders: Anxiety disorders I. Separation anxiety, Generalized anxiety |
| * | Anxiety disorders II. Specific phobias, Social anxiety, Panic disorder |
| * | Anxiety disorders III. PTSD |
| * | Anxiety disorders IV. OCD |
| * | Affective disorders |
| * | Cognitive Behavior Therapy for depression-PASCET |
| * | Suicide and deliberate self- harm |
| * | Pervasive developmental disorders |
| * | Psychoses of childhood and adolescence |
| * | Eating disorders |
| * | Enuresis |
| * | Encopresis, |
| * | Tic disorders, Tourette' syndrome |
| * | Selective mutism |
| * | Behavior therapy-case presentation (SM) |
| * | Speech and learning disorders |
| * | Mental retardation |
| * | Psychosomatics disorders-Recurrent abdominal pain, chronic fatigue syndrome, conversion disorder |
| * | The child and adolescent in hospital |
| * | Maltreatment of children |
| * | Consultation |

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| * | Exam |

## 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.<br>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.<br>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.<br>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. |
| * | Immunhaematology. |
| * | Connective tissue disorders and joint diseases. |
| * | Organ specific autoimmune diseases. |
| * | Detection of histocompatibility antigens and their pathogenetic significance. Transplantation immunology. Reproductive immunology. |
| * | Immundeficiencies. 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 psychiatricalproblems in aviation medicine.
* Ophtalmology in aviation medicine.
* Emphasized aeromedical issues in oto-rhino-Iaryngology.
* 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 (1 hr/week)** | **PRACTICE (1 hr/week)** |
|---|---|---|
| * | Introduction to neurosurgery. History, main topics, diagnostic procedures. | Material of the lectures in practice. |
| * | Head injury. Head trauma, biomechanics, skull fractures, early and late complications, management, outcome. | Material of the lectures in practice. |
| * | Tumors of the CNS. Increased intracranial pressure, brain oedema, signs and symptoms of space-occupying lesions. | Material of the lectures in practice. |

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| * | Supratentorial tumors. | Material of the lectures in practice. |
| * | Axial-tumors, tumors of the posterior fossa. | Material of the lectures in practice. |
| * | Tumors of the spine and spinal cord, metastatic tumors. | Material of the lectures in practice. |
| * | Vascular disorders of the brain. Pathophysiology of cerebral circulation, occlusive cerebrovascular diseases, operative versus conservative treatment, intracerebral haemorrhage. | Material of the lectures in practice. |
| * | Subarachnoid bleeding, cerebral aneurysms, early and late surgery, arteriovenous malformations cavernomas of the brain, venous anomalies. | Material of the lectures in practice. |
| * | Spinal trauma. Biomechanics, acute pathology, early and late surgery versus conservative treatment, peripheral nerve injuries. | Material of the lectures in practice. |
| * | Cervicobrachial syndromes. Herniation of the intervertebral disc in the cervical region, cervical spondylosis, narrowed spinal canal, surgical versus conservative therapy. | Material of the lectures in practice. |
| * | Lumbar syndromes. Low back pain, lumbar disc prolaps, spondylosis of the lumbar region, failed back syndrome. | Material of the lectures in practice. |
| * | Congenital anomalies. CSF circulatory disturbances, hydrocephalus, meningoceles, Chiari-malformation, pediatric neurosurgery. | Material of the lectures in practice. |
| * | Main topics of functional neurosurgery | Material of the lectures in practice. |
| * | Exam | |

## NUCLEAR MEDICINE

**7th, 9th semester**

**LECTURE**
**(1 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 |
| * | Sedoanelgesia |

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| * | 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.<br>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.<br>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<br>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.<br>Taking effective notes during the interview. |

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|---|---|---|
| * | Endocrinology | Explaining medical terminology to a patient<br>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<br>Informed decision making |
| * | Pulmonology | Delivering bad news<br>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<br>Describing types of anesthesia<br>Postoperative care |
| * | Oncology | Educating and counseling patients and their families<br>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.<br>Establishing and developing rapport with a child. |
| * | Pediatrics 2 | Reassuring a child. Child-friendly instructions.<br>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.<br>Giving a prognosis. |
| * | Oto-rhino-laryngology | Summarizing and structuring the interview<br>Communicating with elderly patients |
| * | Ophthalmology | Handling complaints<br>Managing unrealistic requests (saying no) |
| * | Urology | Encouraging patients to express their fears and concerns<br>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 *Isospora*, *Balantidium*, and *Capillaria*. 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 *N. meningitidis*, 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)** |
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| | 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. 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". The topics are delivered in lectures and practicals at the Department of Rheumatology. |
| * | Introduction into rheumatology (basics, history, immunopathological principles) |
| * | Rheumatoid arthritis – therapeutic principles, new paradigms, biological therapies |
| * | Systemic lupus erythematosus, antiphospholipid syndrome. |
| * | Practical |
| * | Systemic sclerosis (scleroderma), Mixed connective tissue disease (MCTD). |
| * | Systemic vasculitides (terminology, general overview of the clinical spectrum) |
| * | ANCA-associated vasculitides |
| * | Polymyalgia rheumatica, giant cell arteritis, Takayasu arteritis |
| * | Practical |
| * | Spondyloarthritides (ankylosing spondylitis, psoriatic arthritis, reactive arthritis, enteropathicarthritis) |
| * | Consultation |

## 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. |

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| * | 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 therpy, Image-guided radiotherapy |

## RHEUMATOLOGY

**7th, 9th Semester**

**LECTURE (2 hr/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.

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 way of 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".

1. Rheumatoid arthritis – clinical spectrum, diagnosis

2. Rheumatoid arthritis – therapeutic principles (early diagnostics, treatment to target, the use of conventional disease-modifying therapeutic agents)

3. Rheumatoid arthritis – biological therapies (currently registered agents, further research trends)

4. Systemic lupus erythematosus – clinical presentation

5. Systemic lupus erythematosus treatment

6. Antiphospholipid syndrome

7. Sjögren's syndrome

8. Inflammatory myopathies

9. Systemic sclerosis (scleroderma)

10. Spondylarthritides – general features

11. Ankylosing spondylitis

12. Psoriatic arthritis

13. Reactive arthritis

14. Systemic vasculitides – general features, classification, overview of the diseases

15. ANCA-associated vasculitides

16. Polymyalgia rheumatica, giant cell arteritis

17. Takayasu arteritis

18. Soft tissue rheumatisms

19. Pain syndromes related to degenerative spinal column disorders (lumbo-ischialgia, cervico-brachialgia)

20. The management of pain in rheumatic diseases

21. Osteoporosis

22. Gout

## 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

**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.