BULLETIN

UNIVERSITY OF DEBRECEN

ACADEMIC YEAR 2015/2016

FACULTY OF MEDICINE

Coordinating Center for International Education

Table of Contents

CHAPTER 1
WELCOME FROM THE DEAN

Welcome from the Dean

The history of higher education in Debrecen goes back to the 16th century. The city established the Calvinist College of Debrecen in 1538. The College became soon the most important cultural center of the whole country, where a great number of writers, scientists and politicians received their education. In the 18th century the schools of Law and Theology were founded and although no separate School of Medicine existed, physicians were also trained in the College. The Faculty of Medicine is rooted in this spiritual heritage. The present day Debrecen is also famous for its schools and higher educational establishments. The Faculty of Medicine of the University of Debrecen was Central Europe's first campus medical school. It was in the year of the millennium (1896) of Hungary's foundation when the establishment of a modern University was decided upon in Debrecen. The University was officially inaugurated on October 23, 1918 and at that time consisted of four faculties: Arts, Science, Theology and Medicine. The Faculty of Medicine became an independent University Medical School under the supervision of the Ministry of Health in 1951.

In 2000 the formerly independent universities of Debrecen formed the University of Debrecen, therefore today the Faculty of Medicine is part of the University of Debrecen. It has 22 departments of basic sciences and 25 clinical departments specializing in various fields e.g. clinical chemistry, internal medicine, surgery, orthopedics, radiology, neurology, neurosurgery, psychiatry, pediatrics, obstetrics and gynecology, cardiology and pulmonology, otorhino-laryngology, dermatology, ophthalmology, stomatology and urology. Our hospitals serve as city hospitals for Debrecen therefore students may also obtain their clinical training here.

The Faculty of Medicine started MD training in English in 1987 with 49 students. The current number of students in the English Program exceeds 1500. Besides educating medical students, the Faculty also coordinates the BSc in Medical Diagnostics and MSc programs in Clinical Laboratory Research, Molecular Biology and Nutrition.

The curriculum described in this Bulletin provides a firm background for a future physician. Learning all these subjects requires highly motivated, devoted students. Please take your studies seriously, and enjoy the process of becoming a medical doctor.

Best wishes,

László Mátyus

Dean, Faculty of Medicine

CHAPTER 2
INTRODUCTION

The aim of the University of Debrecen is to become a university of medical sciences committed to the prevention and restoration of health of the people, not only in its region but in the entire country.
In the past two decades both medical science and health care have entered a new era: the medical science of the 21st century. Molecular medicine is opening up and new possibilities are available for the diagnosis, prevention, prediction and treatment of the diseases. One can witness such a progress in medical sciences that has never been seen before. Modern attitudes in health care should be enforced in practice, including therapeutical approaches that consider the explanation and possible prevention of diseases, and attempt to comprehend and take the human personality into consideration. These approaches demand the application of the most modern techniques in all fields of the medical education.
All curricula wish to meet the challenges of modern times and they embody some very basic values. They are comprehensive; they take into consideration the whole human personality (body and soul) in its natural and social surroundings; and they are based upon the best European humanistic traditions. Moreover, all curricula prepare students for co-operation and teamwork.
With respect to education, both students and teachers are inspired to acquire higher levels of professionalism, precision, and problem solving skills, upon which the foundations of specialist training and independent medical practice can be built. This approach enables the assimilation of new scientific developments, facilitating further education and the continuous expansion of knowledge. The interplay of these factors ensures the ability to understand and handle the changing demands of health care.
With respect to research, the faculty members continuously acquire, internalize and subsume new knowledge, especially concerning the genesis, possible prevention and treatment of diseases. Moreover, new information aimed at improving, preserving and restoring the health of the society is also absorbed. The University of Debrecen is already internationally recognized in the fields of both basic and clinical research, and the clinicians and scientists of the University are determined to preserve this achievement. Special attention is given to facilitate and support the close co-operation of researchers representing basic science and clinical research, and/or interdisciplinary studies.
With respect to therapeutic practice, the main objective is to provide high quality, effective, up to date and much devoted health care to all members of the society, showing an example for other medical institutions in Hungary. One of the primary tasks is to continuously improve the actual standards of the diagnostic and therapeutic procedures and techniques, and to establish regional or even nationwide protocols.
With respect to serving the community, all faculty members wish to play a central role in shaping the policies of the health service; both within the region and in Hungary. They also want to ensure that sufficient number of medical doctors, dentists and other health care experts with university education is provided for the society.
With respect to the development, all employees strive for reinforcing those features and skills of the lecturers, scientists, medical doctors, health care professionals, collaborators and students which are of vital importance in meeting the challenges of medical education, research and therapy of the 21st century. These include humanity, empathy, social sensitivity, team-spirit, creativity, professionalism, independence, critical and innovative thinking, co-operation and management.
The organizational structure, including the multi-faculty construction of the institution, is a constantly improving, colorful educational environment, in which co-operation is manifest between the individual faculties and colleges, the various postgraduate programs as well as the molecular- and medical biology educations.

HIGHER EDUCATION IN DEBRECEN

A Brief History

1235: First reference to the town of Debrecen in ancient charters.
1538: Establishment of the “College of Reformed Church” in Debrecen.
1567: Higher education begins in the College.
1693: Declaration of Debrecen as a “free royal town”.
1849: Debrecen serves as the capital of Hungary for 4 months.
1912: Establishment of the State University of Debrecen comprising the Faculties of Arts, Law, Medicine and Theology.
1918: Inauguration of the Main Building of the Medical Faculty by King Charles IV of Hungary.
1921: The Medical Faculty becomes operational.
1932: Completion of buildings of the campus.
1944: Although during the Second World War, Debrecen became the capital of Hungary again (for 100 days), the University itself is abandoned for a while.
1949: The only year when the University has five faculties.

1950: The Faculty of Law idles; the Faculty of Science is established.
1951: The University is split up into three independent organizations: Academy of Theology, Medical School, Lajos Kossuth University of Arts and Sciences.
1991: The “Debrecen Universitas Association” is established.
1998: The “Federation of Debrecen Universities” is founded.
2000. The federation is transformed into the unified “University of Debrecen” with all the relevant faculties and with some 20,000 students.

Debrecen is the traditional economic and cultural center of Eastern Hungary. In the 16th century Debrecen became the center of the Reformed Church in Hungary and later it was referred to as the "Calvinist Rome". The 17th century was regarded as the golden age of the city because Debrecen became the mediator between the three parts of Hungary: the part under Turkish occupation, the Kingdom of Hungary and the Principality of Transylvania. For short periods of time, Debrecen served twice as the capital of Hungary. Nowadays, with its population of approximately a quarter of a million, it is the second largest city in Hungary.
Debrecen is a unique city: although it has no mountains and rivers, its natural environment is rather interesting. One of the main attractions and places of natural uniqueness in Hungary is Hortobágy National Park, known as “puszta" (“plain”), which begins just in the outskirts of Debrecen. This is the authentic Hungarian Plain without any notable elevations, with unique flora and fauna, natural phenomena (e.g. the Fata Morgana), and ancient animal husbandry traditions. The region is unmatched in Europe, no matter whether one considers its natural endowments or its historic and ethnographic traditions. A very lovely part of Debrecen is the “Nagyerdő” (“The Great Forest”), which is a popular holiday resort. Besides a number of cultural and tourist establishments, luxurious thermal baths and spas, Nagyerdő accommodates the University campus too.
The history of higher education in Debrecen goes back to the 16th century when the College of the Reformed Church was established. The University Medical School of Debrecen has its roots in this spiritual heritage. It was in the year of the millennium of the establishment of Hungary (1896) when the foundation of the present University was decided. The University of Debrecen was established in 1912, initially having four faculties (Faculties of Arts, Law, Medicine and Theology). The University was officially inaugurated by King Charles IV of Hungary on October 23rd, 1918.
The educational activity at the University started in 1924, although the construction of the whole University was completed only in 1932. In 1951 the Faculty of Medicine became a self-contained, independent Medical University for training medical doctors.
The special training of dentists began in 1976. As a further development the University Medical School established the Health College of Nyíregyháza in 1991. In 1993, as part of a nationwide program, the University was given the rights to issue scientific qualifications and new Ph.D. programs were also launched. Several new programs (e.g. the training of molecular biologists, pharmacists, general practitioners) were commenced in the ’90s. The Faculty of Public Health was established in 1999, while the Faculty of Dentistry was founded in 2000.
The Faculty of Medicine celebrated the 90th anniversary of its foundation in October 2008 with a highly successful international scientific conference.

Education at the University of Debrecen
Debrecen, the second largest city of Hungary, is situated in Eastern Hungary. Students enrolled in the various programs (e.g. Medicine, Dentistry, Pharmacy, Public Health, Molecular Biology, etc.) study on a beautiful campus situated in the area called “Great Forest”.
The Hungarian Government gives major priorities to the higher education of health sciences in its higher education policy. One of these priorities is to increase the ratio of college level training forms within the Hungarian higher education system. The governmental policy wishes to implement conditions in which the whole health science education system is built vertically from the lowest (post-secondary or certificate) to the highest (PhD-training) levels. In fact, this governmental policy was the reason behind the establishment of the new Health Science Education Center within the Federation of Debrecen Universities (DESZ), based partially on the intellectual resources of the University of Debrecen. The new programs – with specialized training for paramedics – will help to correct the balance of the Hungarian labor-market that became rather unsettled in the past few decades.
The Act of Higher Education (1993) has restored the rights of the medical universities to award postgraduate degrees and residency, and permission was also given to license Physicians’ procedures. This kind of training required a new structure, a new administrative apparatus, and a suitable training center. The new residency programs were commenced in 1999.
The introduction of the credit system, starting in September 2003, has been mandatory in every Hungarian university, helping the quantitative and qualitative evaluation of the students’ achievements. Admission requirements for Hungarian students are defined at national level, and they are applicable for every student wishing to be enrolled into the Medicine or Dentistry programs.
International students must pass an entrance exam in biology and (depending on their preference) in physics or chemistry. In some special cases it may be possible for the candidates to apply for transfer to higher years on the basis

of their previous studies and achievements. International students study in English language. Entrance for certain courses of the Health College is also possible on the basis of a special evaluation (scoring) and an entrance interview.
The syllabuses and classes of all courses correspond to European standards. The total number of contact hours in medical education is over 5,500, which can be divided into three main parts: basic theoretical training (1st and 2nd year), pre-clinical subjects (3rd year) and clinical subjects (4th and 5th year) followed by the internship (6th year). The proportion of the theoretical and practical classes is 30% to 70%; whereas the students/instructors ratio is about 8/1. The first two years of dentistry education are similar to the medicine program, but the former contains a basic dental training that is followed by a three-year-long pre-clinical and clinical training. Besides the medicine and dentistry programs, there are several other courses also available, including molecular biology. The various Health College courses include more and more new curricula.
The Medicine program delivered in English and intended for international students was commenced in 1987; whereas the Dentistry and Pharmacy programs for international students started in 2000 and 2004, respectively. The curriculum of the English language Medicine program meets all the requirements prescribed by the European medical curriculum, which was outlined in 1993 by the Association of Medical Schools in Europe. Compared to the Hungarian program, the most important differences are:
-Hungarian language is taught,
-More emphasis is laid upon the tropical infectious diseases (as parts of the “Internal Medicine” and “Hygiene and Epidemiology” courses).
Otherwise, the English language curriculum is identical with the Hungarian one. The 6th year of the curriculum is the internship that includes Internal Medicine, Pediatrics, Surgery, Obstetrics and Gynecology, Neurology, and Psychiatry. The completion of these subjects takes at least 47 weeks, although students are allowed to finish them within a 24-month-long period. The successfully completed internship is followed by the Hungarian National Board Examination. Just like the rest of the courses, the internship is also identical in the Hungarian and English programs.
A one-year-long premedical (Basic Medicine) course, which serves as a foundation year, is recommended for those applicants who do not possess sufficient knowledge in Biology, Physics and Chemistry after finishing high school.
After graduation, several interesting topics are offered for PhD training, which lasts for three years. If interested, outstanding graduates of the English General Medicine and Dentistry programs may join these PhD courses (“English PhD-program”). Special education for general practitioners has been recently started and a new system is in preparation now for the training of licensed physicians in Debrecen.

The accredited PhD programs include the following topics:
-Molecular and Cell Biology; Mechanisms of Signal Transduction
-Microbiology and Pharmacology
-Biophysics
-Physiology-Neurobiology
-Experimental and Clinical Investigations in Hematology and Hemostasis
-Epidemiological and Clinical Epidemiological Studies
-Cellular- and Molecular Biology: Study of the Activity of Cells and Tissues under Healthy and Pathological Conditions
-Immunology
-Experimental and Clinical Oncology
-Public Health
-Preventive Medicine
-Dental Research

The PhD-programs are led by more than 100 accredited, highly qualified coordinators and tutors.

Medical Activity at the Faculty of Medicine
The Faculty of Medicine is not only the second largest medical school in Hungary, but it is also one of the largest Hungarian hospitals, consisting of 49 departments; including 18 different clinical departments with more than 1,800 beds. It is not only the best-equipped institution in the area but it also represents the most important health care facility for the day-to-day medical care in its region.
The Kenézy Gyula County Hospital (with some 1,400 beds) is strongly affiliated with the University of Debrecen and plays an important role in teaching the practical aspects of medicine. There are also close contacts between the University and other health care institutions, mainly (but not exclusively) in its closer region. The University of Debrecen has a Teaching Hospital Network consisting of 19 hospitals in Israel, Japan and South Korea.
It is also of importance that the University of Debrecen has a particularly fruitful collaboration with the Nuclear Research Institute of the Hungarian Academy of Sciences in Debrecen, allowing the coordination of all activities that involve the use of their cyclotron in conjunction with various diagnostic and therapeutic procedures (e.g. Positron Emission Tomography 'PET').

Scientific Research at the Faculty of Medicine

Scientific research is performed both at the departments for basic sciences and at the laboratories of clinical departments. The faculty members publish about 600 scientific papers every year in international scientific journals. According to the scientometric data, the Faculty is among the 4 best of the more than 80 Hungarian research institutions and universities. Lots of scientists reach international recognition, exploiting the possibilities provided by local, national and international collaborations. Internationally acknowledged research areas are Biophysics, Biochemistry, Cell Biology, Immunology, Experimental and Clinical Oncology, Hematology, Neurobiology, Molecular Biology, Neurology, and Physiology. The scientific exchange program involves numerous foreign universities and a large proportion of the faculty members are actively involved in programs that absorb foreign connections (the most important international collaborators are from Belgium, France, Germany, Italy, Japan, the UK and the USA).

CHAPTER 3
ORGANISATION STRUCTURE

RECTOR OF THE UNIVERSITY OF DEBRECEN

Rector	Zoltán Szilvássy M.D., Ph.D., D.Sc.
Address	4032 Debrecen, Egyetem tér 1.
Phone	+36-52-412-060
Phone/fax	+36-52-416-490
E-mail	rector@unideb.hu

COORDINATING CENTER FOR INTERNATIONAL EDUCATION

Director	Attila Jenei M.Sc., Ph.D.
Address	4032, Debrecen, Nagyerdei krt. 94.
Phone	+36-52-258-058
Fax	+36-52-414-013
E-mail	info@edu.unideb.hu

FACULTY OF MEDICINE

Dean	László Mátyus M.D., Ph.D., D.Sc.
Address	4032, Debrecen, Nagyerdei krt. 98.
Phone	+36-52-258-086
Fax	+36-52-255-150
E-mail	dekan@med.unideb.hu

Vice Dean of General Affairs	Zoltán Szekanecz, M.D., Ph.D., D.Sc.
Address	4032, Debrecen, Nagyerdei krt. 98.
Phone	+36-52-255-091
Fax	+36-52-255-091
E-mail	dekan@med.unideb.hu

Vice-Dean for Educational Affairs	Zoltán Papp M.D., Ph.D., D.Sc.
Address	4032, Debrecen, Nagyerdei krt. 98.
Phone	+36-52-255-978
Fax	+36-52-255-978
E-mail	dekan@med.unideb.hu

Vice-Dean of Scientific Affairs	László Virág M.D., Ph.D., D.Sc.
Address	4032, Debrecen, Nagyerdei krt. 98.
Phone	+36-52-417-345
Fax	+36-52-412-566

E-mail	dekan@med.unideb.hu
Dean’s advisor	Endre Nagy M.D., Ph.D., D.Sc.
Address	4032, Debrecen, Nagyerdei krt. 98.
Phone	+36-52-417-717/54166
Fax	+36-52-419-807
E-mail	dekan@med.unideb.hu

DEAN'S OFFICE OF THE FACULTY OF MEDICINE

Head of Directory Office	Katalin Juhász M.A.
Address	4032, Debrecen, Nagyerdei krt. 98.
Phone/Fax	+36-52-258-085, +36-52-255-150
E-mail	kjuhasz@edu.unideb.hu

REGISTRAR'S OFFICE

Head of Registrar's Office	Csilla Kerékgyártó M.D.
Address	4032, Debrecen, Nagyerdei krt. 94.
Phone/Fax	+36-52-258-001
E-mail	kerekgy@med.unideb.hu

FACULTY OF DENTISTRY

Dean	Csaba Hegedűs M.D., L.D.S., Ph.D.
Address	4032 Debrecen, Nagyerdei krt. 98.
Phone/Fax	+36-52-255-208
E-mail	hegedus.csaba.prof@dental.unideb.hu
Vice-Dean for Educational Affairs	István Tornai M.D.,Ph.D.
Address	4032 Debrecen, Nagyerdei krt. 98.
Phone/Fax	+36-52-255-208
E-mail	itornai@med.unideb.hu
Vice-Dean for General Affairs	Pál Redl M.D.,L.D.S.,Ph.D.
Address	4032 Debrecen, Nagyerdei krt. 98.
Phone/Fax	+36-52-255-208
E-mail	redl.pal@dental.unideb.hu

FACULTY OF PHARMACY

Dean	Miklós Vecsernyés Pharm.D., Ph.D.
Address	4032 Debrecen, Nagyerdei krt. 98.
Phone/Fax	+36-52-521-900/22456
E-mail	vecsernyes.miklos@pharm.unideb.hu

Vice-Dean	Gábor Halmos Pharm.D., Ph.D.
Address	4032 Debrecen, Nagyerdei krt. 98.
Phone/Fax	+36-52-411-600/55292
E-mail	halmos.gabor@pharm.unideb.hu

FACULTY OF PUBLIC HEALTH

Dean	Margit Balázs Msc., Ph.D., D.Sc.
Address	4028 Debrecen, Kassai út 26/b.
Phone	+36-52-460-194
Fax	+36-52-460-195
E-mail	balazs.margit@sph.unideb.hu

Vice-Dean	Attila Bánfalvi M.A., Ph.D.
Address	4032, Debrecen, Móricz Zsigmond. krt. 22.
Phone	+36-52-411-600
Fax	+36-52-255-487
E-mail	banfalvi.attila@sph.unideb.hu

Vice-Dean	Karolina Kósa M.D., M.Sc., Ph.D.
Address	4028 Debrecen, Kassai út 26/b.
Phone	+36-52-460-190
Fax	+36-52-460-195
E-mail	kosa.karolina@sph.unideb.hu

FACULTY OF HEALTH

Dean	Imre Semsei, D.Sc.
Address	4400 Nyíregyháza, Sóstói u. 2-4.
Phone	+36-42-598-235
Fax	+36-42-408-656
E-mail	dekan@foh.unideb.hu

Vice-Dean for Scientific Affairs	János Kiss Ph.D.
Address	4400 Nyíregyháza, Sóstói út 2-4.
Phone	+36-42-598-235
Fax	+36-42-408-656
E-mail	kiss.janos@foh.unideb.hu

Vice-Dean for Educational Affairs	Attila Sárváry Ph.D.
Address	4400 Nyíregyháza, Sóstói út 2-4.
Phone	+36-42-598-235

Fax	+36-42-408-656
E-mail	sarvary.attila@foh.unideb.hu

Vice-Dean for General and Development Affairs	Gergely Fábián Ph.D.
Address	4400 Nyíregyháza, Sóstói út 2-4.
Phone	+36-42-598-235
Fax	+36-42-408-656
E-mail	fabian.gergely@csello.hu

MEDICAL STUDENT ASSOCIATION

Address	4032 Debrecen, Egyetem tér 1. Kossuth Lajos II. Kollégium 2A06
Phone	+36-52-512-700/72855
Fax	+36-52-255-028
Internet	http://dehok.unideb.hu
E-mail	pkorosp@gmail.com

KENÉZY LIFE SCIENCES LIBRARY

Address	4032 Debrecen, Egyetem tér 1.
Phone/Fax	+36-52-518-610 , +36-52-518-605
E-mail	kenezy@lib.unideb.hu
Internet	http://kenezy.lib.unideb.hu

CHAPTER 4
ADMINISTRATIVE UNITS

COORDINATING CENTER FOR INTERNATIONAL EDUCATION

Nagyerdei krt. 94., Debrecen, 4032
Telephone: +36-52-258-058 Fax: +36-52-414-013
E-mail: info@edu.unideb.hu, Web: www.edu.dote.hu

Director		Attila Jenei M.Sc., Ph.D.
Manager Assistant	Ms.	Beáta Kozsla-Dobi
Contract&Marketing Coordinator		Ábrahám Varga
Financial Officer	Ms.	Rita Kovács
Agent Coordinator		József Harmati
English Program Officer	Ms.	Adrienn Gagna-Szakó (Admissions, BMC, US Loans, Wyckoff HMC Applications)
	Ms.	Anett Galvácsi (Tuition fee, Certificates, Money Back)
	Ms.	Katalin Györe (Admissions, Visa issues, BMC, Stipendium coordinator)
	Ms.	Krisztina Németh (Bulletin)
	Ms.	Enikő Sallai (Tuition fee, Health Insurance)
IT Specialist		Imre Szűcs

REGISTRAR'S OFFICE

Nagyerdei krt. 94., Debrecen, 4032
Telephone: +36-52-258-020 Fax: +36-52-255-001;
E-mail: eduoffice@med.unideb.hu;info@med.unideb.hu

Head of Registrar's Office	Ms.	Csilla Kerékgyártó M.D.
Vice-Head of Registrar's Office	Ms.	Edit Fábián
Secretary	Ms.	Tünde Fekete
English Program Officer		Tamás Bagi (4th year Medicine, Pharmacy)
	Ms.	Patrícia Hidvégi (3rd year Medicine, Dentistry)
		Ádám Richárd Jasák (5th year Medicine)
	Ms.	Éva Ludánszki (6th year Medicine, Molecular Biology)
	Ms.	Réka Rónai (1st-2nd year Medicine, BMC)

Hungarian Program Officer	Ms.	Zsuzsa Barta
	Ms.	Bettina Bráder
		Tamás Buka
	Ms.	Judit Derzsi
	Ms.	Anikó Karcza
		László Kiss
	Ms.	Alexandrea Kulcsár-Szemán
	Ms.	Katinka Major
	Ms.	Anna Mária Pásztori
	Ms.	Zsuzsanna Tóth
Center for Specialization and Further Education Officer	Ms.	Regina Csató
	Ms.	Szabina Királyné Sári
	Ms.	Tímea Sólyomné Dihen
	Ms.	Erzsébet Takács-Szabó
	Ms.	Ibolya Takácsné Csatári

CHAPTER 5
FACULTY OF MEDICINE - DEPARTMENTS OF BASIC SCIENCES

DEPARTMENT OF ANATOMY, HISTOLOGY AND EMBRYOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-567 Fax: +36-52-255-155
Web: http://www.anat.dote.hu

Full Professor, Head of Department		Miklós Antal M.D., Ph.D., D.Sc.
Full Professor, Head of Oral Anatomy Division	Ms.	Klára Matesz M.D.,Ph.D.,D.Sc.
Professor Emeritus		István Földes M.D., Ph.D., D.Sc.
		László Módis M.D., Ph.D., D.Sc.
		György Székely M.D., Ph.D., D.Sc., M.H.A.Sc.
Associate Professor		András Birinyi M.Sc., Ph.D.
		Szabolcs Felszeghy Ph.D., D.D.S.
		Zoltán Kisvárday M.Sc., Ph.D., D.Sc.
		Ervin Wolf M.Sc., Ph.D.
	Ms.	Róza Zákány M.D., Ph.D.
Assistant Professor	Ms.	Krisztina Holló M.Sc., Ph.D.
		Tamás Juhász M.Sc., Ph.D.
		Csaba Matta M.Sc., Ph.D.
		Zoltán Mészár M.Sc., Ph.D.
Postgraduate Lecturer	Ms.	Zsófia Antal M.D.
	Ms.	Anita Balázs M.Sc., Ph.D.
		Botond Gaál M.Sc.
	Ms.	Dóra Gali-Györkei M.Sc.
	Ms.	Krisztina Hegedűs M.Sc.
		Zoltán Hegyi M.Sc., Ph.D.
	Ms.	Éva Katona M.D., Ph.D.
	Ms.	Szilvia Kecskés M.Sc.
	Ms.	Lívia Kicska M.Sc.
	Ms.	Nikoletta Gréta Kis M.Sc.
	Ms.	Ildikó Papp M.Sc., Ph.D.
	Ms.	Éva Rácz M.Sc., Ph.D.
	Ms.	Zsanett Sólyom M.Sc.
	Ms.	Csilla Somogyi M.Sc.
	Ms.	Mónika Szakadát M.Sc.
		Roland Takács M.Sc.
	Ms.	Ildikó Wéber M.Sc., Ph.D.

Junior Scientific Officer	Ms.	Nóra Dobrosi M.Sc.
Invited Lecturer		Gary Kish M.D.
Course Director		Szabolcs Felszeghy Ph.D., D.D.S. (Macroscopic anatomy for students of dentistry)
		Tamás Juhász M.Sc., Ph.D. (Macroscopic anatomy for students of general medicine)
		Zoltán Kisvárday M.Sc., Ph.D., D.Sc. (Neurobiology)
		Ervin Wolf M.Sc., Ph.D. (Histology and Embryology)
PhD Student	Ms.	Klaudia Dócs M.Sc.
		László Ducza M.Sc.
	Ms.	Javdani Fariba M.D.
		Tibor Hajdú M.D.
	Ms.	Andrea Hunyadi M.Sc.
		Tamás Papp M.D.
		Attila Somogyi M.D.
		Mohit Srivastava M.Sc.
	Ms.	Rita Varga M.Sc.
Academic Advisor for 1st year medical and dental students	Ms.	Mónika Szakadát M.Sc.
Academic Advisor for 2nd year medical and dental students	Ms.	Gréta Kis M.Sc.

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-416-432 Fax: +36-52-314-989
E-mail: tokes@med.unideb.hu, Web: http://bmbi.med.unideb.hu

Full Professor, Head of Department		József Tőzsér M.Sc., Ph.D., D.Sc.
Head of Dental Biochemistry Division	Ms.	Zsuzsa Szondy M.D., Ph.D., D.Sc.
Full Professor		László Fésüs M.D., Ph.D., D.Sc., M.H.A.Sc.
		László Nagy M.D., Ph.D., M.H.A.Sc.
Associate Professor		Zoltán Balajthy M.Sc., Ph.D.
	Ms.	Mónika Fuxreiter M.Sc., Ph.D., D.Sc.
	Ms.	Réka Révészné Tóth M.Sc., Ph.D.
		István Szatmári M.Sc., Ph.D.
Assistant Professor		Bálint Bálint L. M.D., Ph.D.
	Ms.	Éva Csősz M.Sc., Ph.D.
		Róbert Király M.Sc., Ph.D.
		Zsolt Sarang M.Sc., Ph.D.
	Ms.	Beáta Scholtz M.Sc., Ph.D.

		Lóránt Székvölgyi M.Sc., Ph.D.
		Lajos Széles M.Sc., Ph.D.
	Ms.	Szilvia Tőkés M.Sc., Ph.D.
Senior Research Fellow		Endre Barta M.Sc., Ph.D.
		András Mádi M.Sc., Ph.D.
Research Fellow		Máté Demény M.D., Ph.D.
		Zsolt Keresztessy M.Sc., Ph.D.
		Márton Miskei M.Sc., Ph.D.
		Szilárd Póliska M.Sc., Ph.D.
	Ms.	Mónika Szentandrássyné Gönczi M.Sc., Ph.D.
		Tamás Varga M.Sc., Ph.D.
Junior Research Fellow	Ms.	Beáta Bartáné Tóth M.Sc., Ph.D.
	Ms.	Beáta Kiss M.Sc.
	Ms.	Krisztina Köröskényi M.Sc., Ph.D.
		Endre Károly Kristóf M.D.
		Mohamed Faisal Mahdi M.D.
	Ms.	Krisztina Matúz M.Sc.
		János Mótyán M.Sc., Ph.D.
		Gergely Nagy M.Sc.
		Attila Pap M.Sc.
	Ms.	Éva Péntek-Garabuczi M.Sc.
		Ferenc Tóth M.Sc.
Biologist	Ms.	Tímea Cseh M.Sc.
	Ms.	Emília Horváthné Simó M.Sc.
		Tamás Kerekes M.Sc.
	Ms.	Erzsébet Mátyás M.Sc.
	Ms.	Éva Nagy M.Sc.
PhD Student	Ms.	Dóra Bojcsuk M.Sc.
		Pál Botó M.Sc.
	Ms.	Mária Csumita M.Sc.
		Erik Czipa M.Sc.
	Ms.	Katalin Dánielné Sándor M.Sc.
	Ms.	Eszter Deák M.D.
	Ms.	Ergulen Elvan M.Sc.
	Ms.	Edina Erdős M.Sc.
	Ms.	Lívia Gazda M.Sc.
	Ms.	Mária Golda M.Sc.
		László Halász M.Sc.
		Szabolcs Hetey M.Sc.
		Attila Horváth M.Sc.
		József Horváth M.Sc.

	Ms.	Monroy Ixchelt Cuaranta M.Sc.
	Ms.	Bernadett Jakob M.Sc.
		Károly Jambrovics M.Sc.
		Gergely Joós M.D.
		Gergő Kalló M.Sc.
		Norbert Kassay M.Sc.
		Thangarajan Kiruphagaran M.Sc.
	Ms.	Katalin Nagy M.D.
	Ms.	Lilla Ozgyn M.Sc.
		Andreas Patsalos M.Sc.
	Ms.	Rashmi Rashmi M.Sc.
	Ms.	Éva Sivadó M.Sc.
		András Szántó M.Sc.
	Ms.	Mária Szatmári Tóth M.Sc.
	Ms.	Erika Takács M.Sc.
Academic Advisor	Ms.	Szilvia Tőkés M.Sc., Ph.D. (E-mail: tokessz@dote.hu, Ext.:64439)

DEPARTMENT OF BIOMEDICAL LABORATORY IMAGING SCIENCE

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-170 Fax: +36-52-255-170
E-mail: olkdtsz@med.unideb.hu, Web: www.olkd.med.unideb.hu

Associate Professor, Head of Department		Ervin Berényi M.D., Ph.D.
Full Professor		László Góth M.Sc., Ph.D.
College Professor		Béla Szabó M.D., Ph.D.
College Associate Professor	Ms.	Réka Révészné Tóth M.Sc., Ph.D.
Assistant Lecturer		András Jakab M.D., Ph.D.
Medical Diagnostic Lab. Analyst	Ms.	Mónika Béresová M.Sc.
	Ms.	Alíz Bozó M.Sc.
	Ms.	Szilvia Lakatos M.Sc.
	Ms.	Marianna Nagy B.Sc.
	Ms.	Teréz Nyesténé Nagy B.Sc.
Specialist		Péter Bágyi M.D.
Invited Lecturer	Ms.	Judit Décsy M.D.
	Ms.	Mária Kern M.D., C.Sc.
		Péter Molnár M.D., D.Sc.
	Ms.	Erzsébet Nagy M.Sc., Ph.D.
	Ms.	Éva Simon M.D.
PhD Student		Gergely Fürjes M.D.
		Levente István Lánczi M.D.

DEPARTMENT OF BIOPHYSICS AND CELL BIOLOGY

Egyetem tér 1. , Debrecen, 4032
Telephone: +36-52-258-603 Fax: +36-52-532-201
E-mail: biophys@med.unideb.hu, Web: http://biophys.med.unideb.hu

Full Professor, Head of Department		János Szöllősi M.Sc., Ph.D., D.Sc.
Full Professor		György Vereb M.D., Ph.D., D.Sc.
Professor Emeritus		Sándor Damjanovich M.D., Ph.D., D.Sc., M.H.A.Sc.
Associate Professor		Zsolt Bacsó M.D., Ph.D.
		Attila Jenei M.Sc., Ph.D.
Assistant Professor		Zsolt Fazekas M.Sc., Ph.D.
		Péter Hajdu M.Sc., Ph.D.
Assistant Lecturer	Ms.	Ágnes Tóth M.Sc., Ph.D.
Research Fellow	Ms.	Beáta Mészáros M.Sc., Ph.D.
	Ms.	Ágnes Nagyné Dr. Szabó M.Sc., Ph.D.
		Pál Pap M.Sc., Ph.D.
	Ms.	Tímea Váradi M.Sc., Ph.D.
	Ms.	Barbara Zsebik M.Sc., Ph.D.
Junior Research Fellow		Gyula Gábor Batta M.Sc., Ph.D.
		László Ujlaky-Nagy M.D.
PhD Student		András Balajthy M.D.
	Ms.	Ágota Csóti M.Sc.
	Ms.	Erfaneh Firouzi Niaki D.Pharm.
		László Imre M.Sc.
		Tamás Kovács M.D.
		Gábor Mocsár M.Sc.
		Péter Nánási M.D.
		Zoltán Dénes Pethő M.D.
		István Rebenku M.Sc.
		Gábor Szalóki M.Sc.
	Ms.	Nikoletta Szalóki M.Sc.
	Ms.	Tímea Szatmári M.Sc.
		Szabolcs Tarapcsák M.Sc.
		Gábor Tóth M.D.
	Ms.	Julianna Volkó M.Sc.
	Ms.	Florina Zákány M.D.
Visiting Lecturer		László Bene M.Sc., Ph.D.
		Zoltán Krasznai M.Sc., Ph.D.
Academic Advisor		Zsolt Fazekas M.Sc., Ph.D.

Division of Biophysics

Egyetem tér 1., Debrecen, 4032
Telephone: +36 52 258 603 Fax: +36 52 532 201
E-mail: biophysedu@med.unideb.hu, Web: http://biophys.med.unideb.hu

Full Professor, Head of Division		György Panyi M.D., Ph.D., D.Sc.
Assistant Professor		Zoltán Varga M.Sc., Ph.D.
Assistant Lecturer		Ferenc Papp M.Sc., Ph.D.
		G. Tibor Szántó M.Sc., Ph.D.
Senior Research Fellow		György Vámosi M.Sc., Ph.D.
Other Graduated Staff Member		Árpád Szöőr M.D.

Division of Cell Biology

Egyetem tér 1., Debrecen, 4032
Telephone: +36 52 258 603 Fax: +36 52 532 201
E-mail: biophysedu@med.unideb.hu, Web: http://biophys.med.unideb.hu

Full Professor, Head of Division		Gábor Szabó M.D., Ph.D., D.Sc.
Assistant Professor	Ms.	Katalin Goda M.Sc., Ph.D.

Division of Biomathematics

Egyetem tér 1., Debrecen, 4032
Telephone: +36 52 258 603 Fax: +36 52 532 201
E-mail: biophysedu@med.unideb.hu, Web: http://biophys.med.unideb.hu

Full Professor, Head of Division		László Mátyus M.D., Ph.D., D.Sc.
Associate Professor		Péter Nagy M.D., Ph.D., D.Sc.
Senior Research Fellow	Ms.	Andrea Dóczy-Bodnár M.Sc., Ph.D.
Molecular Biologist		István Csomós M.Sc.
Other Graduated Staff Member	Ms.	Enikő Nizsalóczki M.Sc.

DEPARTMENT OF FORENSIC MEDICINE

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-865 Fax: +36-52-255-865
E-mail: herczeg.l.t@gmail.com

Associate Professor, Head of Department		László Herczeg M.D., Ph.D.
Assistant Lecturer	Ms.	Beáta Ágnes Borsay M.D.
		Péter Gergely M.D.
		Kálmán Rácz M.D.
		Csaba Turzó M.D.
Clinical Assistant		Mihály Fodor M.D.
Toxicologist		János Posta Ph.D.
	Ms.	Andrea Székely M.Sc., Ph.D.

Psychiatrist	Ms.	Andrea Kristóf M.D.
	Ms.	Erika Tar M.D.

DEPARTMENT OF HUMAN GENETICS

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-416-531 Fax: +36-52-416-531
E-mail: sbiro@dote.hu, Web: http://www.genetics.dote.hu

Full Professor, Head of Department		László Virág M.D., Ph.D., D.Sc.
Full Professor		Sándor Biró M.Sc., Ph.D., D.Sc.
		László Takács M.D., Ph.D., D.Sc., M.H.A.Sc.
Professor Emeritus		György Barabás M.Sc., Ph.D., D.Sc.
Associate Professor		András Penyige M.Sc., Ph.D.
Assistant Professor	Ms.	Zsuzsanna Birkó M.Sc., Ph.D.
Assistant Lecturer		Dániel Ernő Beyer M.Sc., Ph.D.
	Ms.	Judit Keserű M.Sc., Ph.D.
	Ms.	Melinda Szilágyi-Bónizs M.Sc., Ph.D.
	Ms.	Krisztina Szirák M.Sc., Ph.D.
Junior Research Fellow		Gergely Buglyó M.D.
	Ms.	Melinda Paholcsek M.Sc.
Invited Lecturer		Zsigmond Fehér M.D., Ph.D.
		József Schlammadinger M.D., Ph.D.
		György Vargha M.D., Ph.D.
		Sándor Vitális M.D., Ph.D.
PhD Student		Gábor Fidler M.Sc.
Academic Advisor		András Penyige M.Sc., Ph.D. (BMC, Biology, Human Genetics)
Academic Advisor for 1st year medical and dental students		Sándor Biró Ph.D., D.Sc.
Academic Advisor for 1st year pharmacy students	Ms.	Judit Keserű M.Sc., Ph.D.

DEPARTMENT OF IMMUNOLOGY

Egyetem tér 1., Debrecen, 4032
Telephone: +36-52-417-159 Fax: +36-52-417-159
Web: www.immunology.unideb.hu

Full Professor, Head of Department		Tamás Bíró M.D., Ph.D., D.Sc.
Full Professor	Ms.	Éva Rajnavölgyi M.Sc., Ph.D., D.Sc.
Associate Professor		Attila Bácsi M.Sc., Ph.D.
		Árpád Lányi M.Sc., Ph.D.
Assistant Lecturer	Ms.	Tünde Fekete M.Sc., Ph.D.
	Ms.	Renáta Laczik M.D., Ph.D.
		Attila Szabó D.Pharm.

Research Fellow		Péter Gogolák M.Sc., Ph.D.
		Gábor Koncz M.Sc., Ph.D.
Research Assistant	Ms.	Zsófia Agod M.Sc.
	Ms.	Adrienn Gyöngyösi M.Sc.
	Ms.	Kitti Pázmándi M.Sc., Ph.D.
	Ms.	Aliz Varga M.Sc., Ph.D.
PhD Student		Pál Krisztián Bene M.Sc.
	Ms.	Eszter Boldizsár
	Ms.	Anett Mázló M.Sc.
	Ms.	Márta Tóth M.Sc.
Academic Advisor		Árpád Lányi M.Sc., Ph.D.

DEPARTMENT OF LABORATORY MEDICINE

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-340-006 Fax: +36-52-417-631
E-mail: kbmpi@kbmpi.hu, Web: www.kbmpi.hu

Full Professor, Head of Department		János Kappelmayer M.D., Ph.D., D.Sc.
Associate Professor, Head of Division of Clinical Genetics		István Balogh M.Sc., Ph.D.
Associate Professor		Péter Antal-Szalmás M.D., Ph.D.
	Ms.	Zsuzsa Hevessy M.D., Ph.D.
Assistant Professor	Ms.	Adrienne Kerényi M.D., Ph.D.
		Harjit Pal Bhattoa M.D., Ph.D.
	Ms.	Anikó Ujfalusi M.D., Ph.D.
Assistant Lecturer		Sándor Baráth M.Sc., Ph.D.
		Gergely Ivády M.D.
	Ms.	Katalin Koczok M.D.
		Gábor Nagy M.D.
		Béla Nagy Jr. M.D., Ph.D.
	Ms.	Eszter Szánthó M.D.
Senior Research Fellow		István Csípő M.Sc., Ph.D.
	Ms.	Edit Gyimesi M.Sc., Ph.D.
	Ms.	Anna Oláh M.Sc., Ph.D.
Postdoctoral Fellow		Attila Mokánszki M.Sc., Ph.D.
Research Fellow	Ms.	Erika Zilahi M.Sc., Ph.D.
Junior Research Fellow	Ms.	Beáta Bessenyei M.Sc.
Lecturer	Ms.	Judit Budainé Tóth M.D.
	Ms.	Bettina Kárai M.D.
		Zoltán Mezei M.D.
	Ms.	Zsuzsanna Molnár M.D., Ph.D.
Resident	Ms.	Sarolta Demeter M.D.

	Ms.	Renáta Hudák M.D.
	Ms.	Zsuzsanna. Nagy M.D.
Invited Lecturer	Ms.	Éva Ajzner M.D., Ph.D.
		Miklós Fagyas M.D., Ph.D.
		Gábor Papp M.D., Ph.D.
PhD Student		Zsolt Fejes M.Sc.
Academic Advisor	Ms.	Adrienne Kerényi M.D., Ph.D.

Division of Clinical Genetics

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36 52 255 072 Fax: +36 52 255 446
E-mail: jeneizs@med.unideb.hu, Web: www.klinikaigenetika.hu

Associate Professor, Head of Division		István Balogh M.Sc., Ph.D.
Academic Advisor	Ms.	Beáta Bessenyei M.Sc.

Division of Clinical Laboratory Science

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-431-956 Fax: +36-52-340-011
E-mail: kpenzes@med.unideb.hu, Web: crc.med.unideb.hu

Associate Professor, Head of Division	Ms.	Zsuzsanna Bereczky M.D., Ph.D.
Professor Emeritus		László Muszbek M.D., Ph.D., D.Sc., M.H.A.Sc.
Associate Professor	Ms.	Éva Katona M.D., Ph.D.
Assistant Professor	Ms.	Zsuzsa Bagoly M.D., Ph.D.
Assistant Lecturer	Ms.	Krisztina Pénzes-Daku M.Sc., Ph.D.
Senior Research Fellow		István Komáromi M.Sc., Ph.D.
Research Fellow	Ms.	Eszter Fejesné Tóth Ph.D.
External Tutor	Ms.	Éva Ajzner M.D., Ph.D.
	Ms.	Zsuzsanna Orosz M.D., Ph.D.
		Béla Tóth M.Sc., Ph.D.
PhD Student		Gábor Balogh
	Ms.	Réka Bogáti M.Sc.
		Attila Fekete
	Ms.	Réka Gindele
	Ms.	Judit Kállai
	Ms.	Lilla Kónya M.Sc.
	Ms.	Mária Kun M.Sc.
		Zoltán Mezei M.D.
	Ms.	Tünde Miklós M.D.
	Ms.	Marianna Speker M.Sc.
	Ms.	Edina Székely M.Pharm.

	Ms.	Noémi Klára Tóth M.D.
Academic Advisor	Ms.	Krisztina Pénzes-Daku M.Sc., Ph.D.

DEPARTMENT OF MEDICAL CHEMISTRY

Egyetem tér 1., Debrecen, 4010
Telephone: +39-52-412-345 Fax: +36-52-412-566
E-mail: medchem@unideb.hu, Web: medchem.unideb.hu

Full Professor, Head of Department		László Virág M.D., Ph.D., D.Sc.
Full Professor		Viktor Dombrádi M.Sc., Ph.D., D.Sc.
		Ferenc Erdődi M.Sc., Ph.D., D.Sc.
		Pál Gergely M.Sc., Ph.D., D.Sc., M.H.A.Sc.
Associate Professor		Péter Bay M.Sc., Ph.D.
	Ms.	Csilla Csortos M.Sc., Ph.D.
	Ms.	Ilona Farkas M.Sc., Ph.D.
Assistant Professor	Ms.	Éva Bakó M.Sc., Ph.D.
	Ms.	Edina Bakondi M.Sc., Ph.D.
		Tibor Docsa M.Sc., Ph.D.
		Csaba Hegedűs M.Sc., Ph.D.
	Ms.	Andrea Kiss M.Sc., Ph.D.
		Endre Kókai M.Sc., Ph.D.
	Ms.	Beáta Lontay M.Sc., Ph.D.
	Ms.	Krisztina Tar M.Sc., Ph.D.
Assistant Lecturer	Ms.	Karolina Cseri M.Sc.
	Ms.	Judit Iván M.Sc., Ph.D.
Research Fellow	Ms.	Anita Boratkó M.Sc., Ph.D.
	Ms.	Edit Kapitányné Mikó M.Sc., Ph.D.
	Ms.	Katalin Kovács M.Sc., Ph.D.
		Dénes Nagy M.Sc., Ph.D.
		Abdul Rahman Omar M.Sc., Ph.D.
	Ms.	Magdolna Szántó M.Sc., Ph.D.
		András Vida M.Sc., Ph.D.
Junior Research Fellow	Ms.	Petra Lakatos M.Sc.
	Ms.	Adrienn Sipos M.Sc.
Invited Lecturer		Béla Tóth M.Sc., Ph.D.
PhD Student		Tamás Fodor M.Sc.
		Dániel Horváth M.Sc.
		Tamás Kéki M.Sc.
		Zoltán Kónya M.Sc.
	Ms.	Tünde Kovács M.Sc.
	Ms.	Judit Márton M.Sc.

	Ms.	Lilla Nikoletta Nagy M.Sc.
	Ms.	Margit Péter M.Sc.
	Ms.	Katalin Petrényi M.Sc.
		Zsolt Regdon M.Sc.
	Ms.	Ildikó Szabó M.Sc.
		István Tamás M.Sc.
	Ms.	Emese Tóth M.Sc.
	Ms.	Zsuzsanna Valkó M.Sc.
Academic Advisor	Ms.	Éva Bakó M.Sc., Ph.D.

DEPARTMENT OF MEDICAL MICROBIOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-425 Fax: +36-52-255-424
E-mail: mikro@dote.hu, Web: mikrobiologia.deoec.hu

Associate Professor, Head of Department		József Kónya M.D., Ph.D.
Professor Emeritus		Lajos Gergely M.D., Ph.D., D.Sc.
Associate Professor		László Majoros M.D., Ph.D.
	Ms.	Judit Szabó M.D., Ph.D.
		György Veress M.Sc., Ph.D.
Assistant Professor	Ms.	Eszter Csoma M.Sc., Ph.D.
		Gábor Kardos M.D., Ph.D.
	Ms.	Krisztina Szarka M.Sc., Ph.D.
Assistant Lecturer	Ms.	Zsuzsanna Dombrádi M.Sc., Ph.D.
		Renátó Kovács M.Sc.
	Ms.	Brigitta László M.Sc., Ph.D.
Research Fellow	Ms.	Anita Szalmás M.Sc., Ph.D.
Junior Research Fellow	Ms.	Eszter Gyöngyösi M.Sc.
Biologist	Ms.	Cecilia Miszti M.Sc.
Resident	Ms.	Evelin Bukta M.D.
Specialist	Ms.	Anita Kozák M.D.
Academic Advisor of Faculty of Medicine		György Veress M.Sc., Ph.D.
Academic Advisor of Faculty of Dentistry		György Veress M.Sc., Ph.D.
PhD Student	Ms.	Marianna Domán
	Ms.	Shabnam Ebrahimi M.Pharm.
		Levente Szakács M.Sc.
Academic Advisor of Faculty of Pharmacy		László Majoros M.D., Ph.D.

DEPARTMENT OF PATHOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-245 Fax: +36-52-255-245
Web: pathol.med.unideb.hu

Associate Professor, Head of Department		Gábor Méhes M.D., Ph.D.
Full Professor		Péter Molnár M.D., D.Sc.
Professor Emeritus		Szabolcs Gomba M.D., Ph.D.
		Zoltán Nemes M.D., M.Sc., Ph.D.
Associate Professor, Head of Division of Neuropathology		Tibor Hortobágyi M.D.,Ph.D.
Associate Professor		Balázs Dezső M.D., Ph.D.
Assistant Lecturer		Lukács Baráth M.D.
		László Bidiga M.D.
	Ms.	Julia Lisa Cristofari M.D.
		Csaba Molnár M.D.
	Ms.	Györgyike Soós M.D.
		Sándor Csaba Szász M.D.
		László Tóth M.D., Ph.D.
Resident	Ms.	Vanda Aranyi M.D.
	Ms.	Anna Arday M.D.
	Ms.	Judit Bedekovics M.D.
		Tamás Csonka M.D.
		Zoltán Hendrik M.D.
		Gábor Irsai M.D.
		Bence Nagy M.D.

DEPARTMENT OF PHARMACOLOGY AND PHARMACOTHERAPY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-009 Fax: +36-52-255-009
Web: http://pharmacology.med.unideb.hu

Full Professor, Head of Department		Zoltán Szilvássy M.D., Ph.D., D.Sc.
Professor Emeritus	Ms.	Judith Gergely D.Pharm., Ph.D., D.Sc.
Associate Professor	Ms.	Ilona Benkő M.D., Ph.D.
		Róbert Pórszász M.D.,Ph.D.,MBA
		József Szentmiklósi M.D., Ph.D.
Assistant Professor		Attila Megyeri M.D., Ph.D.
		Barna Peitl M.D., Ph.D.
	Ms.	Zsuzsanna Réka Sári D.Pharm., Ph.D.
Assistant Lecturer	Ms.	Ágnes Cseppentő M.D.
		László Drimba M.D.
	Ms.	Rita Kiss M.D.

Senior Research Fellow		József Németh M.Sc., Ph.D.
Research Fellow	Ms.	Zsuzsanna Gál M.Sc., Ph.D.
PhD Student		Csaba Hegedűs M.Sc.
	Ms.	Diána Kovács M.Sc.
	Ms.	Beáta Lelesz M.Sc.
		Balázs Marics M.Sc.
	Ms.	Éva Ungvári M.Sc.
Academic Advisor	Ms.	Ilona Benkő M.D., Ph.D.
		Róbert Pórszász M.D.,Ph.D.,MBA

DEPARTMENT OF PHYSIOLOGY

Nagyerdei krt. 98., Debrecen, 4012
Telephone: +36-52-255-575 Fax: +36-52-255-116
Web: http://phys.dote.hu

Full Professor, Head of Department		László Csernoch M.Sc., Ph.D., D.Sc.
Full Professor, Head of Sport Physiology Division		János Magyar M.D.,Ph.D.,D.Sc.
Full Professor, Head of Dental Physiology and Pharmacology Division		Péter Nánási M.D., Ph.D., D.Sc.
Full Professor		László Csernoch M.Sc., Ph.D., D.Sc.
		János Magyar M.D.,Ph.D.,D.Sc.
		Péter Nánási M.D., Ph.D., D.Sc.
Professor Emeritus		László Kovács M.D.,Ph.D.,D.Sc.,M.H.A.Sc.
Associate Professor		Tamás Bányász M.D., Ph.D.
		Péter Szűcs M.D., Ph.D.
Assistant Professor		János Almássy M.Sc., Ph.D.
	Ms.	Szilvia Benkő M.Sc., Ph.D.
		Balázs Horváth M.D.,Ph.D.
		Balázs Pál M.D.,Ph.D.
		Norbert Szentandrássy M.D., Ph.D.
		István Balázs Tóth M.Sc., Ph.D.
Postgraduate Lecturer	Ms.	Ágnes Jenes M.D.
		Attila Oláh M.D.
		Attila Szöllősi M.D.
Senior Research Fellow		Péter Szentesi M.Sc., Ph.D.
Research Fellow	Ms.	Gabriella Czifra M.Sc., Ph.D.
	Ms.	Beatrix Dienes M.Sc., Ph.D.
	Ms.	Mónika Sztretye M.Sc., Ph.D.
Junior Research Fellow	Ms.	Marietta Budai M.Sc.
		Attila Mokánszki M.Sc., Ph.D.
		Tamás Oláh M.Sc., Ph.D.
	Ms.	Angelika Varga M.Sc., Ph.D.

OTKA Postdoctoral Fellow		János Fodor M.Sc., Ph.D.
	Ms.	Johanna Mihály M.Sc., Ph.D.
PhD Student	Ms.	Lídia Ambrus M.Sc.
	Ms.	Ágnes Angyal M.Sc.
		Norbert Balogh M.Sc.
	Ms.	Csilla Bordás M.Sc.
	Ms.	Zsuzsanna Gaál M.D.
	Ms.	Adrienn Kovács M.Sc.
		Gergő Kovács M.Sc.
		Arnold Markovics M.Sc.
	Ms.	Edina Orosz M.Sc.
		Imre Lőrinc Szabó M.D.
	Ms.	Judit Szabó-Papp M.Sc.
	Ms.	Adrienn Tóth D.M.D.
		János Vincze M.D.
Research Advisor		István Jóna M.Sc., Ph.D., D.Sc.

CHAPTER 6
FACULTY OF MEDICINE - CLINICAL DEPARTMENTS

DEPARTMENT OF ANESTHESIOLOGY AND INTENSIVE CARE

Nagyerdei krt. 98, Debrecen, 4032
Telephone: +36-52-255-347
Web: www.aitt.deoec.hu

Full Professor, Head of Department		Béla Fülesdi M.D., Ph.D., D.Sc.
Associate Professor	Ms.	Judit Hallay M.D., Ph.D.
	Ms.	Csilla Molnár M.D., Ph.D.
Assistant Professor	Ms.	Katalin Herman M.D.
	Ms.	Gabriella Szűcs M.D., Ph.D.
Senior Lecturer		Tamás Végh M.D., Ph.D.
Assistant Lecturer	Ms.	Krisztina Béczy M.D.
	Ms.	Gyöngyi Békési M.D.
	Ms.	Marianna Berhés M.D.
		Ferenc Bodnár M.D.
	Ms.	Emese Csoba M.D.
		Imre Czifra M.D.
	Ms.	Marina Czurkó M.D.
		Róbert Duris M.D.
	Ms.	Edit Éberhardt M.D.
	Ms.	Irén Erdei M.D.
		Ákos Fábián M.D., Ph.D.
	Ms.	Anita Fagyas M.D.
	Ms.	Ágnes Fekete M.D.
	Ms.	Annamária Filep M.D.
	Ms.	Andrea Fodor M.D.
	Ms.	Judit Gál M.D.
		Zoltán Gyöngyösi M.D.
	Ms.	Judit Gyulaházi M.D.
	Ms.	Marianna Juhász M.D.
	Ms.	Ilona Kobzos M.D.
		György Koszta M.D.
		István László M.D.
		István Máté M.D.
	Ms.	Boglárka Megyeri M.D.
	Ms.	Eszter Mihály M.D.
		Dániel Nagy M.D.
	Ms.	Erzsébet Németh M.D.

	Ms.	Lívia Orosz M.D.
	Ms.	Tünde Palatka M.D.
		Balázs Pálóczi M.D.
		Csaba Papp M.D., M.Sc.
	Ms.	Erika Pető M.D.
	Ms.	Adrienn Pongrácz M.D.
		Péter Sárkány M.D.
	Ms.	Éva Simon M.D.
		Gábor Sira M.D.
		Péter Síró M.D.
		Tamás Sotkovszki M.D.
	Ms.	Zsuzsanna Spisák M.D.
	Ms.	Katalin Szamos M.D.
	Ms.	Erzsébet Szászi M.D.
	Ms.	Katalin Szatmári M.D.
	Ms.	Ildikó Szűcs M.D.
		Gergely Takács M.D.
		Béla Tankó M.D.
	Ms.	Adrienn Timkó M.D.
	Ms.	Magdolna Váradi M.D.
	Ms.	Györgyi Vass M.D.
	Ms.	Andrea Vencel M.D.
	Ms.	Eszter Vitális M.D.
		András Zudor M.D.
Clinical Assistant		László Asztalos M.D.
	Ms.	Edit Cserép M.D.
	Ms.	Babett Fodor M.D.
	Ms.	Anna Illés M.D.
	Ms.	Zsuzsa Jakab M.D.
	Ms.	Enikő Jánvári M.D.
	Ms.	Lenke Jenei Kluch M.D.
	Ms.	Zsuzsanna Kovács M.D.
	Ms.	Enikő Papp M.D.
	Ms.	Ágnes Rózsa M.D.
		Zoltán Szabó-Maák M.D.
		Szilárd Szatmári M.D., Ph.D.
		Dávid Richárd Varga M.D.
Resident	Ms.	Vera Csernoch M.D.
	Ms.	Dóra Cservenyák M.D.
	Ms.	Nóra Czakó M.D.
	Ms.	Eszter Farkas M.D.

		András Gajdos M.D.
		Endre Hajdu M.D.
	Ms.	Ágota Kazup M.D.
	Ms.	Réka Nemes M.D.
		Béla Takács M.D.
	Ms.	Eszter Varga M.D.
PhD Student		Levente Molnár M.D.
Academic Advisor		Tamás Sotkovszki M.D.

DEPARTMENT OF CARDIOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-928 Fax: +36-52-255-928

Chairman	István Édes M.D., Ph.D., D.Sc.

Division of Cardiac Surgery

Móricz Zs. krt. 22., Debrecen, 4004
Telephone: +36-52-255-306 Fax: +36-52-255-306

Associate Professor, Head of Division	Tamás Szerafin M.D., Ph.D.
Professor Emeritus	Árpád Péterffy M.D., D.Sc.
Chief Physician	Ambrus Horváth M.D.
Clinical Assistant	Tamás Maros M.D.
	Lehel Palotás M.D.
	József Simon M.D.
	István Szentkirályi M.D.
Resident	Péter Csizmadia M.D.
	Tamás Debreceni M.D.
	András Durkó M.D.

Division of Cardiology

Móricz Zs. krt. 22., Debrecen, 4032
Telephone: +36-52-255-928 Fax: +36-52-255-928
E-mail: edes@dote.hu, Web: http://en.debkard.hu

Full Professor, Head of Department		István Édes M.D., Ph.D., D.Sc.
Associate Professor		Zoltán Csanádi M.D., Ph.D.
	Ms.	Ida Hegedűs M.D., Ph.D.
		Zsolt Kőszegi M.D., Ph.D.
Assistant Professor	Ms.	Judit Barta M.D., Ph.D.
	Ms.	Annamária Bódi M.D., Ph.D.
		Attila Borbély Ph.D.

		Tibor Fülöp M.D., Ph.D.
		Attila Kertész M.D., Ph.D.
		Rudolf Kolozsvári M.D., Ph.D.
		Tibor Szűk M.D., Ph.D.
		Gusztáv Vajda M.D.
Cardiologist		László Balogh M.D.
	Ms.	Orsolya Bene M.D.
		Marcel Clemens M.D., Ph.D.
		Dániel Czuriga M.D., Ph.D.
	Ms.	Andrea Daragó M.D.
	Ms.	Zita Hertelendi M.D., Ph.D.
		Csaba Kun M.D.
		Andrij Leny M.D.
		László Nagy M.D.
	Ms.	Andrea Péter M.D.
	Ms.	Ildikó Rácz M.D.
		Gábor Sándorfi M.D.
		Gábor. Szabó M.D.
Assistant Lecturer		László Fülöp M.D., Ph.D.
		Szabolcs Gergely M.D.
	Ms.	Nóra Homoródi M.D.
		Csaba Jenei M.D.
	Ms.	Erzsébet Lizanecz M.D., Ph.D.
		Sándor Sipka M.D., Ph.D.
Resident	Ms.	Ágnes Balogh M.D., Ph.D.
	Ms.	Alexandra Kiss M.D.
		Gábor Kolodzey M.D.
	Ms.	Emese Gyöngyvér Kovács M.D., Ph.D.
		Bertalan Kracskó M.D.
	Ms.	Edina Nagy-Baló M.D.
	Ms.	Ágnes Orsolya Rácz M.D.
	Ms.	Andrea Szegedi M.D., Ph.D., D.Sc.
Other Graduated Staff Member	Ms.	Valéria Szathmáriné Kruzich

Division of Clinical Physiology

Móricz Zs. krt. 22., Debrecen, 4032

Telephone: +36-52-255-978 Fax: +36-52-255-978

E-mail: klinfiz@med.unideb.hu, Web: http://en.klinfiz.debkard.hu/

Full Professor, Head of Division	Zoltán Papp M.D.
Associate Professor	Attila Tóth M.Sc., Ph.D., D.Sc.

Registrar		Miklós Fagyas M.D., Ph.D.
Laboratory Assistant	Ms.	Ivetta Mányiné Siket
Secretariat	Ms.	Krisztina Kass
Laboratory Analyst	Ms.	Enikő T. Pásztor B.Sc.
Research Assistant		Gerardo Alvarado Contreras M.D.
PhD Student	Ms.	Beáta Bódi M.Sc.
		Tamás Csípő M.D.
		Gábor Áron Fülöp M.D.
		Thanh An Huynh M.D.
Academic Advisor		Attila Tóth M.Sc., Ph.D., D.Sc. (E-mail: atitoth@dote.hu)

DEPARTMENT OF CLINICAL ONCOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-585 Fax: +36-52-255-585
Web: http://oncology.deoec.hu

Head of Department		Zsolt Horváth M.D., Ph.D.

Division of Clinical Oncology

Nagyerdei krt. 98, Debrecen, 4032
Telephone: +36-52-255-840 Fax: +36-52-255-840

Head of Division	Ms.	Judit Kocsis M.D., Ph.D.
Assistant Professor	Ms.	Csilla András M.D., Ph.D.
	Ms.	Andrea Gonda M.D., Ph.D.
	Ms.	Éva Szekanecz M.D., Ph.D.
Clinical Specialist		Balázs Juhász M.D.
	Ms.	Mónika Mailáth M.D.
	Ms.	Judit Tóth M.D.
Resident	Ms.	Csilla Ambrus M.D.
	Ms.	Ingrid Balogh M.D.
	Ms.	Edit Béres M.D.
	Ms.	Enikő Varga M.D.
Academic Advisor	Ms.	Csilla András M.D., Ph.D.

Division of Radiotherapy

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-585 Fax: +36-52-255-585

Assistant Professor	Ms.	Andrea Furka M.D., Ph.D.
Clinical Specialist	Ms.	Mária Besenyői M.D.
		Ádám Dér M.D.

		Levente Jánváry M.D.
	Ms.	Erzsébet Kollák M.D.
	Ms.	Adrienn Opauszki M.D.
	Ms.	Erika Szántó M.D.
	Ms.	Hilda Urbancsek M.D.
Resident	Ms.	Emese Csiki M.D.
	Ms.	Erika Hevesi M.D.
Physicist		István Balogh
		Erik Dobos Ph.D.
		Gergely Hócza
		Attila Kovács
	Ms.	Éva Pintye Ph.D.
		Mihály Simon
	Ms.	Julianna Valastyánné Nagy
Academic Advisor	Ms.	Mária Besenyői M.D.

DEPARTMENT OF DERMATOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-204 Fax: +36-52-255-736
E-mail: dermatologia@med.unideb.hu, Web: www.dermatologia.med.unideb.hu

Full Professor, Head of Department	Ms.	Éva Remenyik M.D., Ph.D., D.Sc.
Full Professor, Head of Division of Dermatological Allergology	Ms.	Andrea Szegedi M.D., Ph.D., D.Sc.
Full Professor, Head of Division of Human Surgery and Op. Techniques		István Juhász M.D., Ph.D., C.Sc.
Professor Emerita	Ms.	Irén Horkay M.D., Ph.D., D.Sc.
Professor Emeritus		János Hunyadi M.D., Ph.D., D.Sc.
Associate Professor	Ms.	Éva Szabó M.D., Ph.D.
Assistant Professor	Ms.	Gabriella Emri M.D., Ph.D.
		Krisztián Gáspár M.D., Ph.D.
	Ms.	Beatrix Irinyi M.D., Ph.D.
		Dániel Törőcsik M.D., Ph.D.
Assistant Lecturer	Ms.	Edina Bodnár M.D.
	Ms.	Borbála Kiss M.D.,Ph.D.
	Ms.	Flóra Kiss M.D., Ph.D.
Clinical Assistant	Ms.	Irén Erdei M.D.
	Ms.	Annamária Filep M.D.
	Ms.	Emese Herédi M.D.
Candidate Clinical Assistant	Ms.	Anikó Csordás M.D.
	Ms.	Emese Gellén M.D.
	Ms.	Judith Kriszta Kékedy M.D.

		Péter Kósa M.D.
	Ms.	Lilla Paragh M.D.
	Ms.	Anita Rácz M.D.
	Ms.	Irina Sawhney M.D.
	Ms.	Georgina Szima M.D.
	Ms.	Tünde Várvölgyi M.D.
Resident	Ms.	Zita Kovács M.D.
		Endre Nagy Jr. M.D.
	Ms.	Lilla Pogácsás M.D.
	Ms.	Annamária Szödényi M.D.
Senior Consultant		Zoltán Péter M.D.
Academic Advisor of Faculty of Medicine	Ms.	Éva Szabó M.D., Ph.D.
Academic Advisor of Faculty of Dentistry		István Juhász M.D., Ph.D., C.Sc.

DEPARTMENT OF INFECTIOUS DISEASES AND PEDIATRIC IMMUNOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-613 Fax: +36-52-430-323
Web: www.infekt.gyermekimmun.deoec.hu

Associate Professor, Head of Department	Ms.	Melinda Erdős M.D., Ph.D.
Full Professor		László Maródi M.D.,Ph.D.,D.Sc.
Assistant Lecturer	Ms.	Vera Piegl-Gulácsy M.D., Ph.D.
Research Fellow	Ms.	Beáta Tóth M.Sc., Ph.D.
Clinical Assistant	Ms.	Pálma Erdődi-Juhász M.D.
	Ms.	Éva Anna Kenéz M.D.
		Mohamed Faisal Mahdi M.D.
	Ms.	Adrien Katalin Sarkadi M.D., Ph.D.
Clinical Chemist		István Balogh M.Sc., Ph.D.
		Gábor Nagy M.D. (Part time specialist)
Resident	Ms.	Beáta Bujdosó M.D.
	Ms.	Ágnes Mata-Hársfalvi M.D.
PhD Student	Ms.	Pálma Erdődi-Juhász M.D.
	Ms.	Zsuzsanna Pistár M.Sc.
	Ms.	Beáta Soltész M.Sc.
Academic Advisor	Ms.	Adrien Katalin Sarkadi M.D., Ph.D.

DEPARTMENT OF INTERNAL MEDICINE

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-525 Fax: +36-52-255-951

Full Professor, Head of Department		György Paragh M.D., Ph.D., D.Sc.
Education Officer, Contact Person		Péter Fülöp M.D., Ph.D.

Division of Angiology

Móricz Zs. krt. 22., Debrecen, 4032
Telephone: +3652255480 Fax: +3652255218

Full Professor, Head of Division		Pál Soltész M.D., Ph.D., D.Sc.
Assistant Professor		György Kerekes M.D., Ph.D.
	Ms.	Katalin Veres M.D., Ph.D.
Chief Physician	Ms.	Edit Szomják M.D.
	Ms.	Franciska Tizedes M.D.
Clinical Specialist		Ervin Sochka M.D.
Invited Lecturer	Ms.	Renáta Laczik M.D., Ph.D.
		Richárd Veisz M.D.
PhD Student	Ms.	Ágnes Dioszegi M.D.
		Dávid Kovács M.D.
	Ms.	Melinda Vass M.D.

Division of Clinical Immunology

Nagyerdei krt. 98, Debrecen, 4012
Telephone: 06-52-255-218 Fax: 06-52-255-218

Full Professor, Head of Division	Ms.	Margit Zeher M.D., Ph.D., D.Sc.
Full Professor	Ms.	Edit Bodolay M.D., Ph.D., D.Sc.
	Ms.	Katalin Dankó M.D.,Ph.D.,D.Sc.
Associate Professor		Zoltán Csiki M.D., Ph.D.
		János Gaál M.D.,Ph.D.
Assistant Professor		Zoltán Griger M.D., Ph.D.
	Ms.	Antónia Szántó M.D., Ph.D.
	Ms.	Tünde Tarr M.D., Ph.D.
Assistant Lecturer	Ms.	Ildikó Horváth M.D.
	Ms.	Éva Zöld M.D., Ph.D.
Senior Research Fellow		Gábor Papp M.D., Ph.D.
Clinical Specialist	Ms.	Gyöngyike Emese Majai M.D., Ph.D.
Candidate Clinical Assistant	Ms.	Nikolett Győri M.D.
	Ms.	Melinda Nagy-Vincze M.D.
Resident	Ms.	Nikolett Farmasi M.D.

	Ms.	Györgyi Horváth M.D.
	Ms.	Katalin Husi M.D.
	Ms.	Borbála Székely M.D.
PhD Student		Levente Bodoki M.D.
	Ms.	Krisztina Szabó M.D.

Division of Emergency Medicine

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-411-717/50190
E-mail: ujvarosy.andras@mentok.hu

Associate Professor, Head of Division		Zoltán Szabó M.D., Ph.D.
Associate Professor		István Lőrincz M.D., Ph.D.
Assistant Professor	Ms.	Dóra Ujvárosy M.D.
		Zoltán Vincze M.D., Ph.D.
Candidate Clinical Assistant		Tamás Köbling M.D.
Resident		Zoltán Szegedi M.D.
		Szabolcs Tóth M.D.
Invited Lecturer	Ms.	Tímea Boros M.D.
		Gergely Nagy M.D.
		Tamás Ötvös M.D.
	Ms.	Margit Petrus M.D.
		Zoltán Szatmári M.D.
		Sándor Szima M.D.

Division of Endocrinology

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-600

Full Professor, Head of Division		Endre Nagy M.D., Ph.D., D.Sc.
Professor Emeritus		András Leövey M.D., Ph.D., D.Sc.
Associate Professor		Miklós Bodor M.D.,Ph.D.
Chief Consultant	Ms.	Judit Boda M.D.
Assistant Lecturer	Ms.	Mária Juhász M.D., Ph.D.
Clinical Assistant	Ms.	Annamária Erdei M.D.
	Ms.	Annamária Gazdag M.D.
	Ms.	Andrea Gazsó M.D.
	Ms.	Ildikó Hircsu M.D.
	Ms.	Lívia Sira M.D.
Resident		Sándor Halmi M.D.

Division of Gastroenterology

Nagyerdei krt. 98., Debrecen, 4012
Telephone: +36-52-255-601 Fax: +36-52-255-554
E-mail: altorjay@med.unideb.hu

Associate Professor, Head of Division		István Altorjay M.D.,Ph.D.
Associate Professor	Ms.	Mária Papp M.D., Ph.D.
		István Tornai M.D.,Ph.D.
Assistant Professor		Tamás Bubán M.D.
		Károly Palatka M.D., Ph.D.
	Ms.	Zsuzsa Vitális M.D., Ph.D.
Chief Consultant		Csaba Várvölgyi M.D.
Clinical Specialist	Ms.	Boglárka Haraszti M.D.
		Sándor Kacska M.D.
Registrar		László Dávida M.D. (Gastroenterology)
	Ms.	Ildikó Földi M.D. (on maternity leave)
	Ms.	Eszter Pályu M.D. (Internal Medicine)
		Tamás Tornai M.D. (Internal Medicine)

Division of Geriatry

Nagyerdei krt. 98, Debrecen, 4012
Telephone: 06-52-255-218 Fax: 06-52-255-218

Full Professor, Head of Division		Gyula Bakó M.D., Ph.D., D.Sc.
Clinical Doctor	Ms.	Adrienn Szabó M.D.

Division of Haematology

Nagyerdei krt. 98, Debrecen, 4012
Telephone: 06-52-255-152/55152 Fax: 06-52-255-152
E-mail: illesarpaddr@gmail.com, Web: 2bel.med.unideb.hu

Full Professor, Head of Division		Árpád Illés M.D., Ph.D., D.Sc.
Full Professor		Miklós Udvardy M.D., Ph.D., D.Sc.
Assistant Professor		Péter Batár M.D., Ph.D.
		Lajos Gergely M.D., Ph.D., D.Sc.
	Ms.	Zsófia Miltényi M.D., Ph.D.
		László Rejtő M.D., Ph.D.
		László Váróczy M.D., Ph.D.
Assistant Lecturer	Ms.	Zsófia Simon M.D.,Ph.D.
		Róbert Szász M.D.

Research Fellow	Ms.	Marianna Szarvas
Clinical Specialist	Ms.	Gabriella Mezei M.D.
		Gyula Reményi M.D.
	Ms.	Zsófia Ujj M.D.
Registrar		Ferenc Magyari M.D.
	Ms.	Edit Páyer M.D.
Resident		Ádám Jóna M.D.
PhD Student	Ms.	Adrien Márton M.D.
	Ms.	Zita Radnay M.D.

Division of Metabolism

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-600 Fax: +36-52-255-951

Full Professor, Head of Division of Metabolism		György Paragh M.D., Ph.D., D.Sc.
Full Professor		Dénes Páll M.D., Ph.D., D.Sc.
Associate Professor		Zoltán Balogh M.D., Ph.D.
	Ms.	Mariann Harangi M.D., Ph.D.
		Miklós Káplár M.D., Ph.D.
	Ms.	Éva Katona M.D., Ph.D.
Assistant Professor		Péter Fülöp M.D., Ph.D.
		Sándor Somodi M.D., Ph.D.
Chief Consultant		Attila Szűcs M.D., Ph.D.
Assistant Lecturer		Péter Koncsos M.D.
		Tamás Köbling M.D.
Senior Research Fellow		Zsolt Karányi M.Sc.
	Ms.	Ildikó Seres M.Sc., Ph.D.
Biologist	Ms.	Mónika Katkó M.D.
Clinical Assistant	Ms.	Tímea Besenyei M.D.
	Ms.	Henrietta Dér M.D.
	Ms.	Krisztina Gaál M.D.
	Ms.	Andrea Kahler M.D.
	Ms.	Judit Kéri M.D.
	Ms.	Ilona Enikő Kovács M.D.
	Ms.	Julianna Kulcsár M.D.
		Szabolcs Lengyel M.D.
	Ms.	Alida Magdolna Páll M.D.
	Ms.	Ildikó Szántó M.D.
		Ferenc Sztanek M.D.
Candidate Clinical Assistant	Ms.	Regina Esze M.D.
		Imre Juhász M.D.

	Ms.	Eszter Kusicza M.D.
		György Nagy M.D.
	Ms.	Réka Szentimrei M.D.
	Ms.	Noémi Zsíros M.D.
Resident	Ms.	Lilla Juhász M.D.
	Ms.	Judit Kaluha M.D.
		Balázs Mata M.D.
PhD Student	Ms.	Anita Szentpéteri
	Ms.	Viktória Varga

Division of Nephrology
Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-414-227 Fax: +36-52-414-951

Full Professor, Head of Division of Nephrology		József Balla M.D., Ph.D., D.Sc.
Professor Emeritus		György Kakuk M.D., Ph.D.
Associate Professor		István Kárpáti M.D., Ph.D.
		János Mátyus M.D., Ph.D.
		László Újhelyi M.D., Ph.D.
Clinical Assistant	Ms.	Mária Juhász M.D., Ph.D.
	Ms.	Réka P. Szabó M.D.
	Ms.	Klára Pucsok M.D.
	Ms.	Zita Váradi M.D.
Senior Consultant	Ms.	Csilla Trinn M.D.

Division of Rare Diseases
Nagyerdei krt. 98, Debrecen, 4012
Telephone: 06-52-411-717/55196 Fax: 06-52-255-574
E-mail: g.pfliegler@gmail.com, Web: 2bel.med.unideb.hu

Associate Professor, Head of Division		György Pfliegler M.D., Ph.D.
Assistant Lecturer	Ms.	Boglárka Brúgós M.D., Ph.D.
Clinical Specialist		Krisztián Urbán M.D.
Registrar		György Kovács M.D.
Invited Lecturer	Ms.	Erzsébet Kovács M.D.

Division of Rheumatology
Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-091 Fax: +36-52-255-091
E-mail: reuma.titkarsag@med.unideb.hu, Web: www.rheumatology.hu

Full Professor, Head of Division	Zoltán Szekanecz M.D., Ph.D., D.Sc.

Associate Professor		Sándor Szántó M.D.,Ph.D.
	Ms.	Gabriella Szűcs M.D., Ph.D.
Assistant Professor	Ms.	Szilvia Szamosi M.D.,Ph.D.
Assistant Lecturer	Ms.	Edit Végh M.D.
Clinical Specialist	Ms.	Nóra Bodnár M.D.
	Ms.	Katalin Gulyás M.D.
	Ms.	Ágnes Horváth M.D.
	Ms.	Zsófia Pethő M.D.
Resident	Ms.	Ágnes Kovács Ph.D.
	Ms.	Boglárka Soós M.D.

DEPARTMENT OF NEUROLOGY

Móricz Zs. str. 22., Debrecen, 4032
Telephone: +36-52-255-255 Fax: +36-52-453-590
E-mail: iroda@med.unideb.hu ; csiba@med.unideb.hu

Full Professor, Head of Department		László Csiba M.D., Ph.D., D.Sc.
Full Professor		István Fekete M.D.
Professor Emeritus		Ferenc Mechler M.D., Ph.D., D.Sc.
Associate Professor	Ms.	Tünde Csépány M.D., Ph.D.
	Ms.	Tünde Magyar M.D., Ph.D.
		László Oláh M.D., Ph.D.
Assistant Professor	Ms.	Judit Boczán M.D., Ph.D.
	Ms.	Klára Fekete M.D., Ph.D.
		Bertalan Vámosi M.D.
Assistant Lecturer	Ms.	Krisztina Csapó M.D., Ph.D.
		Norbert Kozák M.D., Ph.D.
		Zsolt Mezei M.D., Ph.D.
	Ms.	Szilvia Puskás M.D.,Ph.D.
Clinical Assistant	Ms.	Anita Frendl M.D.
	Ms.	Edina Kovács M.D.
	Ms.	Katalin Réka Kovács M.D., Ph.D.
	Ms.	Katalin Szabó M.D.
Candidate Clinical Assistant		Szabolcs Farkas M.D., Ph.D.
		Gergely Hofgárt M.D.
	Ms.	Kitti Bernadett Kovács M.D.
Resident	Ms.	Lilla Rácz M.D.
PhD Student	Ms.	Aletta Harmann M.D.
	Ms.	Csilla Vér

DEPARTMENT OF NEUROSURGERY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-419-418 Fax: +36-52-419-418

Full Professor, Head of Department	László Bognár M.D., Ph.D.
Associate Professor	Álmos Klekner M.D., Ph.D.
	László Novák M.D., Ph.D.
	Sándor Szabó M.D., Ph.D.
Clinical Assistant	József Dobai M.D.
	Péter Ruszthi M.D.
	Rahmani Mohammad Tayeb M.D.
Resident	Emanuel Gutema M.D.
	Gábor Hutóczki M.D.
	Máté Kiss M.D.
PhD Student	Meyssam Amirinejad M.D.
Academic Advisor	László Novák M.D., Ph.D.

DEPARTMENT OF NUCLEAR MEDICINE

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-510 Fax: +36-52-255-510
E-mail: jvarga@med.unideb.hu, Web: http://oktatas.nuklmed.deoec.hu/index.php?option=com_content&view=article&id=77&Itemid=265

Associate Professor, Head of the Department		József Varga M.Sc., Ph.D.
Head of Radiochemical Center		Pál Mikecz M.Sc.
Full Professor		László Galuska M.D., Ph.D.
Professor Emeritus		Lajos Trón M.Sc., Ph.D., D.Sc.
Associate Professor	Ms.	Ildikó Garai M.D., Ph.D.
Senior Research Fellow		László Balkay M.Sc., Ph.D.
		Miklós Emri M.Sc., Ph.D.
	Ms.	Teréz Márián M.Sc., Ph.D.
Research Fellow		István Kertész M.Sc., Ph.D.
		Gábor Pintér D.Pharm., Ph.D., M.Pharm.
Biologist		György Trencsényi M.Sc., Ph.D.
Resident		Bence Farkas M.D.
Chemist		István Jószai M.Sc., Ph.D.
	Ms.	Tünde Miklovicz M.Sc.
	Ms.	Enikő Németh Várhalminé M.Sc.
	Ms.	Judit Péliné Szabó M.Sc.
		Norbert Pótári M.Sc.
		Béla Rubleczky M.Sc.
		Dezső Szikra M.Sc., Ph.D.

Pharmacist		Gergely Farkasinszky D.Pharm.
Physicist		Sándor Attila Kis M.Sc., Ph.D.
		Gábor Opposits M.Sc., Ph.D.
		László Pohubi M.Sc.
Specialist		Zoltán Barta M.D.
Invited Lecturer		Sándor Kristóf Barna M.D.
	Ms.	Nikol Fedinecz M.D.
		Attila Forgács M.Sc.
	Ms.	Orsolya Sántha M.D.
PhD Student		Csaba Aranyi M.Sc.
	Ms.	Mónika Béresová M.Sc.
		Áron Krizsán M.Sc.
Academic Advisor		László Balkay M.Sc., Ph.D.

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-144 Fax: +36-52-255-705
E-mail: gyvarga@med.unideb.hu

Full Professor, Head of Department		Róbert Póka M.D., Dr. habil., Ph.D.
Full Professor		Zoltán Hernádi M.D., Ph.D., D.Sc.
		Zoltán Tóth M.D., Ph.D., D.Sc.
Professor Emeritus		Antal Borsos M.D., Ph.D., D.Sc.
		László Lampé M.D., Ph.D., D.Sc.
Associate Professor		Attila Jakab M.D., Ph.D.
		Tamás Szilveszter Kovács M.D., Ph.D.
		Tamás Major M.D., Ph.D.
	Ms.	Olga Török M.D., Ph.D.
Assistant Professor		László Birinyi M.D., Ph.D.
		Roland Csorba M.D., Ph.D.
		Alpár Gábor Juhász M.D., Ph.D.
		Zoárd Krasznai M.D., Ph.D.
		Csaba Móré M.D., Ph.D.
		Tamás Sápy M.D., Ph.D.
	Ms.	Szilvia Vad M.D., Ph.D.
Assistant Lecturer		Péter Daragó M.D.
		Tamás Deli M.D., Ph.D.
		Rudolf Lampé M.D., Ph.D.
		János Lukács M.D.
		Péter Török M.D., Ph.D.
Biologist	Ms.	Zsuzsanna Buczkó M.Sc.

	Ms.	Ildikó Zsupán M.Sc.
Clinical Assistant	Ms.	Tünde Bartha M.D.
		Balázs Erdődi M.D.
	Ms.	Ágnes Farkas M.D.
		István Fekete M.D.
	Ms.	Judit Kerepesi M.D.
		Bence Kozma M.D.
		László Orosz M.D.
Candidate Clinical Assistant	Ms.	Heidi Balla M.D.
	Ms.	Eszter Maka M.D.
		Gergő Orosz M.D.
		Jashanjeet Singh M.D.
Resident		Levente Barna M.D.
		Péter Damjanovich M.D.
		Zsolt Farkas M.D.
		Szabolcs Molnár M.D.
	Ms.	Lilla Ördög M.D.
Psychologist	Ms.	Zsuzsa Török M.A., Ph.D.
Academic Advisor (IV. Year)		Tamás Szilveszter Kovács M.D., Ph.D.
Academic Advisor (VI. year)		Tamás Major M.D., Ph.D.

Division of Gynecological Oncology

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-417-144

Full Professor, Head of Division of Gynecologic Oncology	Róbert Póka M.D., Dr. habil., Ph.D.
Full Professor	Zoltán Hernádi M.D., Ph.D., D.Sc.
Professor Emeritus	László Lampé M.D., Ph.D., D.Sc.
Assistant Professor	Zoárd Krasznai M.D., Ph.D.

DEPARTMENT OF OPHTALMOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-456 Fax: +36-52-255-456

Full Professor, Head of Department		András Berta M.D., Ph.D., D.Sc.
Full Professor		László Módis M.D., Ph.D., D.Sc.
Associate Professor	Ms.	Judit Damjanovich M.D., Ph.D.
	Ms.	Valéria Nagy M.D., Ph.D.
	Ms.	Lili Takács M.D., Ph.D.
Assistant Professor	Ms.	Adrienne Csutak M.D., Ph.D.
	Ms.	Mariann Fodor M.D., Ph.D.

		Ádám Kemény-Beke M.D., Ph.D.
		Bence Lajos Kolozsvári M.D., Ph.D.
		Gergely Losonczy M.D., Ph.D.
		Gábor Németh M.D., Ph.D.
Assistant Lecturer	Ms.	Zita Steiber M.D.
	Ms.	Éva Surányi M.D.
	Ms.	Bernadett Ujhelyi M.D.,Ph.D.
		Attila Vajas M.D.
Clinical Specialist	Ms.	Beáta Kettesy M.D.
	Ms.	Annamária Nagy M.D.
	Ms.	Erika Papp M.D.
Resident	Ms.	Anikó Rentka M.D.
	Ms.	Eszter Szalai M.D.,Ph.D.
PhD Student	Ms.	Eszter Deák M.D.
	Ms.	Orsolya Orosz M.D.
	Ms.	Dorottya Pásztor M.D.
	Ms.	Melinda Turáni
	Ms.	Eszter Zöld M.D.
Academic Advisor	Ms.	Beáta Kettesy M.D.

DEPARTMENT OF ORTHOPEDIC SURGERY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-815 Fax: +36-52-255-815
E-mail: zjonas@med.unideb.hu, Web: www.ortopedia.dote.hu

Associate Professor, Head of Department	Zoltán Csernátony M.D., Ph.D.
Professor Emeritus	János Rigó M.D., Ph.D.
	Kálmán Szepesi M.D., Ph.D., D.Sc.
Assistant Professor	Zoltán Jónás M.D.
Assistant Lecturer	Tamás Bazsó M.D.
	Gyula Győrfi
	Zsolt Hunya M.D.
	Zoltán Karácsonyi M.D.
	László Kiss M.D.
	Henrik Rybaltovszki M.D.
	János Szabó M.D.
	Ms. Csenge Szeverényi M.D.
Clinical Assistant	István Soltész M.D.

DEPARTMENT OF OTOLARYNGOLOGY AND HEAD AND NECK SURGERY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-805 Fax: +36-52-255-805
E-mail: ful.titkarsag@med.unideb.hu

Head of Department, Associate Professor		László Tóth M.D., Ph.D.
Full Professor		István Sziklai M.D., Ph.D., D.Sc.
Associate Professor		István Jókay M.D., Ph.D.
	Ms.	Judit Szilvássy M.D., Ph.D.
Assistant Professor		Tamás Batta M.D., Ph.D.
		Attila Szűcs M.D., Ph.D.
Assistant Lecturer		Zoltán Papp M.D.
		Szilárd Rezes M.D., Ph.D.

DEPARTMENT OF PEDIATRICS

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-411-717/55289 Fax: +36-52-255-335
E-mail: mogyoros@med.unideb.hu, Web: www.pediatrics.dote.hu

Full Professor, Head of Department		György Balla M.D., Ph.D., D.Sc.
Emeritus	Ms.	Éva Oláh M.D., Ph.D., D.Sc.
Full Professor, Head of Division of Pediatric Haematology and Oncology		Csongor Kiss M.D., Ph.D., D.Sc.
Full Professor	Ms.	Ilma Korponay-Szabó M.D., Ph.D.
Associate Professor, Head of Division of General Pediatrics		Gábor Mogyorósy M.D., Ph.D.
Associate Professor, Head of Division of Pediatric Emergency Care	Ms.	Rita Káposzta M.D., Ph.D.
Associate Professor		István Csízy M.D., Ph.D.
	Ms.	Ilona György M.D., Ph.D.
		Gábor Mogyorósy M.D., Ph.D.
		Béla Nagy M.D., Ph.D.
	Ms.	Éva Nemes M.D., Ph.D.
		Tamás Szabó M.D., Ph.D.
		István Szegedi M.D., Ph.D.
Assistant Professor	Ms.	Enikő Felszeghy M.D.,Ph.D.
	Ms.	Katalin Szakszon M.D., Ph.D.
	Ms.	Judit Tóth M.D.
Senior Lecturer	Ms.	Andrea Nagy M.D.
Assistant Lecturer	Ms.	Erika Bálega M.D.
	Ms.	Ágnes Papp M.D.
		István Pataki M.D.
		László Sasi Szabó M.D.

Clinical Assistant		Károly Bakó M.D.
		Zsolt Bene M.D.
	Ms.	Andrea Berkes M.D., Ph.D.
		Gábor Garai M.D.
		Imre Gáspár M.D.
	Ms.	Éva Juhász M.D.
	Ms.	Orsolya Kadenczki M.D.
	Ms.	Erzsébet Ilona Lakatos M.D.
	Ms.	Ágnes Magyar M.D.
	Ms.	Edina Mák M.D.
	Ms.	Zsuzsa Mándi M.D.
Resident	Ms.	Edina Bányász M.D.
	Ms.	Anita Gertrud Czifra M.D.
	Ms.	Klára Erdei M.D.
	Ms.	Boglárka Fehér M.D.
	Ms.	Anita Grabicza M.D.
	Ms.	Réka Jancsik M.D.
		Péter Juhász M.D.
	Ms.	Nóra Kicska M.D.
	Ms.	Eszter Kovács M.D.
	Ms.	Veronika Kovács M.D.
		András Kretzer M.D.
	Ms.	Edina Mák M.D.
	Ms.	Mariann Márki M.D.
	Ms.	Katalin Nagy M.D.
	Ms.	Petronella Orosz M.D.
	Ms.	Helga Perényi M.D.
	Ms.	Krisztina Plásztánné Kovács M.D.
		Levente Szabó M.D.
	Ms.	Lilla Szegedi M.D.
	Ms.	Anna Szőllős M.D.
	Ms.	Flóra Ujhelyi M.D.
	Ms.	Zsuzsa Zele M.D.
Psychologist	Ms.	Erika Tizedes
Academic Advisor		Gábor Mogyorósy M.D., Ph.D.
		Tamás Szabó M.D., Ph.D. (for GM students - 5th and 6th year)

Division of Neonatology

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-411-600

Full Professor, Head of Division of Neonatology		György Balla M.D., Ph.D., D.Sc.
Assistant Lecturer		Zsolt Horváth M.D.
	Ms.	Judit Kovács M.A.
	Ms.	Edit Polonkai M.D.
Clinical Assistant		Gergely Balázs M.D.
		Norbert Elek M.D.
	Ms.	Nóra Katona M.D.
	Ms.	Tünde Kotormán M.D.
		Tamás Kovács M.D.
		Balázs Kovács-Pászthy M.D.
	Ms.	Magdolna Riszter M.D.
	Ms.	Brigitta Sveda M.D.
		Sándor Szima M.D.
Academic Advisor		Zsolt Horváth M.D. (Ext.: 55454)

DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION

Nagyerdei krt. 98. Pf. 103., Debrecen, 4032
Telephone: +36-52-255-942 Fax: +36-52-255-109
E-mail: orfmt@med.unideb.hu, Web: www.rehab.dote.hu

Head of Division, Associate Professor		Zoltán Jenei M.D., Ph.D.
Associate Professor	Ms.	Zsuzsanna Vekerdy-Nagy (retired, part time) M.D., Ph.D.
Resident	Ms.	Adél Nagy M.D.
	Ms.	Lilla Szabó M.D.
Neuro-psychologist	Ms.	Györgyi Lente M.Sc.
Psychologist	Ms.	Noémi Zsuzsanna Kovács M.Sc.
Physiotherapist	Ms.	Szabina Antal M.A.
	Ms.	Zsuzsa Bodnár M.A.
	Ms.	Kitti Boros, M.A.
	Ms.	Bettina Burgond M.A.
	Ms.	Andrea Győrfiné Jánossy M.A.
	Ms.	Anna Kurta M.A.
	Ms.	Gabriella Nagy
	Ms.	Szabina Nagy M.A.
	Ms.	Éva Anna Szabados M.A.
Physiotherapist, Occupational therapist and Rehabilitation expert	Ms.	Zsófia Hőgye M.A.

Speech Therapist	Ms.	Noémi Fejér M.A.
	Ms.	Ildikó Mózesné Kapocska M.A.
	Ms.	Adrienn Polonkai M.A.
Specialist	Ms.	Ágnes Bajusz-Leny M.D.
	Ms.	Judit Horváth M.D.
	Ms.	Éva Szabó M.D.
	Ms.	Rita Szepesi M.D.
Social Worker	Ms.	Julianna Kavaleczné Ilyés M.A.
IT Specialist	Ms.	Beáta Alíz Dézsi M.Sc.
PhD Student	Ms.	Judit Horváth M.D.
	Ms.	Adél Nagy M.D.
	Ms.	Anna Sárközi M.D.
Academic Advisor	Ms.	Szilvia Baksa M.A.

DEPARTMENT OF PSYCHIATRY

Nagyerdei krt. 98., Debrecen, 4012
Telephone: +36-52-255-240 Fax: +36-52-255-240

Head of Department		Ede Frecska M.D., M.A., Ph.D.
Associate Professor	Ms.	Anikó Égerházi M.D., Ph.D.
Assistant Professor		Roland Berecz M.D., Ph.D.
	Ms.	Theodóra Glaub M.D.
Clinical Assistant		Gábor Andrássy M.D.
	Ms.	Edina Cserép M.D.
		Attila Kovács
	Ms.	Erzsébet Magyar M.D.
		Csaba Móré E. M.D., Ph.D.
	Ms.	Ágnes Süveges M.D.
	Ms.	Katalin Tolvay M.D.
Resident		Ágoston Gajdos M.D.
		Balázs Jeges M.D.
	Ms.	Marietta Nagy M.D.
	Ms.	Annamária Nagy M.D.
	Ms.	Petrina Papanastasiou M.D.
		Bence Szerdahelyi M.D.
Psychologist	Ms.	Lili Kövér M.A.
	Ms.	Emese Kulcsár M.A.
	Ms.	Ella Molnár M.A.
	Ms.	Andrea Ritz M.A.
Academic Advisor	Ms.	Réka Stébel

DEPARTMENT OF PULMONOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-222 Fax: +35-52-255-222

Full Professor, Head of Department	Ms.	Mária Szilasi M.D., Ph.D.
Assistant Professor		Imre Varga M.D., Ph.D.
Chief Physician		László Brugós M.D., Ph.D.
Assistant Lecturer	Ms.	Andrea Fodor M.D.
		Tamás Kardos M.D.
	Ms.	Anna Sárközi M.D.
		Attila Vaskó M.D.
Clinical Assistant	Ms.	Melinda Lajtos M.D.
		Attila Lieber M.D.
	Ms.	Angéla Mikáczó M.D.
	Ms.	Zsuzsa Papp M.D.
	Ms.	Ildikó Szűcs M.D.
Candidate Clinical Assistant		Zoltán Erdődi M.D.
		Attila Makai M.D.
		Attila Csaba Nagy M.D.
Resident	Ms.	Regina Szűcs M.D.
Responsible for Educational Matters	Ms.	Andrea Fodor M.D.

DEPARTMENT OF RADIOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-136 / 54308 Fax: +36-52-255-136 / 56136
E-mail: toth.agnes@med.unideb.hu, Web: radiologia.unideb.com

Full Professor, Head of Department		Ervin Berényi M.D., Ph.D.
Professor Emeritus		Mózes Péter M.D., Ph.D.
Assistant Professor		Gábor Endes M.D.
		Botond Karácsonyi M.D.
	Ms.	Éva Pásztor M.D.
Resident	Ms.	Judit Bánk M.D.
	Ms.	Veronika Deczkiné Gaál M.D.
	Ms.	Georgina Nagy M.D.
Academic Advisor	Ms.	Éva Pásztor M.D.

DEPARTMENT OF SURGERY

Móricz Zs. krt. 22, Debrecen, 4032
Telephone: +36-52-411-717/55316 Fax: +36-52-255-356
Web: http://www.sebeszet.deoec.hu

Full Professor, Chairman		László Damjanovich M.D., Ph.D.
Head of Division of Gastroenterology - Oncology		László Damjanovich M.D., Ph.D.
Head Of Division Of Organ Transplantation		Balázs Nemes M.D., Ph.D.
Head of Division of Thoratics Surgery		István Takács M.D.,Ph.D.
Professor Emeritus		György Balázs M.D., Ph.D., D.Sc.
		Géza Lukács M.D., Ph.D., D.Sc.
		Péter Sápy M.D., Ph.D., D.Sc.
Consultant Surgeon		Sándor Olvasztó M.D.
		Sándor Sz. Kiss M.D.
		Lajos Zsom M.D.
Associate Professor		Zsolt Szentkereszty M.D., Ph.D.
Assistant Professor		Roland Fedor M.D.
		Ferenc Győry M.D.
		László Orosz M.D.
		Miklós Tanyi M.D.,Ph.D.
Assistant Lecturer		Tamás Dinya M.D.
		Attila Enyedi M.D.
		János Pósán M.D.
Clinical Assistant	Ms.	Mónika Andrási M.D.
		Csaba Bánfi M.D.
	Ms.	Fruzsina Bodnár M.D.
	Ms.	Adrienn Csiszkó M.D.
		János Deák M.D.
		Balázs Fülöp M.D.
		Zsolt Kanyári M.D.
		Gergely Kóder M.D.
		Csaba Kósa M.D.
		Dávid Kovács M.D.
		Sándor Mátyás Lencés M.D.
	Ms.	Krisztina Litauszky M.D.
		Gábor Martis M.D.
		Csaba Ötvös M.D.
		Zsolt Susán M.D.
		Károly Szabó M.D.
		Csongor Váradi M.D.
Resident		Zsolt Bachmann M.D.

	Ms.	Klaudia Balog M.D.
	Ms.	Dorina Bodnár M.D.
		Péter Boros M.D.
	Ms.	Júlia Mészáros M.D.
		Péter Ferenc Nagy M.D.
		Gergely Zádori M.D.
Academic Advisor		Tamás Dinya M.D.

Division of Operative Techniques and Surgical Research

Móricz Zs. krt. 22., Debrecen, 4032
Telephone: +36-52-416-915 Fax: +36-52-416-915
Web: www.surg.res.dote.hu

Head of Division, Associate Professor		Norbert Németh M.D., MBA, Ph.D.
Full Professor	Ms.	Irén Mikó M.D., Ph.D., C.Sc.
Professor Emeritus		István Furka M.D.,Ph.D.,D.Sc.
Assistant Professor	Ms.	Katalin Pető M.D.,Ph.D.
Assistant Lecturer		Ádám Deák D.V.M., Ph.D.
		Ferenc Kiss M.D., Ph.D.
Postgraduate Lecturer		Tamás Lesznyák M.D., D.Pharm.
	Ms.	Enikő Tóth M.D.
Head of Assistants (Operating Theatre)	Ms.	Erzsébet Ványolos M.Sc.
Central Veterinary		Ádám Deák D.V.M., Ph.D.
External Tutor	Ms.	Andrea Furka M.D., Ph.D.
	Ms.	Erzsébet Ildikó Takács M.D., Ph.D.
	Ms.	Adrienn Tóth-Martinez M.D.
Academic Advisor of Faculty of Medicine	Ms.	Katalin Pető M.D.,Ph.D.
Academic Advisor of Faculty of Dentistry	Ms.	Katalin Pető M.D.,Ph.D.
Academic Advisor of Elective Courses		István Furka M.D.,Ph.D.,D.Sc.
	Ms.	Irén Mikó M.D., Ph.D., C.Sc.
Academic Advisor of Faculty of Pharmacy	Ms.	Katalin Pető M.D.,Ph.D.

DEPARTMENT OF TRAUMATOLOGY AND HAND SURGERY

Bartók Béla út 2-26., Debrecen, 4031
Telephone: +36-52-419-499, +36-52-511-780 Fax: +36-52-419-499
E-mail: dbtrauma@med.unideb.hu, Web: traumatologia.deoec.hu

Associate Professor, Head of Department	Béla Turchányi M.D., Ph.D.
Full Professor	Károly Fekete M.D., Ph.D. (med.habil)
Professor Emeritus	Zoltán Záborszky M.D., Ph.D.
Hon. Associate Professor	Géza Ács M.D.

Head Surgeon		István Frendl M.D.
		Sándor Kiss M.D.
		Ferenc Urbán M.D.
Chief Surgeons of the Kenézy Hospital		János Bagyó M.D.
		József Balázs M.D.
		Béla Barta M.D.
		Zoltán Dézsi M.D.
		Péter Horkay M.D.
		Árpád Kiss M.D.
		Bojko Lazarov Szeferinkin M.D.
		László Molnár M.D.
		Levente Molnár M.D.
		András Nagy M.D.
		Árpád Németh M.D.
		Dániel Rezes M.D.
		Zsigmond Varga M.D.
Surgeons of the Kenézy Hospital		Árpád Barkaszi M.D.
		Miklós Bíró M.D.
		Aurél Bogdán M.D.
	Ms.	Danie Czakó M.D.
		Subuh Deeb Mahmoud M.D.
		Szabolcs Gorzsás M.D.
		Sándor Imre Kiss M.D.
		László Kiss M.D.
		Ádám Lőrincz M.D.
	Ms.	Katalin Muraközy M.D.
		Zoltán Németi M.D.
		Zoltán Domokos Pap M.D.
		József Papp M.D.
Resident		Péter Berényi M.D.
		Károly Elek M.D.
		Márton Árpád Fésüs M.D.
		László Gubik M.D.
		Ádám Kristóf Gulyás M.D.
		Gergely Huszanyik M.D.
		Dávid Kovács M.D.
		Csaba Körei M.D.
		Zoltán Mikó M.D.
		Márton József Séber M.D.
Consultant		István Szarukán M.D.
Academic Advisor		Ferenc Urbán M.D.

DEPARTMENT OF UROLOGY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-256 Fax: +36-52-255-256
E-mail: benyomatyas@med.unideb.hu, Web: www.urology.med.unideb.hu

Associate Professor, Head of Department	Tibor Flaskó M.D., Ph.D.
Professor Emeritus	Csaba Tóth M.D.,Ph.D.,D.Sc.
Associate Professor	Attila Varga M.D., Ph.D.
Assistant Professor	Mátyás Benyó M.D., Ph.D.
	Csaba Berczi M.D., Ph.D.
	Antal Farkas M.D., Ph.D.
Chief Physician	László Lőrincz M.D.
Assistant Lecturer	Gyula Drabik M.D.
Clinical Specialist	Mihály Murányi M.D.
	Krisztián Szegedi M.D.
	Sándor Árpád Tóth M.D.
Clinical Assistant	József Zoltán Kiss M.D.
Responsible for Educational Matters	Mátyás Benyó M.D., Ph.D.

CHAPTER 7
OTHER DEPARTMENTS

DEPARTMENT OF BIOMATERIALS AND PROSTHETIC DENTISTRY

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-430 Fax: +36-52-255-430

Full Professor, Head of Department		Csaba Hegedűs M.D., L.D.S., Ph.D.
Assistant Professor		Tamás Bistey D.M.D., Ph.D.
	Ms.	Tünde Radics D.M.D., Ph.D.
Assistant Lecturer		József Bakó M.Sc.
	Ms.	Rita Mohácsi D.M.D.
	Ms.	Anita Pétercsák D.M.D.
	Ms.	Melinda Szalóki M.Sc., Ph.D.
Clinical Specialist	Ms.	Katalin Bukovinszki D.M.D.
		István Lampé D.M.D.
Dentist	Ms.	Bettina Balogh D.M.D.
	Ms.	Sára Balogh D.M.D.
	Ms.	Edit Hrubi D.M.D.
		László Póti D.M.D.
	Ms.	Katalin Szegény D.M.D.
Resident	Ms.	Andrea Aranyász D.M.D.
Chemist	Ms.	Tünde Rente M.Sc.
Molecular Biologist		Farkas Kerényi M.Sc.
	Ms.	Ágnes Szabó M.Sc.
Scientific Advisor		István Tombácz M.Sc., Ph.D.
Academic Advisor		István Lampé D.M.D.

DEPARTMENT OF BEHAVIOURAL SCIENCES, FACULTY OF PUBLIC HEALTH

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-255-594 Fax: +36-52-255-723
Web: http://mti.dote.hu

Associate Professor, Head of Department	Ms.	Karolina Kósa M.D., M.Sc., Ph.D.
Associate Professor, Head of Division of Clinical And Health Psychology	Ms.	Ildikó Kuritár Szabó M.A., Ph.D.
Associate Professor, Head of Division of Humanities For Health Care		Attila Bánfalvi M.A., Ph.D., C.Sc.
Professor Emeritus		Péter Molnár M.D., D.Sc.
Associate Professor		Antal Bugán M.A., Ph.D.
	Ms.	Beáta Erika Nagy M.A., Ph.D.

Assistant Professor	Ms.	Mónika Andrejkovics M.A., Ph.D.
		Péter Kakuk M.A., Ph.D.
		Roland Tisljár M.A., Ph.D.
Assistant Lecturer		János Kristóf Bodnár M.A., Ph.D.
		Sándor Kőmüves M.A., Ph.D.
	Ms.	Judit Molnár M.A., Ph.D.
	Ms.	Eszter Tisljár - Szabó M.A., Ph.D.
Librarian		Gergo Somogyi B.Sc.
Psychologist	Ms.	Beáta Kovács-Tóth M.A.
Invited Lecturer		Bence Döbrőssy M.A.
Other Graduated Staff Member	Ms.	Zsuzsa Kovács Török M.A., Ph.D.
Intern	Ms.	Bernadett Bodor M.Sc.
	Ms.	Katalin Mária Dallos M.Sc.
	Ms.	Márta Erdei M.Sc.
	Ms.	Bernadett Hidegh M.Sc.
	Ms.	Éva Knapek M.Sc.
	Ms.	Katalin Merza M.A.
	Ms.	Erika Nagy M.Sc.
	Ms.	Eszter Anna Rácz M.Sc.
PhD Student		Dániel Balajthy M.Sc.
	Ms.	Amanda Illés M.Sc.
		Szabolcs Kató M.Sc.
	Ms.	Orsolya Micskei M.Sc.
	Ms.	Brigitta Munkácsi M.Sc.
	Ms.	Anikó Nagy
		Gellért Raffai M.Sc.
Academic Advisor	Ms.	Mónika Andrejkovics M.A., Ph.D. (4th year, Behavioural Medicine, Behavioural Science Final Exam)
		Attila Bánfalvi M.A., Ph.D., C.Sc. (3rd year, Medical Anthropology, Medical Sociology)
		Péter Kakuk M.A., Ph.D. (4th year, Bioethics)
	Ms.	Judit Molnár M.A., Ph.D. (3rd year, Medical Psychology, 5th year, Pharmaceutal Psyhology)
		Roland Tisljár M.A., Ph.D. (1st year, Basics of Behavioural Sciences, Communication)

DEPARTMENT OF FAMILY AND OCCUPATIONAL MEDICINE, FACULTY OF PUBLIC HEALTH

Móricz Zs. Krt. 22. Debrecen, 4032
Telephone: +36-52-25-52-52 Fax: +36-52-25-52-53
E-mail: csotanszek@sph.unideb.hu, Web: www.fam.med.unideb.hu www.nk.unideb.com

Full Professor, Head of Department		Imre Rurik M.D., M.Sc., Ph.D.
Professor Emeritus		István Ilyés M.D., M.Sc., Ph.D.
Senior Lecturer		Zoltán Jancsó M.D., Ph.D. (part time)
Assistant Lecturer		László Róbert Kolozsvári M.D., Ph.D. (part time)
	Ms.	Anna Nánási M.D.
	Ms.	Judit Szidor M.D.
	Ms.	Hajnalka Tamás M.D.
	Ms.	Tímea Ungvári M.Sc.
Clinical Specialist	Ms.	Emőke Lengyel M.D.
	Ms.	Izabella Szilágyi M.D.
	Ms.	Erzsébet Tóth M.D. (part time)
Assistant Lecturer, Academic Advisor	Ms.	Tímea Ungvári M.Sc.
Other Graduated Staff Member		István Erdei M.D.
		János Hintalan M.D.
	Ms.	Eszter Kovács M.D.
	Ms.	Hajnalka Márton M.D.
		Sándor Palla M.D.
		Csaba Sárkány M.D.
		Attila Simay M.D., Ph.D. (Hon. Associate Professor)
		Péter Szerze M.D.
	Ms.	Margit Szövetes M.D.
PhD Student	Ms.	Ágnes Burai M.D.
	Ms.	Gabriella Iski M.D.
	Ms.	Katalin Tóth Csabáné Vraukó M.Sc.
Educational Advisor	Ms.	Tímea Ungvári M.Sc.

DEPARTMENT OF PREVENTIVE MEDICINE, FACULTY OF PUBLIC HEALTH

Kassai út 26/b, Debrecen, 4028
Telephone: +36-52-417-267 Fax: +36-52-417-267

Full Professor, Head of Department	Ms.	Róza Ádány M.D., Ph.D., D.Sc.
Associate Professor, Head of Division		István Kárpáti M.D., Ph.D.

Full professor, Head of Biomarker Analysis Division	Ms.	Margit Balázs M.Sc., Ph.D., D.Sc.
Associate Professor, Head of Biostatistics and Epidemiology Division		János Sándor M.D., Ph.D.
Associate Professor, Head of Health Promotion Division	Ms.	Karolina Kósa M.D., M.Sc., Ph.D.
Associate Professor, Head of Dep. of Hygiene and Infection Control	Ms.	Piroska Orosi M.D., Ph.D.
Professor Emeritus		Pál Kertai M.D., Ph.D., D.Sc.
Associate Professor		Balázs Ádám M.D., M.Sc., Ph.D.
	Ms.	Helga Bárdos M.D., M.Sc., Ph.D.
		Sándor Gődény M.D., Ph.D.
		Sándor Szűcs C.Sc.
Assistant Professor		Ervin Árnyas M.Sc., Ph.D.
	Ms.	Szilvia Fiatal M.D., Ph.D.
	Ms.	Orsolya Varga M.D., Ph.D.
Assistant Lecturer	Ms.	Éva Bíró M.D.
		Tibor Jenei
		Tamás Köbling M.D.
		Attila Csaba Nagy M.D.
		Károly Nagy M.D.
		László Pál M.D.
		Gábor Rácz M.D.
Resident	Ms.	Dóra Dezső M.D.
	Ms.	Judit Diószegi M.D.
		Gergely Fürjes M.D.
Invited Lecturer		György Juhász M.D.
		József Legoza M.D.
Hungarian Academy of Sciences University of Debrecen Public Health Research Group Fellow	Ms.	Szilvia Ecsedi M.Sc.
	Ms.	Nóra Kovács M.Sc.
	Ms.	Ágota Moravcsik-Kornyicki M.Sc.
		Károly Nagy M.D.
		Péter Pikó M.Sc.
	Ms.	Valéria Sipos M.Sc.
		István Szász M.Sc.
	Ms.	Valéria Tomori M.Sc.
Research Assistant		Gábor Rácz M.D.
PhD Student	Ms.	Orsolya Csenteri M.Sc.
		Viktor Dombrádi jr M.Sc.
		Esafiogho Peter Eseroghene M.Sc.
	Ms.	Anett Földvári M.Sc.
	Ms.	Viktória Koroknai M.Sc.
		Ekundayo Babajide Otuyelu M.Sc.

	Ms.	Karolina Rigó M.Sc.
		Ferenc Vincze M.Sc.
Academic Advisor		Sándor Szűcs C.Sc.

DEPARTMENT OF HEALTH MANAGEMENT AND QUALITY ASSURANCE, FACULTY OF PUBLIC HEALTH

Nagyerdei krt. 98., Debrecen, 4032
Telephone: 06-52-255-052
E-mail: lepp.anett@med.unideb.hu, Web: www.emmt.unideb.hu

Associate Professor, Head of Department	Ms.	Klára Bíró D.M.D., Ph.D.
Associate Professor	Ms.	Judit Zsuga M.D., Ph.D.
Assistant Lecturer		Gábor Bányai-Márton J.D.
		Zsolt Nádházy J.D.
Assistant	Ms.	Anett Lepp
Strategic Advisor	Ms.	Judit Balogh M.Sc.
		Csaba Papp M.D., M.Sc.
PhD Student	Ms.	Klára Boruzs MBA

DEPARTMENT OF FOREIGN LANGUAGES

Nagyerdei krt. 98., Debrecen, 4032
Telephone: +36-52-258-030 Fax: +36-52-255-266
E-mail: ilekt@med.unideb.hu, Web: ilekt.med.unideb.hu

Head of Department	Ms.	Judit Lampéné Zsíros M.A., Ph.D.
Teacher	Ms.	Anna Balóné Jóna M.A.
	Ms.	Mariann Fodor M.D., Ph.D.
	Ms.	Ildikó Gerő M.A.
	Ms.	Jusztina J. Nagy M.A.
	Ms.	Judit Kovács M.A.
	Ms.	Éva Kövesi M.A.
	Ms.	Mónika Krasznai M.A.
	Ms.	Zsuzsa Lívia Mezei M.A.
		László Répás M.A.
	Ms.	Katalin Rozman M.A.
	Ms.	Emőke Takácsné Tóth M.A.
Academic Advisor		László Répás M.A.

KENÉZY LIFE SCIENCES LIBRARY, UNIVERSITY OF DEBRECEN

Egyetem tér 1. Debrecen, 4032
Telephone: +36-52-518-610 Fax: +36-52-518-605
E-mail: kenezy@lib.unideb.hu, Web: http://kenezy.lib.unideb.hu

Director-general	Ms.	Gyöngyi Karácsony M.Sc.
Collection Development	Ms.	Éva Fórián M.Sc.
	Ms.	Georgina Molnár M.Sc.
Head of Circulation	Ms.	Katalin Kéri Tornyi B.Sc.
Head of Reference	Ms.	Margit Polónyi M.Sc.
Circulation		Miklós Grégász M.Sc.
	Ms.	Tímea Hamza-Vecsei M.Sc.
	Ms.	Erika Kiss B.Sc.
		Tibor Varga M.Sc.
	Ms.	Krisztina Zakor M.Sc.
Reference	Ms.	Erika Fejes M.A.
	Ms.	Marianna Papp Czappán M.Sc.
Copy Shop	Ms.	Ibolya Égerházi Németi
Interlibrary Loan	Ms.	Krisztina Papp Jakucs M.Sc.
Journals	Ms.	Éva Adrienn Varga M.Sc.
Reference Librarian, Publications		Balázs Bor B.Sc.
	Ms.	Judit Fazekas-Paragh M.Sc.
	Ms.	Edit Görögh M.Sc., Ph.D.
Reference Librarian, Web	Ms.	Melinda Korpás Szűcs M.Sc.
	Ms.	Boglárka Legeza B.Sc.
Stack Attendant		Ferenc Bacskai
		Csaba Horváth
		Máté Orosz

SPORT CENTER OF UNIVERSITY DEBRECEN

Móricz Zs. krt. 22., Debrecen, 4032
Telephone: +36-52-411-600/54436 Fax: +36-52-411-600/54436
E-mail: sport@med.unideb.hu

Head of Department	Ms.	Katalin Nagyné Varga M.Sc.
Lecturer		Miklós Magyarits M.A.
		Ágoston Nagy Ph.D.

CHAPTER 8
UNIVERSITY CALENDAR

UNIVERSITY CALENDAR FOR MEDICINE PROGRAM 2015/2016 ACADEMIC YEAR
(for the other programs please visit our website's downloads menu)

CRASH COURSE OF HUNGARIAN LANGUAGE: August 24 - September 4, 2015
OPENING CEREMONY: September 6, 2015
GRADUATION CEREMONY: September 19, 2015; December 2015; June 2016

1st SEMESTER

Year	Course	Examination Period
Basic Medicine Course	September 7 - December 18, 2015 (15 weeks)	December 21, 2015 - February 5, 2016 (7 weeks)
1st year Medicine 2nd year Medicine 3rd year Medicine	September 7 - December 18, 2015 (15 weeks)	December 21, 2015 - February 5, 2016 (7 weeks)
4th year Medicine 5th year Medicine	September 7 - December 11, 2015 (10 weeks + 4 weeks block practice)	December 14, 2015 - February 5, 2016 (7+1 weeks)

2nd SEMESTER

Year	Course	Examination Period
BMC	February 8 - May 20, 2016 (15 weeks)	May 23 - June 17, 2016 (4 weeks)
BMC II	January 11 - June 24, 2016 (24 weeks)	June 27 - July 15, 2016 (3 weeks)
1st year Medicine 2nd year Medicine 3rd year Medicine	February 8 - May 20, 2016 (15 weeks)	May 23 - July 8, 2016 (7 weeks)
4th year Medicine 5th year Medicine	February 8 - May 13, 2016 (10 weeks+4 weeks block practice)	4th year: May 16 - July 8, 2016 (7+1 weeks) 5th year: May 16 - July 15, 2016 (8+1 weeks)

SUMMER HOSPITAL PRACTICE

YEAR	DATE IN 2016
1st year Medicine and 2nd year Medicine	July 11 - August 5, 2016 or August 8 - September 2, 2016 (4 weeks)
3rd year Medicine	July 11 - July 29, 2016 or August 1 - August 19, 2016 (3 weeks)
4th year Medicine (freely chosen)	July 11 - September 2, 2016 (3 weeks between these dates)

CHAPTER 9
ACADEMIC PROGRAM FOR THE BASIC MEDICINE COURSE

ACADEMIC PROGRAM FOR THE BASIC MEDICINE COURSE

Basic Medicine Course (BMC, Premedical Studies)

Duration of studies: 1 year (2 semesters)

The one-year premedical Basic Medicine Course is recommended to those students who do not have sufficient knowledge in Biology, Physics and Chemistry from high school. The requirements in these premedical science subjects are rigorous, thus it is recommended that students who need a period of preparation prior to beginning the General Medicine, Dentistry or Pharmacy Program join the Basic Medicine Course. Students successfully completing the course are directly admitted to their chosen program. In addition to the Basic Medicine Course starting each September, our University launches an Intensive BMC in January as well.

Class Behavior

Students must not use cell phones to talk or text during class. Cell phones must be switched off or kept in silence mode during class. In seminars, students will be expected to participate in seminar discussions. Students are encouraged to ask questions related to the topic of the lectures discussed, and participate in solving problems related to the topic of the seminar. Some professors will ask for students to volunteer information, but some professors call on students randomly. It is, thus, a good idea to come to class prepared so as not to be embarrassed in front of the class. Students should not disrupt the class by talking to each other. If one continues to disrupt the class, the student may be asked to leave. The usage of electronic devices, textbooks and any form of interaction between students during the tests is strictly forbidden. Electronic devices (cell phones, tablets, dictionaries, etc.), except for approved simple calculators, must not be within the reach (in pocket, in the desk, etc.) of students during tests. It is the students' responsibility to stow these items before the test begins without specific warning by the supervising teachers. Violation of these above mentioned regulations results in an immediate and unconditional dismissal from the program.

Requirements

The 2-semester course consists of lectures and seminars. Attending lectures is strongly recommended, attendance of seminars is compulsory and recorded. Everyone must attend the seminars with the group designated by the Registrar's Office.

Absence can significantly affect your understanding and can have serious implications of progression in your studies. One might have a maximum of three seminar absences per semester to have the opportunity to get exemption. Students missing 4 seminars per semester cannot be exempted from the End of Semester Examination (ESE) or Final Examination (FE), regardless of their score reached on the Self Control Tests. Students missing 5 or more seminars per semester are dismissed from the course. Missed seminars cannot be made up, unless one obtains prior permission to be absent.

The knowledge of students will be tested 4 times during each semester using a written test system by **Self Control Tests (SCT).** The first semester is ended with an **End of Semester Examination** (ESE) covering the topics of all lectures and seminars of the first semester. Three dates will be set for the ESE during the winter examination period. Unsuccessful students may repeat the ESE twice (B and C chances). Non-repeater students who fail even the 3rd ESE (C chance) may continue their study in the second semester however they lose their chance to be exempted from the final examination and to receive bonus points. Exam exemption and bonus point policy is used to improve the students' performance on SCTs. Exact details of these policies will be described below. To be eligible for bonus points, students must either get exemption from the ESE or pass it with a score of at least 60%. Students repeating the course must successfully pass the first semester either with exemption or at least with a score of 60% of ESE, otherwise their studies will be terminated. It is not compulsory to take the ESE, if one gets exemption under the following circumstances:

- one's average score of the three best first semester SCTs is at least 75%, AND

- (s)he successfully completed all the SCTs at least with 40% score, AND

- (s)he has a maximum of 3 seminar absences for each subject in the first semester.

The course ends with a **Final Exam (FE)** covering the whole material of the first and second semesters. A minimum of four FE dates will be set during the summer examination period. Unsuccessful students may repeat the FE twice (B and C chances, and the latter ends up with an oral examination part). Exemption from FE is offered for students who achieve excellent academic performance during their studies on the following base:

- the average score of the six best SCTs (out of 8) of the two semesters is at least 75%, AND

- passed all the SCTs with at least 40%, AND

- (s)he has a maximum of 3 seminar absences for each subject per semester.

OR

- the average of the ESE score taken 3 times plus the scores of the 3 best SCTs in the 2nd semester is at least 75%, AND

- passed all the SCTs with at least 40%, AND

- (s)he has a maximum of 3 seminar absences for a given subject per semester.

Bonus points will be added to the FE score (in %) of eligible students and calculated as follows:

The average of the ESE score three times and the best 3 2nd semester SCTs **OR** the average of the best 6 SCTs	Bonus points (%)
51-52	1
53-55	2
56-58	3
59-61	4
62-64	5
65-67	6
68-70	7
71-73	8
74	9

Students who could not meet the above described conditions for exemption during the two semesters must sit for the FE from the whole material of the first and second semesters. The participation shall be preceded by ID confirmation (i.e. student's card, passport or driving license) before all forms of tests.

Self Control Tests, End of Semester Exams, and Final Exams will be assessed as follows.

Percentage (%)	Mark
0 - 59.99:	fail (1)
60.00 - 69.99:	pass (2)
70.00 - 79.99:	satisfactory (3)
80.00 - 89.99:	good (4)
90.00 - 100:	excellent (5)

Absence for any reason counts as 0%.

Course coordinator: Dr. Beáta Lontay, Department of Medical Chemistry

Subject: **INTRODUCTION TO BIOLOGY I.**

Year, Semester: Basic Medicine Course, 1st

Number of teaching hours:

Lecture: **60**

Seminar: **30**

1st week:

Lecture: The chemistry of life 1.

The chemistry of life 2.

Proteins, carbohydrates and lipids 1.

Proteins, carbohydrates and lipids 2.

2nd week:

Lecture: Proteins, carbohydrates and lipids 3.

Proteins, carbohydrates and lipids 4.

Nucleic acids and and the origin of life 1.

Nucleic acids and and the origin of life 2.

3rd week:

Lecture: Nucleic acids and and the origin of life 3.

Cells: the working units of life 1.

Cells: the working units of life 2.

Cells: the working units of life 3.

4th week:

Lecture: Cells: the working units of life 4.

Energy, enzymes and metabolism 1.

Energy, enzymes and metabolism 2.

Cell membranes 1.

5th week:

Lecture: Cell membranes 2.

Cell membranes 3.

Cell membranes 4.

Pathways that harvest chemical energy 1.

Self Control Test

6th week:

Lecture: Pathways that harvest chemical energy 2.

Pathways that harvest chemical energy 3.

Pathways that harvest chemical energy 4.

Pathways that harvest chemical energy 5.

7th week:

Lecture: Pathways that harvest chemical energy 6.

Cell cycle and cell division 1.

Cell cycle and cell division 2.

Cell cycle and cell division 3.

8th week:

Lecture: Cell cycle and cell division 4.

Cell cycle and cell division 5.

Inheritance, genes and chromosomes 1.

Inheritance, genes and chromosomes 2.

Self Control Test

9th week:

Lecture: Inheritance, genes and chromosomes 3.

Inheritance, genes and chromosomes 4.

Inheritance, genes and chromosomes 5.

Inheritance, genes and chromosomes 6.

10th week:

Lecture: DNA and it's role in heredity 1.

DNA and it's role in heredity 2.

DNA and it's role in heredity 3.

From DNA to protein: gene expression 1.

11th week:

Lecture: From DNA to protein: Gene expression 2.

From DNA to protein: gene expression 3.

From DNA to protein: gene expression 4.

Gene mutation and molecular medicine 1.

12th week:

Lecture: Gene mutation and molecular medicine2.

Gene mutation and molecular medicine 3.

Gene mutation and molecular medicine 4.

Gene mutation and molecular medicine 5.

Self Control Test

13th week:

Lecture: Regulation of gene expression 1.

Regulation of gene expression 2.

Regulation of gene expression 3.

The human genome, proteome

14th week:

Lecture: The mechanism of evolution 1.

The mechanism of evolution 2.

Cellular signaling and communication 1.

Cellular signaling and communication 2.

15th week:

Lecture: Fungi: recyclers, pathogens, parasites 1.

Fungi: recyclers, pathogens, parasites 2

Differential gene expression in development 1.

Differential gene expression in development 2.

Self Control Test

Contact person: Dr. András Penyige; Department of Human genetics

Subject: **INTRODUCTION TO BIOLOGY II.**

Year, Semester: Basic Medicine Course, 2nd

Number of teaching hours:

Lecture: **45**

Seminar: **30**

1st week:

Lecture: Tissues, Organs and Organ Systems 1.

Tissues, Organs and Organ Systems 2.

Tissues, Organs and Organ Systems 3.

2nd week:

Lecture: Physiology, Homeostasis and Temperature Regulation.

Blood, a fluid tissue 1.

Blood, a fluid tissue 2.

3rd week:

Lecture: Circulatory systems 1.

Circulatory systems 2.

The human circulatory system 1.

4th week:

Lecture: The human circulatory system 2.

The lymphatic system.

Self Control Test

5th week:

Lecture: Natural Defenses against Disease 1.

Natural Defenses against Disease 2.

Natural Defenses against Disease 3.

6th week:

Lecture: Nutrition, Digestion and Absorption 1.

Nutrition, Digestion and Absorption 2.

Nutrition, Digestion and Absorption 3.

7th week:

Lecture: Nutrition, Digestion and Absorption 4.

Gas exchange in Animals.

Human respiration.

8th week:

Lecture: Salt and Water Balance and Nitrogen Excretion 1.

Salt and Water Balance and Nitrogen Excretion 2.

Self Control Test

9th week:

Lecture: Hormones 1.

Hormones 2.

Hormones 3.

10th week:

Lecture: Hormones 4.

Hormones 5.

Neurons and Nervous system 1.

11th week:

Lecture: Neurons and Nervous system 2.

Neurons and Nervous system 3.

Neurons and Nervous system 4.

12th week:

Lecture: Neurons and Nervous system 5.

Sensory systems 1.

Sensory systems 2.

13th week:

Lecture: Self Control Test

Effectors: making Animals move 1.

Effectors: making Animals move 2.

14th week:

Lecture: Effectors: making Animals move 3.

Animal reproduction and Animal Development 1.

Animal reproduction and Animal Development 2.

15th week:

Lecture: Animal reproduction and Animal Development 3.

The human Reproduction System and Sexual Behavior.

Self Control Test

Contact person: Dr. Norbert Szentandrássy, Department of Physiology

Recommended book: Sadava, Hills, Heller, Berenbaum: Life (10th edition)

Subject: **INTRODUCTION TO BIOPHYSICS I.**

Year, Semester: Basic Medicine Course 1st

Number of teaching hours:

Lecture: **60**

Seminar: **30**

1st week:

Lecture: 1. Introduction to modern physics. Standards of length, mass, time.2. Conversion of units. Useful mathematics. Trigonometry.

2nd week:

Lecture: 3. Motion in one dimension, displacement, velocity, acceleration, motion diagrams.4. Freely falling objects.

3rd week:

Lecture: 5. Vectors and their properties. Components of vectors. Displacement, velocity and acceleration in two dimensions.6. Motion in two dimensions. Relative velocity.

4th week:

Lecture: 7. The laws of motion. Newton's First, Second and Third Law.8. Applications of Newton's Laws. Forces of friction.

Self Control Test (First SCT (Chapters 1-3))

5th week:

Lecture: 9. Energy. Work. Kinetic energy and the work-energy theorem. Gravitational potential energy.10. Spring potential energy. System and energy conservation. Power. Work done by varying forces.

6th week:

Lecture: 11. Momentum and impulse. Conservation of momentum.12. Collisions. Elastic and inelastic collisions.

7th week:

Lecture: 13. Angular speed and angular acceleration. Rotational motion under constant angular acceleration.14. Centripetal acceleration. Newtonian gravitation. Kepler's laws.

8th week:

Lecture: 15. Torque and the two conditions for equilibrium. The center of gravity.16. Rotational kinetic energy. Angular momentum.

Self Control Test (2nd SCT, Chapters 5-7)

9th week:

Lecture: 17. States of matter. Deformation of solids. The Youngs's, shear and bulk modulus.18. Density and pressure.

Variation of pressure with depth. Pressure measurements. Buoyant forces and Archimedes's principle. Fluids in motion.

10th week:

Lecture: 19. Temperature and the zeroth law of thermodynamics. Thermometers and temperature scales. Thermal expansion of solids and fluids.20. Macroscopic description of an ideal gas. The kinetic theory of gases.

11th week:

Lecture: 21. Energy in thermal processes. Heat and internal energy.22. Specific heat. Calorimetry. Latent heat and phase change.

Self Control Test (3rd SCT, Chapters 7-9)

12th week:

Lecture: 23. The first law of thermodynamics.24. The second law of thermodynamics. Entropy. Refrigerators and heat pumps.

13th week:

Lecture: 25. Elastic potential energy. Hook's law. Simple harmonic motion. Motion of a pendulum.26. Waves. Frequency, amplitude and wavelength. Interference of waves. Reflection of waves.

14th week:

Lecture: 27. Sound. Energy and intensity of sound waves. Shock waves, standing waves.28. Doppler effect. The ear and the principles of hearing.

Self Control Test (4th SCT, Chapters 10-13)

15th week:

Lecture: 29. Interactive seminar and preparation for ESE.30. Interactive seminar and preparation for ESE.

Subject: **INTRODUCTION TO BIOPHYSICS II.**

Year, Semester: Basic Medicine Course 2nd

Number of teaching hours:

Lecture: **60**

Seminar: **30**

1st week:

Lecture: 1. Properties of electric charges. Insulators and conductors. Coulomb's law.2. Electric field. Electric field lines. Electric flux and Gauss's law.

2nd week:

Lecture: 3. Electrical energy and capacitance.4. The parallel plate capacitor. Combinations of capacitors. Energy stored in capacitors. Capacitors with dielectric.

3rd week:

Lecture: 5. Electric current. Current and voltage measurements in circuits. Resistance and Ohm's law.6. Resistivity, temperature variation of resistance. Semiconductors and superconductors. Electrical activity of the heart. Defibrillators.

4th week:

Lecture: 7. Direct current circuits. Resistors in parallel and series.8. Kirchhoff's rules and complex DC circuits. RC circuits. Conduction of electrical signals by neurons.

Self Control Test (1st SCT, Chapters 15-17)

5th week:

Lecture: 9. Magnetism. Magnetic field. Earth's magnetic field. Magnetic force on current carrying conductors. Toque on current loop and electric motors.10. Magnetic field of a long straight wire and Ampere's law. Magnetic field between two parallel conductors. Magnetic field of loops and solenoids.

6th week:

Lecture: 11. Induced emf and magnetic flux. Faraday's law of induction. Motional emf. Lenz's law.12. Generators. Self-inductance RL circuits.

7th week:

Lecture: 13. Alternating current. Resistors, capacitors and inductors in AC circuits.14. The transformer. Properties of electromagnetic waves. The spectrum of electromagnetic waves.

8th week:

Lecture: 15. The nature of light. Reflection, refraction and dispersion.16. Prisms. The rainbow. Huygen's principle. Total internal reflection and its medical applications.

Self Control Test (2nd SCT, Chapters 18-21)

9th week:

Lecture: 17. Lenses and mirrors. Flat mirrors. Images formed by spherical mirrors. 18. Thin lenses. Images formed by lenses. Lens aberrations.

10th week:

Lecture: 19. Wave optics. Conditions for interference, polarization of light. Diffraction.20. The camera, the simple magnifier, the compound microscope, the telescope and the eye.

11th week:

Lecture: 21. Quantum physics. Blackbody radiation. Photoelectric effect. Particle theory of light.22. The production and attenuation of X-ray. Characteristic X-ray.

Self Control Test (3rd SCT, Chapters 22-25)

12th week:

Lecture: 23. Atomic physics. Early model of the atom. Quantum mechanics and the hydrogen atom. The spin magnetic

quantum numbers.24. Lasers and holography.

13th week:

Lecture: 25. Some properties of the nuclei. Binding energy. Radioactivity, the decay processes. Medical application of radioactivity.26. Nuclear reactions. Nuclear fission and fusion. Positron and other antiparticles. Mesons and quarks.

Self Control Test (4th SCT, Chaptes 26-29)

14th week:

Lecture: Preparation for the final exam.

15th week:

Lecture: Final exam.

Contact person: Dr. Zoltán Varga, Department of Biophysics and Cell Biology

Recommended book: Serway, Vuille: College Physics (9th edition)

Subject: **INTRODUCTION TO MEDICAL CHEMISTRY I.**

Year, Semester: Basic Medicine Course 1st

Number of teaching hours:

Lecture: **60**

Seminar: **30**

1st week:

Lecture: Introduction to general chemistry. Elements. Symbols for the elements. The SI system of measurement. Atoms. The structure of atoms. Nuclear arithmetic. Molecules and ions, compounds and mixtures.

2nd week:

Lecture: Chemical formulas. Naming chemical compounds. Chemical equations. Avogadro's number and the mole. Atomic, molecular and molar mass relationships. Stoichiometry: chemical arithmetic. Yields of chemical reactions. Empirical and molecular formulas.

3rd week:

Lecture: Light and the electromagnetic spectrum. Atomic spectra. The Bohr model of the hydrogen atom. The quantum mechanical model of the atom. Orbitals and quantum numbers. Quantum mechanics and atomic spectra.

4th week:

Lecture: Electron configurations and the periodic table. Classification of the elements. Representative and transition elements. The sizes of atoms and ions. Ionization energy, electron affinity, electronegativity.

5th week:

Lecture: FIRST SELF CONTROL TEST. Chemical bonds: metallic, ionic and covalent bonds. Electron-dot structures for molecular compounds and polyatomic ions.

6th week:

Lecture: Single and multiple covalent bonds. Valence bond theory. Molecular shapes: the VSEPR model. Hybridization. Intermolecular forces.

7th week:

Lecture: The gaseous state. Gases and gas pressure. The gas laws. The ideal gas law. Stoichiometric relationships with gases. Kinetic-molecular theory of gases. Liquid and solid states. Phase changes. Evaporation, vapor pressure, boiling point. The chemistry of water.

8th week:

Lecture: Electrolytes and nonelectrolytes. Solutions and their properties. Concentration of solutions. Units of concentration: molarity, mass percent, molality. Dilution of solutions. Some factors affecting solubility. Discussion of general chemistry 1.

9th week:

Lecture: SECOND SELF CONTROL TEST. Chemical equilibrium. The equilibrium constant. Factors that alter the composition of an equilibrium mixture.

10th week:

Lecture: Acids and bases. The pH in solutions of strong acids and strong bases. Equilibria in solutions of weak acids. Equilibria in solutions of weak bases. Relation between Ka and Kb.

11th week:

Lecture: Thermochemistry. Energy changes and energy conservation. Internal energy and state functions. Expansion work. Energy and enthalpy. The thermodynamic standard state. Hess's law. Chemical calculus.

12th week:

Lecture: THIRD SELF CONTROL TEST. Chemical reactions in perspective. Oxidation and reduction. Oxidation state. The activity series of the elements.

13th week:

Lecture: Balancing redox reactions. Galvanic cells. Discussion of general chemistry 2.

14th week:

Lecture: Introduction to the main group elements. Noble gases. Hydrogen. The s-block and p-block metals. The d-block metals.

15th week:

Lecture: FOURTH SELF CONTROL TEST. Summary and discussion.

Subject: **INTRODUCTION TO MEDICAL CHEMISTRY II.**

Year, Semester: Basic Medicine Course 2nd

Number of teaching hours:

Lecture: **60**

Seminar: **30**

1st week:

Lecture: The halogens. Compounds of the halogens. Oxygen. Substances with oxygen-oxygen bonds.

2nd week:

Lecture: Sulfur, compounds of sulfur. Industrial acids. Oxoacids. Nitrogen, nitrogen compounds, phosphorus, phosphorus compounds.

3rd week:

Lecture: Carbon and its inorganic compounds. Discussion of inorganic chemistry

4th week:

Lecture: FIFTH SELF CONTROL TEST. Covalent bonding in organic compounds. Alkanes.

5th week:

Lecture: Isomerism and reactions of alkanes. Cycloalkanes. Unsaturated hydrocarbons: alkenes and alkynes.

6th week:

Lecture: Aromatic compounds: the structure and properties of benzene and its derivates. Heteroatomic compounds. The reactions of benzene.

7th week:

Lecture: Organic halogen compounds. Alcohols and phenols.

8th week:

Lecture: SIXTH SELF CONTROL TEST. Ethers and organic sulfur compounds.

9th week:

Lecture: Aldehydes, ketones and quinones.

10th week:

Lecture: Nitrogen containing organic compounds: the structure and properties of amines. Basicity and reactions of amines. Heterocyclic amines. Amines of biological importance.

11th week:

Lecture: SEVENTH CONTROL TEST. Carboxylic acids. Saturated monocarboxylic acids. Unsaturated carboxylic acids. Dicarboxylic acids. Properties of carboxylic acids. Reactions of carboxylic acids.

12th week:

Lecture: Properties and reactions of carboxylic acids. Carboxylic acid derivatives: salts and detergents. Acyl halides, anhydrides.

13th week:

Lecture: Carboxylic acid derivatives: esters and amides. Substituted carboxylic acids. Stereochemistry. Optical activity: properties of enantiomers and diastereomers.

14th week:

Lecture: Absolute and relative configurations. Synthesis of enantiomers. Discussion of organic chemistry.

15th week:

Lecture: EIGHTH SELF CONTROL TEST. Summary and discussion.

Contact person: Dr. Ilona Farkas, Department of Medical Chemistry

Recommended books: McMurry, Fay: Chemistry (6th edition)

Erdődi, Csortos: Organic chemistry for premedical students (2010)

Subject: **HUNGARIAN LANGUAGE FOR BMC STUDENTS**
Year, Semester: Basic Medicine Course 2nd
Number of teaching hours:
Practical: **36**

1st week:
Practical: Introduction, The Hungarian alphabet, Vowel harmony; Ki vagy?

2nd week:
Practical: Köszönések. Personal pronouns, Conjugation of the verb "lenni".

3rd week:
Practical: Számok. Magyar pénz. How many? Ordinal numbers.

4th week:
Practical: Hogy vagy? Word formation with "-ul, -ül".

5th week:
Practical: Mit csinálsz? Present tense verbal endings. Adverbs of time.

6th week:
Practical: Hová mész ma este? "Lenni" in past and future. Adverbs of place. (Optional: Past tense) Revision Mid-term test.

Self-Control Test

7th week:
Practical: Mit kérsz? Informal you "ön/maga". Object of the sentence. (Optional: 13. leckéből a Zöldségboltban c. dialógus, zöldségek, gyümölcsök neve)

8th week:
Practical: Kérsz egy kávét? Word formation. Plural marker.

9th week:
Practical: Tud/akar/szeret/szeretne gitározni. Infinitive. (Optional: Milyen idő van ma?)

10th week:
Practical: Postán, vasútállomáson; Tetszik a ruhád;

11th week:
Practical: Az emberi test Milyen szeme van? Revision

12th week:
Practical: Oral minimum requirement exam. End-term test.

Academic advisor: László Répás, Department of Foreign Languages
Recommended books: Marschalkó, Gabriella: Hungarolingua Basic Level 1. (2011)

CHAPTER 10
ACADEMIC PROGRAM FOR THE SHORT BASIC MEDICINE COURSE

ACADEMIC PROGRAM FOR THE INTENSIVE BASIC MEDICINE COURSE

Intensive Basic Medicine Course (Intensive BMC, Premedical Studies)
Duration of studies: 1 semester

The six-month intensive premedical Basic Medicine Course is recommended to those students who do not have thorough knowledge in Biology, Physics and Chemistry from high school. The requirements of these condensed premedical science subjects are very rigorous, thus preparation prior to the beginning the General Medicine, Dentistry or Pharmacy Program is recommended. Students successfully completing the course are directly admitted to their chosen program. The Intensive Basic Medicine Course starts in January.

Class Behavior

Students should not use cell phones to talk or text during class. Cell phones must be switched off or kept in silence mode during class. In seminars, students will be expected to participate in seminar discussions. Students are encouraged to ask questions related to the topic of the lectures discussed, and participate in solving problems related to the topic of the seminar. Some professors will ask for students to volunteer information, but some professors call on students randomly. It is, thus, a good idea to come to class prepared so as not to be embarrassed in front of the class. Students should not disrupt the class by talking to each other. If one continues to disrupt the class, the student may be asked to leave. The usage of electronic devices, textbooks and any form of interaction between students during the tests is strictly forbidden. Electronic devices (cell phones, tablets, dictionaries, etc.), except for approved simple calculators, must not be within the reach (in pocket, in the desk, etc.) of students during tests. It is the students' responsibility to stow these items before the test begins without specific warning by the supervising teachers. Violation of these above mentioned regulations results in an immediate and unconditional dismissal from the program.

Requirements

The course consists of lectures and seminars. Attending lectures is strongly recommended, attendance of seminars is compulsory and recorded. Everyone must attend the seminars with the group designated by the Registrar's Office.

Absence can significantly affect your understanding and can have serious implications for progression in your studies. One might have a maximum of six seminar absences to have the opportunity to get exemption. Students missing 7-8 seminars cannot be exempted from the Final Examination (FE), regardless of their score reached on the Self Control Tests. Students omitting 9 or more seminars are dismissed from the course. Missed seminars cannot be made up unless one obtains prior permission to be absent.

The knowledge of the students will be tested 6 times during the entire course using a written test system by **Self Control Tests (SCT).** The course ends with a **Final Exam (FE)** from the whole material of the course and a minimum of four FE dates will be set during the summer examination period. Unsuccessful students may repeat the FE twice (B and C chances, and the latter ends up with an oral examination part). Exam exemption and bonus point policy are used to improve the students' performance on SCTs. Exact details of these policies will be described below.

Exemption from FE is offered for students who achieve excellent academic performance during their studies under the following circumstances:

- the average score of the five best SCTs (out of 6) is at least 75%, AND
- passed all the SCTs with at least 40%, AND
- (s)he has a maximum of 6 seminar absences for a given subject.

Bonus points will be added to the FE score of eligible students and calculated as follows:

The average of the best 5 SCTs	Bonus points
51-52	1
53-55	2
56-58	3
59-61	4
62-64	5
65-67	6
68-70	7
71-73	8
74	9

Students who could not meet the above described conditions for exemption must sit for the FE from the whole material of the course.
The participation shall be preceded by ID confirmation (i.e. student's card, passport or driving license) before all forms of tests. Self Control Tests, End of Semester Exams, and Final Exams will be assessed as follows.

Percentage (%) Mark
0 - 59.99: fail (1)
60.00 - 69.99: pass (2)
70.00 - 79.99: satisfactory (3)
80.00 - 89.99: good (4)
90.00 - 100: excellent (5)
Absence for any reason counts as 0%.

Course coordinator: Dr. Beáta Lontay, Department of Medical Chemistry

Subject: **INTRODUCTION TO BIOLOGY**
Year, Semester: Intensive Basic Medicine Course
Number of teaching hours:
Lecture: **96**
Seminar: **96**

1st week:
Lecture: The chemistry of life 1.
The chemistry of life 2.
Proteins, carbohydrates and lipids 1.
Proteins, carbohydrates and lipids 2.

2nd week:
Lecture: Proteins, carbohydrates and lipids 3.
Proteins, carbohydrates and lipids 4.

3rd week:
Lecture: Nucleic acids and the origin of life 1.
Nucleic acids and the origin of life 2.
Cells: the working units of life 1.
Cells: the working units of life 2.

4th week:
Lecture: Cells: the working units of life 3.
Cells: the working units of life 4.
Cell membranes 1.
Cell membranes 2.

5th week:
Lecture: Cell membranes 3.
Cell membranes 4.
Energy, enzymes and metabolism 1.
Energy, enzymes and metabolism 2.
Self Control Test

6th week:
Lecture: Pathways that harvest chemical energy 1.
Pathways that harvest chemical energy 2.
Pathways that harvest chemical energy 3.
The cell cycle and cell division 1.

7th week:
Lecture: The cell cycle and cell division 2.
The cell cycle and cell division 3.
Inheritance, genes and chromosomes 1.
Inheritance, genes and chromosomes 2.

8th week:
Lecture: Inheritance, genes and chromosomes 3.
Inheritance, genes and chromosomes 4.
DNA and its role in heredity 1.
DNA and its role in heredity 2.
Self Control Test

9th week:
Lecture: DNA and its role in heredity 3.
DNA and its role in heredity 4.
From DNA to protein: gene expression 1.
From DNA to protein: gene expression 2.

10th week:
Lecture: From DNA to protein: gene expression 3.
From DNA to protein: gene expression 4.
Regulation of gene expression 1.
Regulation of gene expression 2.

11th week:
Lecture: Gene mutation and molecular medicine 1.
Gene mutation and molecular medicine 2.
Gene mutation and molecular medicine 3.
Gene mutation and molecular medicine 4.

12th week:
Lecture: The cellular signaling and communication 1.
The cellular signaling and communication 2.
The mechanism of evolution 1.
The mechanism of evolution 2.

13th week:
Lecture: Fungi: recyclers, pathogens, parasites 1.
Fungi: recyclers, pathogens, parasites 2.
Differential gene expression in development 1.
Differential gene expression in development 2.
Self Control Test

14th week:
Lecture: Tissues, organs and organ systems

15th week:
Lecture: Physiology, Homeostasis and Temperature Regulation
Blood, a fluid tissue.

16th week:
Lecture: Circulatory systems
The human circulatory system.

17th week:
Lecture: The human circulatory system.
Immunology: gene expression and natural defenses.
Self Control Test

18th week:
Lecture: Immunology: gene expression and natural defenses.
Nutrition, Digestion and Absorption.

19th week:
Lecture: Energy balance, vitamins and minerals
Gas exchange in Animals.

20th week:
Lecture: Salt and Water Balance Nitrogen Excretion.
Hormones

21st week:
Lecture: Neurons and Nervous system.
Self Control Test

22nd week:
Lecture: Neurons and Nervous system.
Sensory systems

23rd week:
Lecture: Effectors: How animals get things done.

24th week:
Lecture: Animal reproduction and Animal Development
The human reproduction system.
Self Control Test

Academic advisors: Dr. András Penyige, Department of Human Genetics
Dr. Norbert Szentandrássy, Department of Physiology
Recommended book: Sadava, Hills, Heller, Berenbaum: Life (10th edition)

Subject: **INTRODUCTION TO BIOPHYSICS**
Year, Semester: Intensive Basic Medicine Course
Number of teaching hours:
Lecture: **96**
Seminar: **144**

1st week:
Lecture: 1-2. Introduction to modern physics. Standard of lengths, mass, time. Conversion of units. Useful mathematics. Trigonometry. Motion in one dimension, displacement, velocity, acceleration, motion diagrams.

2nd week:
Lecture: 3-4. Freely falling objects. Vectors and their properties. Components of vectors. Displacement, velocity and acceleration in two dimensions. Motion in two dimensions. Relative velocity.

3rd week:
Lecture: 5-6. The laws of motion. Newton's First, Second and Third Law. Application of Newton's Laws. Forces of friction.
Self Control Test

4th week:
Lecture: 7-8. Energy. Work. Kinetic energy and the work-energy theorem. Gravitational potential energy.
Spring potential energy. System and energy conservation. Power. Work done by varying forces.

5th week:
Lecture: 9-10. Momentum and impulse. Conservation of momentum.
Collisions. Elastic and inelastic collisions.

6th week:
Lecture: 11-12. Angular speed and angular acceleration. Rotational motion under constant angular acceleration.
Centripetal acceleration. Newtonian gravitation. Kepler's laws.

7th week:
Lecture: 13-14. Torque and the two conditions for equilibrium. The center of gravity.
Rotational kinetic energy. Angular momentum.
Self Control Test

8th week:
Lecture: 15-16. States of matter. Deformation of solids. The Youngs's, shear and bulk modulus.
Density and pressure. Variation of pressure with depth. Pressure measurements. Buoyant forces and Archimedes's principle. Fluids in motion.

9th week:
Lecture: 17-18. Temperature and the zeroth law of thermodynamics. Thermometers and temperature scales. Thermal expansion of solids and fluids.
Macroscopic description of an ideal gas. The kinetic theory of gases.

10th week:
Lecture: 19-20. Energy in thermal processes. Heat and internal energy. Specific heat. Calorimetry. Latent heat and phase change.
The first law of thermodynamics.

11th week:
Lecture: 21-22. The second law of thermodynamics. Entropy. Refrigerators and heat pumps.. Elastic potential energy. Hook's law. Simple harmonic motion. Motion of a pendulum.
Self Control Test

12th week:
Lecture: 23-24.Waves. Frequency, amplitude and wavelength. Interference of waves. Reflection of waves. Sound. Energy and intensity of sound waves. Shock waves, standing waves.

13th week:
Lecture: 25. Doppler effect. The ear and the principles of hearing.

14th week:
Lecture: 26-27. Properties of electric charges. Insulators and conductors. Coulomb's law.
Electric field. Electric field lines. Electric flux and Gauss's law.

15th week:
Lecture: 28-29. Electrical energy and capacitance.
The parallel plate capacitor. Combinations of capacitors. Energy stored in capacitors. Capacitors with dielectric.
Self Control Test

16th week:
Lecture: 30-31. Electric current. Current and voltage measurements in circuits. Resistance and Ohm's law.
Resistivity, temperature variation of resistance. Semiconductors and superconductors. Electrical activity of the heart. Defibrillators.

17th week:
Lecture: 32-33.Direct current circuits. Resistors in parallel and series.
Kirchhoff's rules and complex DC circuits. RC circuits. Conduction of electrical signals by neurons.

18th week:
Lecture: 34-35. Magnetism. Magnetic field. Earth's magnetic field. Magnetic force on current carrying conductors. Torque on a current loop and electric motors.
Magnetic field of a long straight wire and Ampere's law. Magnetic field between two parallel conductors. Magnetic field of loops and solenoids.
Self Control Test

19th week:
Lecture: 36-37. Induced emf and magnetic flux. Faraday's law of induction. Motional emf. Lenz's law.
Generators. Self-inductance RL circuits.

20th week:
Lecture: 38-39. Alternating current. Resistors, capacitors and inductors in AC circuits.
The transformer. Properties of electromagnetic waves. The spectrum of electromagnetic waves.

21st week:
Lecture: 40.The nature of light. Reflection, refraction and dispersion.
Prisms. The rainbow. Huygen's principle. Total internal reflection and its medical applications.
Self Control Test

22nd week:
Lecture: 42-43. Lenses and mirrors. Flat mirrors. Images formed by spherical mirrors.
Thin lenses. Images formed by lenses. Lens aberrations.

23rd week:
Lecture: 44-45. Wave optics. Conditions for interference, polarization of light. Diffraction.
The camera, the simple magnifier, the compound microscope, the telescope and the eye.

24th week:
Lecture: 46-47. Some properties of the nuclei. Binding energy. Radioactivity, the decay processes. Medical application of radioactivity.
Nuclear reactions. Nuclear fission and fusion. Positron and other antiparticles. Mesons and quarks.

Academic advisor: Dr. Attila Jenei, Department of Biophysics and Cell Biology
Recommended book: Serway, Vuille: College Physics (9th edition)

Subject: **INTRODUCTION TO MEDICAL CHEMISTRY**
Year, Semester: Intensive Basic Medicine Course
Number of teaching hours:
Lecture: **96**
Seminar: **96**

1st week:
Lecture: 1-2. Introduction to general chemistry. Elements. Symbols for the elements. The SI system of measurement. Atoms. The structure of atoms. Nuclear arithmetic. Molecules and ions, compounds and mixtures.

2nd week:
Lecture: 3-4. Chemical formulas. Naming chemical compounds. Chemical equations. Avogadro's number and the mole. Atomic, molecular and molar mass relationships. Stoichiometry: chemical arithmetic. Yields of chemical reactions. Empirical and molecular formulas.

3rd week:
Lecture: 5-6. Light and the electromagnetic spectrum. Atomic spectra. The Bohr model of the hydrogen atom. The quantum mechanical model of the atom. Orbitals and quantum numbers. Electron configurations and the periodic table. Classification of the elements. Representative and transition elements.

4th week:
Lecture: 7-8. The sizes of atoms and ions. Ionization energy, electron affinity.
Self Control Test (1st SCT)

5th week:
Lecture: 9-10. Chemical bonds: metallic, ionic and covalent bonds. Electron-dot structures for molecular compounds and polyatomic ions. Single and multiple covalent bonds. Molecular shapes: the VSEPR model. Valence bond theory. Hybridization.

6th week:
Lecture: 11-12. Intermolecular forces. The gaseous state. Gases and gas pressure. The gas laws. The ideal gas law. Stoichiometric relationships with gases. Kinetic - molecular theory of gases.

7th week:
Lecture: 13-14. Liquid and solid states. Phase changes. Evaporation, vapor pressure, boiling point. Solutions and their properties. Concentration of solutions. Units of concentration: molarity, mass percent, molality. Dilution of solutions. Some factors affecting solubility.

8th week:
Lecture: 15-16. The chemistry of water. Ions in aqueous solution: electrolytes and nonelectrolytes. Reactions in aqueous solution. Discussion of general chemistry 1.

9th week:
Lecture: 17-18. Chemical equilibrium. The equilibrium constant. Factors that alter the composition of an equilibrium mixture. Self Control Test (2nd SCT)

10th week:
Lecture: 19-20. Acids and bases. The pH in solutions of strong acids and strong bases. Equilibria in solutions of weak acids. Equilibria in solutions of weak bases.

11th week:
Lecture: 21-22. Thermochemistry. Energy changes and energy conservation. Internal energy and state functions. Expansion work. Energy and enthalpy. The thermodynamic standard state. Enthalpies of physical and chemical changes. Hess's law. Oxidation and reduction. Oxidation state. The activity series of the elements. Balancing redox reactions. Galvanic cells.

12th week:
Lecture: 23-24. Discussion of general chemistry 2. Self Control Test (3rd SCT)

13th week:
Lecture: 25-26. Introduction to organic chemistry. Saturated hydrocarbons: alkanes.

14th week:
Lecture: 27-28. Cycloalkanes. Unsaturated hydrocarbons: alkenes and alkynes.

15th week:
Lecture: 29-30. Aromatic compounds: the structure and properties of benzene. The reactions of benzene. Heteroaromatic compounds.

16th week:
Lecture: 31-32. Organic halogen compounds. Alcohols and phenols.

17th week:
Lecture: 33-34. Ethers and organic sulfur compounds. Self Control Test (4th SCT)

18th week:
Lecture: 35-36. Aldehydes, ketones and quinones. Nitrogen containing organic compounds: the structure and properties of amines. Basicity and reactions of amines.

19th week:
Lecture: 37-38. Heterocyclic amines. Amines of biological importance. Discussion of Organic chemistry 1.

20th week:
Lecture: 39-40. Carboxylic acids: classification and nomenclature. Self Control Test (5th SCT)

21st week:
Lecture: 41-42. Properties of carboxylic acids. Reactions of carboxylic acids. Dicarboxylic acids. Unsaturated acids. Carboxylic acid derivatives: esters, fats, lactones, amides, lactams, thiol esters anhydrides, acyl chlorides.

22nd week:
Lecture: 43-44. Salts and detergents. Substituted carboxylic acids: halo acids, hydroxy acids, keto acids, amino acids. Stereochemistry. Types of isomerism.

23rd week:
Lecture: 45-46. Optical activity: properties of enantiomers and diastereomers. Discussion of Organic chemistry 2.

24th week:
Lecture: Self Control Test (6th SCT). Summary and discussion

Academic Advisor: Dr. Éva Bakó, Department of Medical Chemistry
Recommended books: McMurry, Fay: Chemistry (6th edition)
Erdődi, Csortos: Organic chemistry for premedical students (2010)

CHAPTER 11
ACADEMIC PROGRAM FOR CREDIT SYSTEM

ACADEMIC PROGRAM FOR CREDIT SYSTEM

The introduction of the credit system became compulsory in every Hungarian university, including the University of Debrecen by September, 2003. The aim of the credit system is to ensure that the students' achievements can be properly and objectively evaluated both quantitatively and qualitatively.

A credit is a relative index of cumulative work invested in a compulsory, a required elective or a freely chosen subject listed in the curriculum. The credit value of a course is based upon the number of lectures, seminars and practical classes of the given subject that should be attended or participated in (so called "contact hours"), and upon the amount of work required for studying and preparing for the examination(s). Together with the credit(s) assigned to a particular subject (quantitative index), students are given grades (qualitative index) on passing an exam/course/class. The credit system that has been introduced in Hungary meets the standards of the European Credit Transfer System (ECTS). The introduction of the ECTS promotes student mobility, facilitates more effective organization of students' exchange programs aimed at further education in foreign institutions, and allows recognition of the students' work, studies and achievements completed in various foreign departments by the mother institution. Credit-based training is flexible. It provides a wider range of choice, enables the students to make progress at an individual pace, and it also offers students a chance to study the compulsory or required subjects at a different university, even abroad. Owing to the flexible credit accumulation system, the term "repetition of a year" does not make sense any longer. It should be noted, however, that students do not enjoy perfect freedom in the credit system either, as the system does not allow students to randomly include subjects in their curriculum or mix modules. Since knowledge is based on previous studies, it is imperative that the departments clearly and thoroughly lay down the requirements to be met before students start studying a subject.

The general principles of the credit system are the following:

1. Students can be given their degree if, having met other criteria as well, they have collected 360 credits during their studies. Considering the recommended curriculum, this can be achieved in six years.

2. According to the credit regulations, students should obtain an average of 30 credits in each semester.

3. The criterion of obtaining 1 credit is to spend 30 hours (including both contact and non-contact hours) studying the given subject.

4. Credit(s) can only be obtained if students pass the exam of the given subject.

5. Students accumulate the required amount of credits by passing exams on compulsory, required elective and freely chosen subjects. Completion of every single compulsory credit course is one of the essential prerequisites of getting a degree. Courses belonging to the required elective courses are closely related to the basic subjects, but the information provided here is more detailed, and includes material not dealt with in the frame of the compulsory courses. Students do not need to take all required elective courses, but they should select some of them wisely to accumulate the predetermined amount of credits from this pool. Finally, a certain amount of credits should be obtained by selecting from the freely chosen courses, which are usually not related to the basic (and thus mandatory) subjects, but they offer a different type of knowledge.

6. 80, 15 and 5 percent of the total of 360 credits should be accumulated by completing the compulsory, required elective and freely chosen courses, respectively.

7. According to the qualification requirements, professional (compulsory and required elective) courses fall into three modules. The basic module provides the theoretical basis of medicine, and ensures that the necessary practical skills are developed. The preclinical module lays down the foundations of clinical knowledge, while in the clinical module the students are taught clinical medicine, and they attend practical classes to ensure proper command of the medical procedures. The credits accumulated in the different modules for compulsory and required courses should show the following distribution: basic module:92-124, preclinical module:44-64, and clinical module:138-186 credits.

8. The pilot curricula show the recommended pacing of compulsory courses. If these courses are carefully supplemented with credits obtained from the necessary number of required elective and freely chosen courses, students

can successfully accumulate the credits required for their degree within 12 semesters.

9. In the case of two-semester subjects, when students have to pass a final exam, they get higher credits in the semester of the final examination since preparation for a final examination takes up more non-contact hours from the students' time.

10. There are 15 compulsory final examinations in the curriculum; therefore one final exam is worth at least 10 credits.

11. The diploma work is worth 20 credits.

12. Internship in the final year is compulsory; students get 1 credit per week.

13. Regulations concerning the training of students in the credit system prescribe a minimum amount of credits for certain periods as outlined in the Rules and Regulations for English Program Students.

14. Although Physical Education and Summer Internship are not recognized by credits, they have to be completed to get the final degree (see the rules outlined in the Information section about the conditions).

15. Evaluation of the students' achievements needed for grants or applications is described in Rules and Regulations for English Program Students.

16. Further information is available in the Rules and Regulations for English Program Students.

We very much hope that the system of training will contribute to the successful completion of your studies.
We wish you good luck with your university studies.

The model curriculum on the following pages applies to those students who started their studies on the Medicine Program in the Academic Year 2015/2016.
For the previous years' curricula please visit our website: www.edu.unideb.hu

Compulsory courses												
1. year												
		1st semester					2nd semester					
Subjects	Neptun code	L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	Prerequisites of taking the subject
Anatomy, histology and embryology I.	**AOANA02T2**						29		86	ESE	8	None
Basics of Behavioural Sciences	**AOPSZ02T1**	20			ESE	2						None
Biophysics	**AOBIF02T1**	30	30	22	ESE*	6						None
Biostatistics	**AOBST02T1**		28		ESE	2						None
Cell Biology	**AOSEJ02T2**						30	25	20	ESE*	6	None
Communication Skills	**AOKOM42T1**			20	AW5	1						None
First aid and reanimation	**AOELS03T1**	6		15	AW5	2	6		15	AW5	2	None
Hungarian Crash Course	**AOG261008**			36	AW5	0						None
Hungarian Language I/1.	**AOHUN01T1**			24	AW5	2						Hungarian Crash Course
Hungarian Language I/2.	**AOHUN02T2**								30	AW5	2	Hungarian language I/1.
Medical Chemistry	**AOKEM02T1**	48	60	45	ESE*	11						None
Medical Genetics	**AOGEN02T2**						30		30	ESE*	4	None
Molecular Biology	**AOMB101T2**						42	14	15	ESE	5	None

Compulsory courses												
2. year												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Anatomy, Histology and Embryology II.	**AOANA06T3**	51		130	FE	11						Cell Biology, Anatomy, Histology and Embryology I.
Biochemistry I.	**AOBIK03T3**	42	14	30	ESE	7						Medical Chemistry, Molecular Biology
Biochemistry II.	**AOBIK04T4**						45	15	30	FE	7	Biochemistry I.
Hungarian Language II/1.	**AOHUN03T3**			30	AW5	2						Hungarian language I/2.
Hungarian Language II/2.	**AOHUN04T4**								30	AW5	2	Hungarian language II/1.
Medical Physiology I.	**AOELE03T3**	60	30	45	ESE	7						BiophysicsAnatomy, Histology and Embryology I.,
Medical Physiology II.	**AOELE04T4**						36	18	27	FE	9	Anatomy, Histology and Embryology II., Medical Physiology I., Biostatistics
Neurobiology (Neuroanatomy, Neurobiochemistry, Neurophysiology)	**AONEB02T4**						62	15	52	ESE*	8	Medical Physiology I.
Nursing practice	**AO_NYGY_NURSING**								120	SIGN	0	has to be completed before the 3rd year

Compulsory courses												
3. year												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Basic Oncology	**AOONK02T5**	13			AW5	1						Medical Genetics, Biochemistry II.
Basic Surgical Techniques	**AOMUT02T5**	15	18	12	ESE	3	15	18	12	ESE	3	Anatomy, Histology and Embryology II., Medical Physiology I.
Clinical Biochemistry I.	**AOKBK03T5**	30		14	AW5	3						Biochemistry II., Medical Physiology II.
Clinical Biochemistry II.	**AOKBK04T6**						45		30	FE	7	Clinical Biochemistry I.
Clinical Physiology	**AOKFI04T6**						15	30		ESE	3	Pathology I., Medical Physiology II.
Hungarian Language III/1.	**AOHUN05T5**			30	AW5	2						Hungarian Language II/2.
Hungarian Language III/2.	**AOHUN06T6**								30	FE	2	Hungarian Language III/1.
Immunology	**AOIMM02T5**	45	22	8	ESE	4						Biochemistry II., Cell Biology
Internal Medicine II. (Immunology and Rheumatology)	**AOBEL04T6**						27		18	ESE	3	Immunology, Prop. of Internal Medicine (Internal Medicine I.)
Medical Anthropology	**AOANT02T5**		15		ESE	1						Basics of Behavioural Siences
Medical Microbiology I.	**AOMIK03T5**	30		30	ESE	5						Cell Biology, Anatomy Histology and Embryology II..
Medical Microbiology II.	**AOMIK04T6**						20		30	FE	5	Medical Microbiology I.
Medical Psychology	**AOPSZ08T6**						20		10	ESE	2	Basics of Behavioural Sciences
Medical Sociology	**AOSZO02T6**						8	7		AW5	1	Basics of Behavioural Siences

Compulsory courses												
3. year (continued)												
		1st semester					2nd semester					
Subjects	Neptun code	L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	Prerequisites of taking the subject
Pathology I.	**AOPAT03T5**	30		45	ESE	5						NeurobiologyAnatomy, Histology and Embryology II.,
Pathology II.	**AOPAT04T6**						45		45	FE	5	Pathology I., Immunology
Propedeutics of Internal Medicine (Internal Medicine I.)	**AOBEL02T5-K4**	30		30	ESE	4						Anatomy, Histology and Embryology II., Medical Physiology II.
Internal Medicine summer practice	**AO_NYGY_INTMED**								90	SIGN	0	has to be completed before the 4th year

Compulsory courses												
4. year												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Behavioural Medicine	**AOMAG42T7**			20	AW5	1						Basics of Behavioural Sciences
Behavioural Sciences Final Exam	**AOMAG02T8**									FE	0	Medical Anthropology, Behavioural Medicine, Bioethics
Bioethics	**AOETI02T9**						10	10		ESE	2	Medical Psychology
Clinical Genetics	**AOKGE02T8**						20			ESE	2	Medical Genetics, Pathology II.
Internal Medicine Block Practice I. - 4th year	**AOBLOCKINTMED_1_IV**			60	SIGN	0						Propedeutics of Internal Medicine (Int.Med.I.), Clinical Physiology, Pathology II.
Internal Medicine Block Practice II. - 4th year	**AOBLOCKINTMED_2_IV**								60	SIGN	0	Propedeutics of Internal Medicine (Int.Med.I.), Clinical Physiology, Pathology II.
Internal Medicine III. (Cardiology, Angiology)	**AOBEL06T7-K3**	20		10	ESE	3						Propedeutics of Internal Medicine (Internal Medicine I.), Clinical Physiology, Pathology II.
Internal Medicine IV. (Endocrinology, Nephrology)	**AOBEL08T8-K3**						20		10	ESE	3	Prop. of Internal Medicine (Internal Medicine I.), Pathology II., Clinical Biochemistry II.

Compulsory courses												
4. year (continued)												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Obstetrics and Gynecology Block Practice - 4th year	**AOBLOCKOBGYN_IV**								60	SIGN	0	Pathology II., Clinical Biochemistry II.
Obstetrics and Gynecology I.	**AOSZU03T7**	10		10	ESE	2						Pathology II., Clinical Biochemistry II.
Obstetrics and Gynecology II.	**AOSZU04T8**						5		10	ESE	3	Obstetrics and Gynecology I.
Orthopaedic Surgery	**AOORT03T7**	10		16	ESE*	3	10		16	ESE*	3	Pathology II.
Pharmacology I.	**AOGYO03T7**	30	20		ESE	4						Pathology I., Medical Physiology II., Clinical Physiology
Pharmacology II.	**AOGYO04T8**						50	20		FE	6	Pharmacology I.
Preventive Medicine and Public Health I.	**AOMEG03T7**	30	40		AW5	5						Medical Microbiology II., Clinical Biochemistry II.
Preventive Medicine and Public Health II.	**AOMEG04T8**						30	20	15	FE	5	Preventive Medicine and Public Health I.
Pulmonology	**AOPUL03T7**	15		10	ESE*	3	15		10	ESE*	3	Clinical Physiology, Prop of Internal Medicine (Internal Medicine I.)
Radiology and Nuclear Medicine I.	**AORAD03T7**	10		10	ESE	1						Pathology II.
Radiology and Nuclear Medicine II.	**AORAD04T8**						20		30	ESE*	3	Radiology and Nuclear Medicine I.
Small Surgery Block Practice - 4th year	**AOBLOCKSMALLSURG_IV**								60	SIGN	0	Pathology II., Basic Surgical Techniques
Stomatology	**AOFOG03T7**	10		16	ESE*	2	10		16	ESE*	2	Pathology II.
Surgery Block Practice - 4th year	**AOBLOCKSURGERY_IV**			60	SIGN	0						Pathology II., Basic Surgical Techniques

Compulsory courses												
4. year (continued)												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Surgery I.	**AOSEB05T7**	12		10	AW5	2						Pathology II., Basic Surgical Techniques
Surgery II.	**AOSEB06T8**						10			ESE	3	Surgery I.
Traumatology I.	**AOTRA01A7**						15		10	ESE*	2	Pathology II.
Urology	**AOURO04T8**	10		16	ESE*	3	10		16	ESE*	3	Pathology II.
4th year summer practice	**YEARAO_NYGY_4TH**								90	SIGN	0	has to be completed before the 5th year

Compulsory courses												
5. year												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Anesthesiology and Intensive care	**AOINT02T10**	10		20	ESE	2						Pharmacology II.
Behaviour Science Final Exam	**AOMAG02T8**									FE	0	Medical Anthropology, Behavioural Medicine, Bioethics
Clinical Oncology	**AOKON02T10**						20	7		ESE	2	Basic Oncology, Radiology and Nuclear Medicine II.
Dermatology	**AOBOR03T9-KI**	15	10	20	ESE*	4	15	10	20	ESE*	4	Pathology II., Pharmacology II.
Emergency Medicine	**AOOXY03T9**	20		20	ESE	3	20		20	ESE	3	Pathology II., First Aid and Reanimation, Pharmacology II.
Family Medicine	**AOCSA02T9**		10		AW5	1						Pharmacology II., Prop. of Internal Medicine (Internal Medicine I.)
Forensic Medicine I.	**AOIGA03T9**	10		10	AW5	2						Pathology II., Bioethics
Forensic Medicine II.	**AOIGA04T10**						10		10	ESE*	2	Forensic Medicine I.
Infectology	**AOFER02T10**	15		20	ESE	2						Pathology II., Medical Microbiology II., Pharmacology II.
Internal Medicine Block Practice I. - 5th year	**AOBLOCKINTMED_1_V**			60	SIGN	0						Internal Medicine III. (Cardiology, Angiology), Clinical Biochemistry II.
Internal Medicine Block Practice II. - 5th year	**AOBLOCKINTMED_2_V**								60	SIGN	0	Internal Medicine III. (Cardiology, Angiology), Clinical Biochemistry II.
Internal Medicine V. (Gastroenterology)	**AOBEL10T9**	20		10	ESE	4						Internal Medicine III. (Cardiology, Angiology), Clinical Biochemistry II.

Compulsory courses												
5. year (continued)												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Internal Medicine VI. (Haematology, Haemostaseology)	**AOBEL16T10**						15		10	ESE	3	Clinical Biochemistry II., Internal Medicine III. (Cardiology, Angiology)
Neurology Block Practice - 5th year	**AOBLOCKNEURO_V**								60	SIGN	0	Internal Medicine III., Neurobiology (Cardiology, Angiology)
Neurology I.	**AONEU03T9**	15		10	AW5	4						Internal Medicine III. (Cardiology, Angiology), Neurobiology
Neurology II.	**AONEU04T10**						10		10	ESE	2	Neurology I.
Ophthalmology	**AOSZE04T10**	10		20	ESE*	3	10		20	ESE*	3	Pathology II., First Aid and Reanimation
Otolaryngology	**AOFUL04T10**	10		20	ESE*	3	10		20	ESE*	3	Pathology II., Clinical Biochemistry II.
Pediatrics Block Practice - 5th year	**AOBLOCKPEDIAT_V**			60	SIGN	0						Pathology II., Pharmacology II.
Pediatrics I.	**AOGYE03T9**	20		10	AW5	4						Pathology II., Pharmacology II.
Pediatrics II.	**AOGYE04T10**						15		10	ESE	3	Pediatrics I.
Psychiatry I.	**AOELM03T9**	20		20	AW5	4						Medical Psychology, Neurobiology
Psychiatry II.	**AOELM04T10**						10		20	ESE	2	Psychiatry I.

Compulsory courses												
6. year												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Internal Medicine VII.	**AOBEL26T11**			300	FE	10						Successful completion of all compulsory subjects (I-V.)
Neurology III.	**AONEU08T11**			120	FE	4						Successful completion of all compulsory subjects (I-V.)
Obstetrics and Gynecology III.	**AOSZU08T11**			150	FE	5						Successful completion of all compulsory subjects (I-V.)
Pediatrics III.	**AOGYE08T11**			210	FE	7						Successful completion of all compulsory subjects (I-V.)
Psychiatry III.	**AOELM06T11**			120	FE	4						Successful completion of all compulsory subjects (I-V.)
Surgery III.	**AOSEB09T11-K1**			150	FE	5						Successful completion of all compulsory subjects (I-V.)

Required elective courses												
1. year												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Basic hospitalisation techniques for medical students	**AOAPO42T1**	5		5	AW5	1						None
Computer Science	**AOINF43T1**			30	AW5	3			30	AW5	3	None
Introduction to students' scientific activities	**AOTDK02**						10			AW5	1	None
Latin Language	**AOLAT42T1**			30	AW5	2						None
Library System	**AOKON43T1**			10	AW5	1						None
Medical Genomics	**AOGEN43T2**						16		4	AW5	2	None
Understanding medical problems through experiments: a problem-based elective practical course	**AOOBP42T2**								30	AW5	3	Medical Chemistry

Required elective courses												
2. year												
		1st semester					2nd semester					
Subjects	**Neptun code**	L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	**Prerequisites of taking the subject**
Advanced students' scientific activity	**AOTDK06**									AW5	2	Introduction to students' scientific activities
Modern biophysical methods in biology and medicine	**AOMOD42T4**						24			AW5	2	Biophysics, Cell Biology
Modern Techniques Allowing the Investigation of Physiological Phenomena	**AOKOR42T4**						24			AW5	2	Medical Physiology I.
Problem Based Learning in Physiology	**AOPEL42T4**								30	AW5	3	Medical Physiology I.
Selected Topics in Cell Biology	**AOG157403-K1**						24			AW5	2	Cell Biology
Students'scientific activity for beginners	**AOTDK04**									AW5	1	Introduction to students' scientific activities
The Regulatory Role of the Cell Membrane in Physiological and Pathological Conditions	**AOSEM42T4**						20			AW5	2	Medical Physiology I.

Required elective courses												
3. year												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Dealing with irradiation induced side effects	**AOG528305**	5		10	AW5	1						Propedeutics of Internal Medicine (Internal Medicine I.); Medical Physiology II.
Fundamental Clinical Neuroscience	**AOG458606**						10	10	10	AW5	2	Pathology I.
Medical Imaging	**AOOKE42T6**						16			AW5	1	Pathology I.
Molecular Mechanism of Diseases Concerning Great Populations	**AOG167605**	25			AW5	2						Biochemistry II.
PBL in haemostasis	**AOPBL42T6**							20		AW5	2	Clinical Biochemistry I.
Problem based learning in Oncohematology	**AOG327906**						30			AW5	2	Clinical biochemistry I.
Refraction, refractive errors, corrections, refractive surgery	**AOREF42T9**	5			AW5	1						Anatomy II., Medical Physiology II.
Social acceptance of people with disabilities	**AOFOGY42T5**	20		2	AW5	2						None
Surgical operative techniques	**AOG517407**						4		8	AW5	1	Basic Surgical Techniques

Required elective courses												
4. year												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Recent Advances of Infertility Management and Gynaecological Oncology	**AOINF42T8**						20			AW5	2	Obstetrics and Gynecology I.
Antimicrobial chemotherapy	**AOAKE42T7**	20	10		AW5	2						Medical Microbiology II.
Basic microsurgical training. Introduction to microsurgery	**AOG517507**	2		10	AW5	1						Basic Surgical Techniques, Surgical Operative Techniques
Basic Principles and Introduction to Chest Radiology	**AOG487707**		18		AW5	1						Pathology II.
Clinical biochemistry and laboratory evaluation of thrombophilia	**AOTHR42T7**	12			AW5	1						Clinical biochemistry II.
Dietetics in the Everyday Practice and Beyond. Nutritional Therapy I.	**AODIE42T7**	24			AW5	2						Propedeutics of Internal Medicine (Internal Medicine I.)
Dietetics in the Everyday Practice and Beyond. Nutritional Therapy II.	**AODIE44T8**						20		4	AW5	2	Dietetics in the Everyday Practice and Beyond. Nutritional Therapy I.
Epidemiology, pathophysiology, diagnosis and treatment of osteoporosis.	**AOEPI01T7**	11	2	2	AW5	1						Internal Medicine II. (Immunology and Rheumatology)
Magnetic resonance imaging: from basics to practice	**AOMRE41T8**							24		AW5	1	Biophysics
Ophthalmological aspects of wound healing processes	**AOSSZ42T8**						7	4	4	AW5	1	Pathology II., Basic Operative Techniques, Operative Techniques Practices and Basic Microsurgical Training
Problem based learning - Skills' training	**AOPSZ42T10**							20		AW5	2	Internal Medicine II., Surgery I.

Required elective courses												
4. year (continued)												
		1st semester					2nd semester					
Subjects	Neptun code	L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	Prerequisites of taking the subject
Problem based learning in Complex Pathology	**AOEKP42T6**						30			AW5	3	Clinical Biochemistry II.
Radiotherapy in the clinical practice	**AOSUG42T7**							15		AW5	2	Biophysics, Radiology and Nuclear Medicine I.
Rare diseases	**AOG138107**						10			AW5	1	Pathology II., Clinical Biochemistry II., Propedeutics of Internal Medicine I.
Reproductive Endocrinology and Infertility	**AOG558510**						15			AW5	2	Obstetrics and Gynecology I.
Surgical operative techniques	**AOG517407**	4		8	AW5	1						Basic Surgical Techniques
Thesis Writing Course	**AOG197308**							14		AW5	1	Propedeutics of Internal Medicine (Internal Medicine I.)
Traumatology II.	**AOTRA41A7**	10			AW5	2						Pathology II.
Travel Medicine for medical scholars	**AOUTA42T8**						30			AW5	2	Pathology II, Medical Microbiology II., Pharmacology I.

Required elective courses												
5. year												
Subjects	Neptun code	1st semester					2nd semester					Prerequisites of taking the subject
		L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	
Advanced Surgical Operative Techniques	**AOHMGY42T10**	3		12	AW5	2	3		12	AW5	2	Basic microsurgical training.Introduction to microsurgery; Basic laparoscopic training. Introduction to laparoscopic surgery; Surgery II.
Basic laparoscopic surgical training	**AOG517607-K10**	5		15	AW5	2	5		15	AW5	2	Basic Surgical Techniques; Surgical Operative Techniques; Surgery II.
Clinical Pharmacology	**AOKFA42T9**	20	8	2	AW5	2						Pharmacology II.
Neurosurgery	**AOISE02T10**						6		8	AW5	2	Neurology I.
Otolaryngology essentials	**AOSZF42T9**	5			AW5	1						Internal Medicine IV.
Pharmacotherapy	**AOG248110**						30			AW5	3	Pharmacology II.
Principles of Physical Medicine and Rehabilitation	**AOREH42T6**						16			AW5	2	Internal Medicine III., Surgery II.

Required elective courses												
5. year (continued)												
		1st semester					2nd semester					
Subjects	Neptun code	L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	Prerequisites of taking the subject
Surgical biomaterials	**AOG518110**	12			AW5	1	12			AW5	1	Surgical operative techniques; Basic microsurgical training. Introduction to microsurgery, Surgery II.
The basics of organ-, and tissue transplantation	**AOSZAT42T9**						30			AW5	2	min. satisfactory grade exam results in Internal Medicine II. (Immunology and Rheumatology), Internal Medicine III. (Cardiology, Angiology), Internal Medicine V. (Gastroenterology), Internal Medicine VI. (Haematology), Surgery II.
Thesis I.	**AODIP47T9**				AW5	5						None
Thesis II.	**AODIP48T10**									AW5	5	None

Required elective courses												
6. year												
		1st semester					2nd semester					
Subjects	**Neptun code**	L	S	P	Exam	Crd.	L	S	P	Exam	Crd.	**Prerequisites of taking the subject**
Preparatory Course for State Exam	**AOIZV42T12**				AW5	2						Completed compulsory subjects of 1-5 years
Thesis III.	**AODIP49T11**				AW5	5						None
Thesis IV.	**AODIP50T12**									AW5	5	None

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Department of Anatomy, Histology and Embryology	**Functional Anatomy of Brainstem**	**AOG107704-K1**	1	2	16	AW5	Anatomy, histology and embryology II.	Klára Matesz M.D.,Ph.D.,D.Sc.
Department of Anatomy, Histology and Embryology	**Selected Problems of the Neural Control: Modelling of Single Neurons and Neural Networks**	**AOG108504-K1**	1	2	12	AW5	Anatomy, histology and embryology II.	Ervin Wolf M.Sc., Ph.D.
Department of Anatomy, Histology and Embryology	**Nociceptive Sensory Information Processing at the Level of the Spinal Cord in Health and Disease**	**AOG1091A4**	1	2	18	AW5	Anatomy, histology and embryology II.	Miklós Antal M.D., Ph.D., D.Sc.
Department of Anatomy, Histology and Embryology	**Functional Anatomy of the Visual System**	**AOG108204-K1**	1	2	16	AW5	Anatomy, histology and embryology II.	Zoltán Kisvárday M.Sc., Ph.D., D.Sc.
Department of Anatomy, Histology and Embryology	**Advanced Histology**	**AOG107803-K8**	1	1	16	AW5	Anatomy, histology and embryology I.	Szabolcs Felszeghy Ph.D., D.D.S.
Department of Anatomy, Histology and Embryology	**Computer human anatomy: musculoskeletal system, extremities**	**AOG1092A2**	1	2	20	AW5	None	Miklós Antal M.D., Ph.D., D.Sc.
Department of Anatomy, Histology and Embryology	**Clinical anatomy and plastination I.**	**AOG109404**	2	1	30	AW5	grade 4 or 5 in Anatomy, histology and embryology I.	Miklós Antal M.D., Ph.D., D.Sc.
Department of Anatomy, Histology and Embryology	**Clinical anatomy and plastination II.**	**AOG109604**	2	2	30	AW5	Anatomy, histology and embryology I.	Miklós Antal M.D., Ph.D., D.Sc.
Department of Anatomy, Histology and Embryology	**Investigation of the embryonic cell-and tissue differentation**	**AOG1011003**	2	1	26	AW5	Anatomy, histology and embryology I., Cell Biology, Molecular Biology, Biophysics	Róza Zákány M.D., Ph.D.
Department of Anatomy, Histology and Embryology	**Dark side of the human mind with anatomical implications**	**AOG1010005**	2	1	30	AW5	Anatomy, histology and embryology II. and Neurobiology	Tamás Juhász M.Sc., Ph.D.

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Department of Behavioural Sciences, Faculty of Public Health	**Inborn Sociality - Socialized Individuality: A New Concept**	**AOG358902-K8**	2	-	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Becoming a Doctor: Thematic Self-Awarness Group**	**AOG359005-K10**	2	2	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Evolution and Medicine**	**AOG359101-K8**	1	1	26	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Human Ethology**	**AOG359201**	2	2	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**The Basic Problems of Medicine**	**AOG358601**	1	1	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Madness and Psychiatry (Philosophical Approach)**	**AOG359602**	1	2	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Theory of Psychoanalysis and Its Influence on the Concept of Human Being in Medicine**	**AOG359501-K8**	1	1	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Psychic Trauma**	**AOG3511102-K1**	1	2	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Theoretical and Methodological Questions of Patient Satisfaction Studies**	**AOG359308**	1	2	15	AW5	None	Csilla Kemény M.A., Ph.D.

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Department of Behavioural Sciences, Faculty of Public Health	**Yoga and Meditation I.**	**AOG3512001-K1**	1	1	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Bioethical Cases**	**AOG358706**	2	2	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Intercultural Health Care**	**AOG3511605-K1**	2	2	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Jewish Medical Ethics I.**	**AOG3514406**	2	1	15	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Jewish Medical Ethics II.**	**AOG3514407**	2	2	15	AW5	None	
Department of Behavioural Sciences, Faculty of Public Health	**Bioethics on Films**	**AOG3514405**	1	1	26	AW5	None	Péter Kakuk M.A., Ph.D.
Department of Behavioural Sciences, Faculty of Public Health	**Yoga and Meditation II.**	**AOG3510401-K1**	2	2	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences, Faculty of Public Health	**Medicine in Art**	**AOG3515003**	1	1-2	20	AW5	None	Sándor Kőmüves M.A., Ph.D.
Department of Behavioural Sciences, Faculty of Public Health	**Issues about the Start and End of Life**	**AOG3515103**	1	1-2	22	AW5	None	Sándor Kőmüves M.A., Ph.D.

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Department of Behavioural Sciences, Faculty of Public Health	**Psychosocial aspects in reproductive medicine**	**AOG351401**	1	1	20	AW5	None	Antal Bugán M.A., Ph.D.
Department of Behavioural Sciences, Faculty of Public Health	**Evolutionary medicine and psychopathology**	**AOG351801**	1	1	20	AW5	Basics of Behavioural Sciences, Communication Skills	Roland Tisljár M.A., Ph.D.
Department of Behavioural Sciences, Faculty of Public Health	**Health and Healing in Wolrd Religions**	**AOG352101**	1	1	20	AW5	None	Bence Döbrőssy M.A.
Department of Behavioural Sciences, Faculty of Public Health	**Psynema**	**AOG3511406**	1	1-2	20	AW5	None	Margit Bóta M.A., Ph.D.
Department of Behavioural Sciences, Faculty of Public Health	**Introduction into Research Ethics**	**AOG3522607**	1	1	20	AW5	None	János Kristóf Bodnár M.A., Ph.D.
Department of Behavioural Sciences, Faculty of Public Health	**Medical sociology on film**	**AOG3522103**	1	1-2	22	AW5	None	Sándor Kőmüves M.A., Ph.D.
Department of Biochemistry and Molecular Biology	**Biochemistry of Apoptosis**	**AOG167406**	1	-	20	AW5	Biochemistry II.	Zsuzsa Szondy M.D., Ph.D., D.Sc.
Department of Biochemistry and Molecular Biology	**Retroviral Biochemistry**	**AOG167506**	1	2	20	AW5	Molecular Biology	József Tőzsér M.Sc., Ph.D., D.Sc.
Department of Biomedical Laboratory Imaging Science	**Selected Chapters from the Cross-Sectional Anatomy of the Human Body**	**AOCSA01L3**	2	1	28	ESE	Anatomy, histology and embryology II.	Ervin Berényi M.D., Ph.D.
Department of Biomedical Laboratory Imaging Science	**Multimodal imaging and virtual reality in neurosciences**	**AOG487503**	1	1	18	AW5	Biophysics	András Jakab M.D., Ph.D.

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Department of Biomedical Laboratory Imaging Science	**History of Radiology**	**AOG487407**	1	1	18	AW5	None	Ervin Berényi M.D., Ph.D.
Department of Biomedical Laboratory Imaging Science	**Clinico-radiological case reports**	**AOKLR41T8**	1	2	24	AW5	None	Ervin Berényi M.D., Ph.D.
Department of Biophysics and Cell Biology	**Physical foundations of biophysics**	**AOG157303**	1	1	24	AW5	None	György Vámosi M.Sc., Ph.D.
Department of Dermatology	**Wound healing**	**AOG177205**	1	1	12	AW5	None	István Juhász M.D., Ph.D., C.Sc.
Department of Dermatology	**Dermatological allergology – immunology**	**AOG177610**	1	-	12	AW5	Internal Medicine IV. (Endocrinology, Nephrology)	Andrea Szegedi M.D., Ph.D., D.Sc.
Department of Dermatology	**Aesthetic Dermatology**	**AOG177909**	1	2	16	AW5	Internal Medicine V. (Gastroenterology), Pharmacology II. , Pathology II.	Éva Remenyik M.D., Ph.D., D.Sc.
Department of Foreign Languages	**Hungarian Language Elective General II.**	**AOG269102**	2	2	30	AW5	Hungarian Crash Course	László Répás M.A.
Department of Foreign Languages	**Hungarian Language Elective General I.**	**AOG268901**	2	1	30	AW5	Hungarian Crash Course	László Répás M.A.
Department of Foreign Languages	**Hungarian Language Elective - Medical I.**	**AOG26108A1-K1**	2	1	30	AW5	None	László Répás M.A.
Department of Foreign Languages	**Hungarian Language Elective - Medical II.**	**AOG26108A2-K1**	2	2	30	AW5	Completion of Hungarian Language Elective Medical I.	László Répás M.A.
Department of Foreign Languages	**Latin Medical Terminology**	**AOG2611002**	2	2	30	AW5	Latin language	László Répás M.A.
Department of Foreign Languages	**Hungarian Language Elective Medical III.**	**AOG102607**	2	1	30	AW5	Hungarian Language Elective Medical II.	Judit Lampéné Zsíros M.A., Ph.D.

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Department of Foreign Languages	**Hungarian Language Elective Medical IV.**	**AOG102708**	2	2	30	AW5	Hungarian Language Elective Medical III.	Judit Lampéné Zsíros M.A., Ph.D.
Department of Foreign Languages	**Prescription Reading and Writing**	**AOG102805**	2	1	30	AW5	Medical Latin, Medical Physiology II.	Emőke Takácsné Tóth M.A.
Department of Foreign Languages	**Tandem class for Hungarian and foreign students**	**AOG103002**	2	1	30	AW5	Crash Course	Judit Lampéné Zsíros M.A., Ph.D.
Department of Immunology	**Selected topics of Immunology**	**AOG297206**	1	2	20	AW3	Immunology	Kitti Pázmándi M.Sc., Ph.D.
Department of Internal Medicine	**Diagnosis and therapy of acute leukaemias**	**AOG138005**	1	2	20	AW5	Pathology II., Clinical Biochemistry II., Propedeutics in Internal Medicine	
Department of Internal Medicine	**Immune intervention therapy in patients with autoimmune diseases**	**AOG149307**	1	1	8	AW5	Pathology II., Immunology	Katalin Dankó M.D.,Ph.D.,D.Sc.
Department of Internal Medicine	**Inflammatory bowel diseases: clinical, therapeutical and immunological aspects**	**AOG148709**	1	1	8	AW5	Internal Medicine II. (Immunology and rheumatology)	Zoltán Csiki M.D., Ph.D.
Department of Internal Medicine	**Modern functional diagnosis of microcirculation.**	**AOG149110**	1	2	8	AW5	Pathology II., Internal Medicine V. (Gastroenterology)	Zoltán Csiki M.D., Ph.D.
Department of Internal Medicine	**Acute and chronic liver diseases**	**AOG138207**	1	2	14	AW5	Pathology II., Clinical Biochemistry II., Propedeutics of Internal Medicine	István Tornai M.D.,Ph.D.
Department of Internal Medicine	**Current endoscopic practice in gastroenterology**	**AOG137707**	1	1	14	AW5	Pathology II., Clinical Biochemistry II., Propedeutics of Internal Medicine	István Altorjay M.D.,Ph.D.

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Department of Internal Medicine	**Interesting cases in haemostaseology**	**AOHAE02T8**	1	2	10	AW5	Pathology II., Clinical Biochemistry II., Propedeutics of Internal Medicine	Zoltán Boda M.D.,Ph.D.,D.Sc.
Department of Internal Medicine	**Selected chapters and case presentations in lympho-, and myeloproliferative diseases**	**AOG137405**	1	1	16	AW5	Pathology II., Clinical Biochemistry II., Propedeutics in Internal Medicine	
Department of Internal Medicine	**Clinical cases and differential diagnosis in general medicine**	**AOG158507**	1	1	12	AW5	Pathology II.,Clinical Biochemistry II., Propedeutics of Internal Medicine	
Department of Internal Medicine	**Diagnosis and treatment of diseases most frequently found in the practice of our medical intensive care unit**	**AOG149009**	1	-	15	AW5	None	Pál Soltész M.D., Ph.D., D.Sc.
Department of Internal Medicine	**Idiopathic inflammatory myopathies, from bench to bedside**	**AOG149807**	1	2	16	AW5	Internal Medicine II. (Immunology and Rheumatology)	Zoltán Griger M.D., Ph.D.
Department of Internal Medicine	**Comprehensive Review of Obesity and Associated Disorders**	**AOG128307**	2	1	30	AW5	Propedeutics of Internal Medicine	
Department of Medical Microbiology	**Tumor viruses and oncogenes**	**AOG427804**	1	2	12	AW5	Medical Microbiology II.	György Veress M.Sc., Ph.D.
Department of Medical Microbiology	**Interpretive Clinical Bacteriology and Virology**	**AOG428108**	1	2	14	AW5	Medical Microbiology II.	József Kónya M.D., Ph.D.
Department of Medical Microbiology	**Interesting Issues of Medical Parasitology**	**AOG429907**	1	1	12	AW5	Medical Microbiology I.	Judit Szabó M.D., Ph.D.

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Department of Medical Microbiology	**The problem of resistance to antibiotics. Antibiotic policy**	**AOG428405**	1	2	15	AW5	Medical Microbiology II.	Gábor Kardos M.D., Ph.D.
Department of Medical Microbiology	**Infections of the immunocompromised**	**AOG429407**	1	2	21	AW5	Medical Microbiology II.	Gábor Kardos M.D., Ph.D.
Department of Medical Microbiology	**Case studies in clinical microbiology**	**AOG429505**	1	2	9	AW5	Medical Microbiology II.	Gábor Kardos M.D., Ph.D.
Department of Medical Microbiology	**Fingerprinting of pathogens, methods in epidemiological tracing.**	**AOG429605**	2	2	21	AW5	Medical Microbiology II.	Gábor Kardos M.D., Ph.D.
Department of Medical Microbiology	**Travel and infectious diseases, imported infections**	**AOG429707**	2	2	21	AW5	Medical Microbiology I.	Gábor Kardos M.D., Ph.D.
Department of Medical Microbiology	**Infections spreading from animals to humans.**	**AOG429807**	2	2	21	AW5	Medical Microbiology I.	Krisztina Szarka M.Sc., Ph.D.
Department of Medical Microbiology	**Molecular diagnosis of multiresistant bacteria**	**AOG4210008**	1	2	12	AW5	Medical Microbiology II.	Judit Szabó M.D., Ph.D.
Department of Medical Microbiology	**Microbiology of sepsis**	**AOG4210007**	1	1	12	AW5	Medical Microbiology I.	Judit Szabó M.D., Ph.D.
Department of Medical Microbiology	**Laboratory diagnosis of anaerobic bacteria**	**AOG4210006**	1	2	12	AW5	Medical Microbiology I.	Judit Szabó M.D., Ph.D.
Department of Medical Microbiology	**Introduction to Medical Mycology**	**AOG4210207**	1	1-2	14	AW5	Medical Microbiology II.	László Majoros M.D., Ph.D.
Department of Medical Microbiology	**Clinical Mycology**	**AOG4210107**	1	1-2	12	AW5	Medical Microbiology II.	László Majoros M.D., Ph.D.
Department of Medical Microbiology	**Malaria**	**AOG4210407**	1	1-2	15	AW5	Medical Microbiology II.	Gábor Kardos M.D., Ph.D.

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Department of Medical Microbiology	**Chapters in the history of medical virology**	**AOG4210807**	1	2	15	AW5	Medical Microbiology II.	György Veress M.Sc., Ph.D.
Department of Medical Microbiology	**Antimicrobial agents in clinical practice**	**AOG429007**	2	1	30	AW5	Medical Microbiology II.	László Majoros M.D., Ph.D.
Department of Neurosurgery	**Neurosurgical emergency**	**AOG277210**	1	1	12	AW5	Pathology II.	Sándor Szabó M.D., Ph.D.
Department of Neurosurgery	**Pediatric Neurosurgery**	**AOG277807**	1	1	12	AW5	Pathology II.	Álmos Klekner M.D., Ph.D.
Department of Nuclear Medicine	**Nuclear medical differential diagnostics**	**AOG397310**	2	1	22	AW5	Radiology and Nuclear Medicine II.	László Galuska M.D., Ph.D.
Department of Nuclear Medicine	**Medical imaging: current methods and new trends**	**AOG468905**	1	1	12	AW5	None	László Balkay M.Sc., Ph.D.
Department of Obstetrics and Gynecology	**Ultrasound diagnosis in obstetrics and gynecology**	**AOG557908**	1	2	15	AW5	Obstetrics and gynecology I.	Zoltán Tóth M.D., Ph.D., D.Sc.
Department of Obstetrics and Gynecology	**Prenatal diagnosis of genetic diseases**	**AOG558110**	1	2	15	AW5	Obstetrics and gynecology I.	Olga Török M.D., Ph.D.
Department of Obstetrics and Gynecology	**Practical healthcare in the English-speaking countries in the junior doctors' perspective**	**AOG558409**	1	2	15	AW5	Obstetrics and gynecology II.	Tamás Szilveszter Kovács M.D., Ph.D.
Department of Obstetrics and Gynecology	**Gynecological Cancer Detection and Prevention**	**AOG558009**	1	2	16	AW5	Obstetrics and Gynecology I.	Zoltán Hernádi M.D., Ph.D., D.Sc.
Department of Obstetrics and Gynecology	**Gynecological Cancer**	**AOG558009**	1	2	16	AW5	Obstetics and Gynecology II.	Zoltán Hernádi M.D., Ph.D., D.Sc.
Department of Obstetrics and Gynecology	**Relaxation methods in obstetrics and gynecology**	**AOG559209**	0	-	16	AW5	Obstetrics and Gynecology II.	Zsuzsa Török M.A., Ph.D.

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Department of Otolaryngology and Head and Neck Surgery	**Reconstructive and voice rehabilitation methods in head and neck surgery**	**AOG217410**	1	1-2	10	AW5	Propedeutics of Internal Medicine, Physiology II.	Attila Szűcs M.D., Ph.D.
Department of Pathology	**Neurodegenerativ diseases**	**AOG457207**	1	-	20	AW5	Pathology II.	Péter Molnár M.D., D.Sc.
Department of Pharmacology and Pharmacotherapy	**Introduction to Ayurveda**	**AOG249209**	2	1	26	AW5	Propedeutics of Internal Medicine and Pharmacology II.	
Department of Physiology	**Cellular mechanisms of regulation of cardiac function**	**AOG207605**	1	1	14	AW5	Medical Physiology II .	Péter Nánási M.D., Ph.D., D.Sc.
Department of Psychiatry	**Self-centered psychotherapy**	**AOG478009**	1	1	13	AW5	None	Anikó Égerházi M.D., Ph.D.
Department of Pulmonology	**Asthma bronchiale**	**AOG587707**	1	1	8	AW5	Pathology II.	László Brugós M.D., Ph.D.
Department of Pulmonology	**Lung cancer**	**AOG587607**	1	1	10	AW5	Pathology II.	
Department of Surgery	**Surgical Oncology**	**AOG497408**	1	1-2	10	AW5	Pathology II.	Tamás Dinya M.D.
Department of Traumatology and Hand Surgery	**State of the art treatment of big joint's injuries. Diagnostic and treatment of pediatric bone and artritic injuries**	**AOG578608**	1	2	12	AW5	Traumatology I., Traumatology II.	Ferenc Urbán M.D.
Department of Urology	**Andrology**	**AOG599607**	1	1-2	15	AW5	Pathology II., Propedeutics of Internal Medicine	Mátyás Benyó M.D., Ph.D.
Department of Urology	**Urological Laparoscopic Surgery**	**AOG599707**	1	1-2	15	AW5	Basic Surgical Techiques	Mátyás Benyó M.D., Ph.D.
Department of Urology	**Urolithiasis**	**AOG599807**	1	1-2	15	AW5	Pathology II., Propedeutics of Internal Medicine	Csaba Berczi M.D., Ph.D.

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Department of Urology	**Urological Oncology**	**AOG599507**	1	1-2	15	AW5	Pathology II., Propedeutics of Internal Medicine	Csaba Berczi M.D., Ph.D.
Department of Urology	**Benign Prostatic Hyperplasia (BPH)**	**AOG5910107**	1	1-2	15	AW5	Pathology II. and Propedeutics of Internal Medicine	Mátyás Benyó M.D., Ph.D.
Department of Urology	**Uro-radiology**	**AOG5910207**	1	1-2	15	AW5	Pathology II. and Propedeutics of Internal Medicine	Csaba Berczi M.D., Ph.D.
Division of Angiology	**New methods in the detection of early atherosclerosis**	**AOG128208**	1	2	16	AW5	Internal Medicine III. (Cardiology, Angiology)	Pál Soltész M.D., Ph.D., D.Sc.
Division of Cardiology	**Echocardiography**	**AOG317307**	1	1	18	AW5	Propedeutics of Internal Medicine, Clinical Physiology	Ida Hegedűs M.D., Ph.D.
Division of Cardiology	**Cardiac interventions**	**AOG317408-K1**	1	1	14	AW5	Propedeutics of Internal Medicine, Clinical Physiology	Tibor Szűk M.D., Ph.D.
Division of Clinical Laboratory Science	**Platelet Function and Platelet Function Disorders**	**AOG632006**	1	2	12	AW5	Clinical Biochemistry II.	Krisztina Pénzes-Daku M.Sc., Ph.D.
Division of Clinical Laboratory Science	**Quality management in medical diagnostic laboratory**	**AOG631806**	2	2	26	AW5	Pathology I.	Éva Katona M.D., Ph.D.
Division of Clinical Laboratory Science	**Coagulation factor XIII in health and disease**	**AOG632607**	1	1	15	AW5	grade 4 or 5 in Clinical Biochemistry II., or Complex Pathology II., or membership in the Medical School of University of Debrecen, Student's Scientific Society	László Muszbek M.D., Ph.D., D.Sc., M.H.A.Sc.

Freely Chosen Courses								
Department	**Subject**	**Neptun code**	**Crd. point**	**Semester**	**Nr. of hours**	**Exam**	**Prerequisites of taking the subject**	**Coordinator**
Division of Clinical Physiology	**Cellular and molecular pathophysiology of the cardiovascular system**	**AOG337406**	1	2	20	AW5	Clinical Physiology	Zoltán Papp M.D.
Division of Clinical Physiology	**Professional and Personal Development in Medical Service**	**AOG337706**	2	2	30	AW5	None	
Division of Operative Techniques and Surgical Research	**Basics of Hemorheology**	**AOG517908-K1**	1	1-2	10	AW5	Basic Surgical Techniques	Norbert Németh M.D., MBA, Ph.D.
Division of Radiotherapy	**Operativ techniques in radiotherapy (brachytherapy)**	**AOG527810**	1	1-2	12	AW5	Radiology II.	Andrea Furka M.D., Ph.D.
Division of Radiotherapy	**Modern brachytherapy techniques**	**AOG529007**	1	1	15	AW5	None	Levente Jánváry M.D.
Division of Rheumatology	**Reumatology: Research and Clinical**	**AOG149108**	1	2	10	AW5	Internal Medicine II. (Immunology and Rheumatology)	Zoltán Szekanecz M.D., Ph.D., D.Sc.
Division of Rheumatology	**Vascular and microcirculation abnormalities in systemic sclerosis**	**AOG1450007**	1	2	10	AW5	Immunology-Rheumatology	Gabriella Szűcs M.D., Ph.D.
Divison of Cardiac Surgery	**Cardiac Surgery**	**AOG607508**	1	2	22	AW5	Surgery I.	Tamás Szerafin M.D., Ph.D.
Sport Center of University Debrecen	**Fitness and health**	**AOFAH0105**	2	1-2	30	AW5	None	Katalin Nagyné Varga M.Sc.

This model curriculum applies to those students who started their studies on General Medicine Program in the academic year 2015/2016.

For the previous years' curricula please visit the university website: www.edu.dote.hu

CHAPTER 12
INTERIM PRACTICAL BLOCKS

INTERIM PRACTICAL BLOCKS - 4th and 5th year
The aim of the practical blocks is to improve the practical skills of medical students.
Students spend a 2-week (30 hours a week) practical session in the departments where they fulfil the specified requirements under the supervision of a tutor.
There is a lecture book of practical blocks providing a guideline to the student on the requirements he/she should comply with in course of the practical blocks of the specific semesters and on the basic knowledge and skills he/she has to acquire on the given specialty during the gradual training. The level of knowledge and skills to be learned is graded as follows:
O: student has observed the given intervention
P: student has performed the given intervention
Participation: Student attends the intervention and (if possible) actively contributes.
The lecture book may specify the expected number of interventions to be performed.
The practices can be completed
- at the clinics, departments of the University (in Debrecen);
- at teaching hospitals of the University in Hungary (Debrecen-Kenézy Hospital; in Nyíregyháza, Miskolc, Berettyóújfalu, etc.);
- outside of Hungary (at affiliated and non-affiliated university hospitals).

Fulfillment of the practice outside of Hungary is possible only with the permission of the Sub-Committee for Educational Matters and Credit Transfer.
You are allowed to start the practice in Hungary after the medical check-up with your Health Booklet.

Registration for practice: via Neptun System
Prerequisites: prerequisites of the same 4th and 5th year subject
Students have to register for practice and for the corresponding subject together (in the same semester).
Maximum 2 block practices can be completed in a semester.

4th YEAR BLOCK PRACTICE
Compulsory: 2*2 weeks Internal Medicine, 2 weeks Obstetrics and Gynecology, 2 weeks Surgery or Small Surgery
1st semester
2 weeks Internal Medicine (Cardiology and Angiology)
2 weeks Obstetrics and Gynecology or Surgery/Small Surgery

2nd semester
2 weeks Internal Medicine (Endocrinology, Nephrology)
2 weeks Obstetrics and Gynecology or Surgery /Small Surgery
In case you choose Obstetrics and Gynecology in the 1st semester then you have to choose Surgery-Small Surgery in the 2nd semester and vice versa.

4th year block practice	possible clinic/hospital department
Internal Medicine (Cardiology and Angiology)	Internal Medicine, Cardiology, Pulmonology
Internal Medicine (Endocrinology, Nephrology)	Internal Medicine
Obstetrics and Gynecology	Obstetrics and Gynecology
Surgery	Surgery, Traumatology
Small Surgery	Orthopedics, Oral Surgery, Urology
Freely chosen block practice (optional)	Otolaryngology, Orthopedics, Radiology, Oral Surgery, Ophthalmology, Urology

5th YEAR BLOCK PRACTICE
Compulsory: 2*2 weeks Internal Medicine, 2 weeks Pediatrics or 1 week Neurology
Freely chosen block practice: 1 week (Otolaryngology, Orthopedics, Radiology, Oral surgery, Ophthalmology, Urology)
1st semester
2 weeks Internal Medicine (Gastroenterology)
2 weeks Pediatrics or 1 week Neurology and 1 week freely chosen block practice (optional)

2nd semester
2 weeks Internal Medicine (Hematology)
2 weeks Pediatrics or 1 week Neurology
In case you choose Pediatrics in the 1st semester then you have to choose Neurology in the 2nd semester and vice versa.

5th year block practice	Possible clinic/hospital
Internal Medicine (Gastroenterology)	Internal Medicine, Infectology, Dermatology
Internal Medicine (Hematology)	Internal Medicine, Infectology, Dermatology
Pediatrics	Pediatrics
Neurology	Neurology

Calendar for the 4th and 5th year block practice in the academic year 2015/2016:

semester	weeks	dates
1.	11-12	November 16, 2015 - November 27, 2015
	13-14	November 30, 2015 - December 11, 2015
2.	11-12	April 18, 2016 - April 29, 2016
	13-14	May 2, 2016 - May 13, 2016

CHAPTER 13
ACADEMIC PROGRAM FOR THE 1ST YEAR

Department of Behavioural Sciences, Faculty of Public Health

Subject: **BASICS OF BEHAVIOURAL SCIENCES**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: **20**

1st week:
Lecture: Introduction. Behavioural Sciences. Psychology - area, main theories and their relevance to health issues.

2nd week:
Lecture: Bioethics

3rd week:
Lecture: Medical Anthropology

4th week:
Lecture: Medical Sociology

5th week:
Lecture: Medical Psychology I. Human Development

6th week:
Lecture: Medical Psychology II. Learning & Memory

7th week:
Lecture: Medical Psychology III. Emotion & Motivation

8th week:
Lecture: Medical Psychology IV. Personality & Psychological Disorders

9th week:
Lecture: Medical Psychology V. Social Influence & Social Cognition

10th week:
Lecture: Medical Psychology VI. Psychological Methods & Research in Psychology

11th week:
Lecture: Written test exam

Requirements

Course objectives:
The aim of the course is to familiarize the students with the most important psychological aspects of health and illness, the psychological characteristic of medical profession as well as the healing/caring process. The main schools of psychology are also introduced. The course is intended to give basic knowledge for the purpose of understanding the phenomena of motivation, memory, socialization, empathy as far as they are relevant for future medical doctors. This means the first steps toward the more specialised courses like medical psychology and behavioural medicine, as well as electives to be introduced in the third and fourth academic years.
First year students should pass "End of Semester Examination" (ESE) at the end of the semester. The Department of Behavioural Sciences will adhere to the requirements of the Rules and Regulations for English Program Students. The student must be present and the examination at the designated time. (He/she must explain the reason for any absence from the examination to the Departmental Adviser within 1 day of the day of examination.)

Subject: **COMMUNICATION SKILLS**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Practical: **20**

1st week:
Lecture: Introduction. Appointment of the semester.

2nd week:
Lecture: Elements of communication. Communicational channels.

3rd week:
Lecture: Verbal and non-verbal communication.

4th week:
Lecture: Empathy. Problems of empathy. Psychophysiology of empathy. Active listening.

5th week:
Lecture: Interpersonal skills and style of communication.

6th week:
Lecture: Anxiety/Assertivity/Aggression in communication.

7th week:
Lecture: Conflict management. The difference between feedback and criticism.

8th week:
Lecture: Doctor-patient communication. The role of confidence.

9th week:
Lecture: Field practice.

10th week:
Lecture: Field practice.

11th week:
Lecture: Movie.

12th week:
Lecture: Discussion the experiences about the movie.

13th week:
Lecture: Exam (Introduction to medical psychology). Discussion of the results.

14th week:
Lecture: Presentation of the field study. Feedback for the presenters.

15th week:
Lecture: Presentation of the field study. Feedback for the presenters. Feedback for the teacher. Deadline of giving the essay. Closing the semester.

Requirements

Aims:
Introducing and recognizing fundamental characteristics of human communication and developing basic knowledge, skills and attitudes which are most important in doctor patient relationship. This course serves as a basis for the continuation of third year studies of more specific communicational knowledge needs for healing and curing in the field of medical practice.
Framework and process of learning:
In form of small-group learning discussions, role-plays, observational tasks will be introduced by which students can be active participants in learning by acquiring not only theoretical issues. Because teachers guide semi-structured seminars, student will be facilitated to give feedback, express opinions and propose available topics, which could build into to learning process.
During first seminars individual learning objectives can be elaborated together with teacher and classmates and can be achieved alongside the main objectives of the whole group.
Standpoints of the observational task of communication class:
For the purpose of developing so called observational skills, a special task will be introduced. Students will be requested to watch systematically human behaviours at different places where one can perceive various forms of formal and informal communication (two weeks will be given for completing observations instead of attending seminars during this period. Seminars will be continued after two weeks break).
Sensitivity toward relating phenomena can be enhanced by these observational tasks. Several places of health case system, like wards, surgeries for outpatients, waiting rooms or other places like libraries, the campus where many human interactions can be observed are available.
Students will be asked to prepare a presentation and deliver it in front of the group. (Presentations will be held on the following week after finishing observations) and write an essay on the basis of their experience (volume: 4-5 pages, relevant theoretical background can be embedded. Deadline of giving in is the second week following the presentations).
The presentation will be given for the whole group and classmates will give feedback using structured criteria-system (see formative Assessment table on the back of the sheet. Presentation skills, proper use of nonverbal communicational channels can be assessed by which improvement of personal communicational skills can be facilitated.
After completed observational task the basic verbal communicational skills will be practiced using role-plays (or simulated patients- at given groups). Main forms of possible doctor-patient conversations can be discussed, as history taking, problem-, supportive-, and bad-new-conversations.
Oral Presentation: Formative Assessment
Skills and Qualities
Content/Text
Answers the question/deals effectively with the task. Demonstrates appropriate skills in analysis/ synthesis/ evaluation/ application etc. Use of evidence/examples etc.
Structure/Logic
Forecasting e.g. introduction.

Sign positing e.g. beginning and end of subtopics, key points/foci (highlighting important points) linking, sequencing, summarising, closure i.e. concluding.
Delivery/Presentation
Voice (intonation, emphasis, pace, pauses, and silences).
Eye contact; posture, mannerisms, appearance, rapport with audience, timing etc. Audio Visual Aids.
Handling Questions
Responding engaging others in discussion, managing the audience (e.g. encouragement, constructive feedback).
Knowledge, depth or answer

Department of Foreign Languages

Subject: **HUNGARIAN CRASH COURSE**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Practical: **36**

1st week:
Practical:
1st day: Introduction, The Hungarian alphabet, Vowelharmony. Ki vagy? Köszönések. Personal pronouns, Conjugation of the verb "lenni".
2nd day: Köszönések (Greetings). Magyar nevek, magyar családnevek. Számok (Numbers). Fontos telefonszámok, telefonszámok kiolvasása.
3rd day: Magyar pénz. How many? Ordinal numbers. Hogy vagy? Milyen nyelven beszélsz? Word formation with "-ul, -ül".
4th day: Mit csinálsz? Present tense verbal endings. Adverbs of time. Hová mész ma este? "Lenni" in past and and future. Adverbs of place.
5th day: Mit kérsz? Te vs. ön/maga. Object of the sentence. Revision of previous topics.

2nd week:
Practical:
1st day: Kérsz egy kávét? Word formation. Plural marker. Tud/akar/szeret/szeretne gitározni. Infinitive.
2nd day: Milyen idő van ma? "-ik" group verbs. Irregular verbs in the present tense. Postán. Vasútállomáson. Mit eszünk ma este? Double negation. The negative of "van, vannak".
3rd day: Tetszik a ruhád. Possessive. Az emberi test. Nekem van.
4th day: Milyen szeme van? Absence of "van, vannak". Comparison. Summary. Practice.
5th day: End course exam. Oral minimal requirement exam.

Requirements

9.00 - 10.30: language classes
10.30 - 11:00 break
11.00 - 12.30: language classes

Assessment: five grade evaluation (AW5).
Evaluation: Based on a written final test (80 %) + class participation + daily word quizzes (20 %) . Passing the oral exam is a minimal requirement for the successful completion of the Hungarian Crash Course. The oral exam consists of a role-play randomly chosen from 7 situations announced in the beginning of the course. Further minimal requirement is the knowledge of 200 words announced at the beginning of the course.

STUDENTS WHO DO NOT ATTEND THE HUNGARIAN CRASH COURSE DUE TO THEIR OWN FAULT OR FAIL THE ORAL EXAM HAVE TO TAKE AN EXTRA COURSE FOR AN ADDITIONAL FEE OF 500 USD DURING THE FIRST SEMESTER.

Subject: **HUNGARIAN LANGUAGE I/1.**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Practical: **24**

1st week:
Practical: Revision.

2nd week:
Practical: Pretest

3rd week:
Practical: Unit 1

4th week:
Practical: Unit 2

5th week:
Practical: Unit 2

6th week:
Practical: Unit 3

7th week:
Practical: Revision (Mid-term test)

8th week:
Practical: Unit 4

9th week:
Practical: Unit 5

10th week:
Practical: Unit 5

11th week:
Practical: Revision. End-term test

12th week:
Practical: Oral minimum exam. Evaluation.

Requirements

Attendance

Language class attendance is compulsory. The maximum percentage of allowable absences is 10 % which is a total of 2 out of the 15 weekly classes. Students arriving late for the classes are not allowed to enter the class. Being late is counted as an absence. If the number of absences is more than two, the final signature is refused and the student must repeat the course. Students are required to bring the textbook or other study material given out for the course with them to each language class. Active participation is evaluated by the teacher in every class. If students' behaviour or conduct does not meet the requirements of active participation, the teacher may evaluate their participation with a "minus" (-). If a student has 5 minuses, the signature may be refused due to the lack of active participation in classes.

Testing, evaluation

In each Hungarian language course, students must sit for 2 written language tests and a short minimal oral exam.

A further minimum requirement is the knowledge of 200 words per semester announced on the first week. There is a (written or oral) word quiz in the first 5-10 minutes of the class, every week. If a student has 5 or more failed or missed word quizzes he/she has to take a vocabulary exam that includes all 200 words along with the oral exam. The results of word quizzes are added to the average score of the written tests.

The oral exam consists of a role-play randomly chosen from a list of situations announced in the beginning of the course. Failing the oral exam results in failing the whole course. The result of the oral exam is added to the average of the mid-term and end-term tests.

Based on the final score the grades are given according to the following table:

Final score	Grade
0 - 59	fail (1)
60-69	pass (2)
70-79	satisfactory (3)
80-89	good (4)
90-100	excellent (5)

If the final score is below 60, the student once can take an oral remedial exam covering the whole semester's material.

Consultation classes: In each language course once a week students may attend a consultation class with one of the teachers of that subject in which they can ask their questions and ask for further explanations of the material covered in that week. These classes are optional.

Course book: Győrffy, E.: Hogy s mint? I.

Website: Audio files to the course book, oral exam topics and vocabulary minimum lists are available from the website of the Department of Foreign Languages: ilekt.med.unideb.hu.

Department of Medical Chemistry

Subject: **MEDICAL CHEMISTRY**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: **48**
Seminar: **60**
Practical: **45**

1st week:
Lecture: Introduction to Medical Chemistry. Quantum theory and the atom. Electronic structure and the periodic table.Types of chemical bonds. Covalent bonding and properties of molecules.
Seminar: Introduction to Medical Chemistry. Quantum theory and the atom. Electronic structure and the periodic table.Types of chemical bonds. Covalent bonding and properties of molecules.
Practical: Laboratory safety instructions. Fire-regulations.Chemical calculations. Concentration ofsolutions.

2nd week:
Lecture: Intermolecular forces. Changes of state. Kinetic-molecular theory of gases and liquids. Solutions and colloids.
Seminar: Intermolecular forces. Changes of state. Kinetic-molecular theory of gases and liquids. Solutions and colloids.
Practical: Laboratory techniques: laboratory equipments, volumetric apparatus. Filtration. Preparations ofsolutions. Chemical analysis of drinking-water.

3rd week:
Lecture: Chemical equilibrium. Ionic equilibria. Acids and bases: Acid base equilibria. Bronsted Lowry and Lewis theories
Seminar: Chemical equilibrium. Ionic equilibria. Acids and bases: Acid base equilibria. Bronsted Lowry and Lewis theories
Practical: Quantitative analysis. Acid-base titrations: strong acid-strong base, weak acid-strong basetitrations. Chromatography I. Paper chromatography: separation of food dyes and separation of metalions.

4th week:
Lecture: Thermochemistry and thermodynamics.Chemical kinetics.
Seminar: Thermochemistry and thermodynamics. Chemical kinetics.
Practical: Quantitative analysis. Acid-base titrations: strong acid-strong base, weak acid-strong basetitrations. Chromatography I. Paper chromatography: separation of food dyes and separation of metalions.

5th week:
Lecture: Electrochemistry. Thermodynamics of redox reactions. Introduction to organic chemistry. Stereochemistry.
Seminar: Electrochemistry. Thermodynamics of redox reactions. Introduction to organic chemistry. Stereochemistry.
Practical: Chromatography II. Ion exchangechromatography. Gel filtration. Desalting of egg-white solution. Reactions kinetics. Kinetic study of the saponification reaction of ethylacetate. Kineticanalysis of the oxidation of iodide ion using the Landolt-method.

6th week:
Lecture: Saturated and unsaturated hydrocarbons. Aromatic hydrocarbons.
Seminar: Saturated and unsaturated hydrocarbons. Aromatic hydrocarbons.
Practical: Chromatography II. Ion exchangechromatography. Gel filtration. Desalting of egg-white solution. Reactions kinetics. Kinetic study of thesaponification reaction of ethylacetate. Kineticanalysis of the oxidation of iodide ion using theLandolt-method.
Self Control Test

7th week:
Lecture: Alcohols and phenols. Organic halogen compounds.NO LECTURE
Seminar: Alcohols and phenols. Organic halogen compounds.
Practical: Elektrometry. Electrometric pH measurement.Potentiometric titrations. Determination ofbuffering capacity. Spectrophotometry. Photometric determinationof inorganic phosphate. Determination of acidlabile phosphate in organic compounds.

8th week:
Lecture: Aldehydes and ketones and quinones. Ethers. Organic sulfur compounds Nitrogen containing compounds
Seminar: Aldehydes and ketones and quinones. Ethers. Organic sulfur compounds Nitrogen containing compounds
Practical: Elektrometry. Electrometric pH measurement. Potentiometric titrations. Determination ofbuffering capacity. Spectrophotometry. Photometric determination of inorganic phosphate. Determination of acidlabile phosphate in organic compounds.

9th week:
Lecture: Carboxylic acids and carboxylic acid derivatives Amino acids and peptides
Seminar: Carboxylic acids and carboxylic acid derivatives Amino acids and peptides
Practical: Redox titrations. Iodometric titrations. Titrations with potassium bromate.Enzyme kinetics. Assay of glycogen phosphorylase activity.

10th week:
Lecture: Proteins (Structure, function and regulation) Enzymes and enzyme regulation
Seminar: Proteins (Structure, function and regulation) Enzymes and enzyme regulation
Practical: Redox titrations. Iodometric titrations.Titrations with potassium bromate. Enzyme kinetics. Assay of glycogen phosphorylase activity.

11th week:
Lecture: Carbohydrates. Glycolytic pathway and tricarboxylic acid cycle Regulation of metabolic pathways
Seminar: Carbohydrates. Glycolytic pathway and tricarboxylic acid cycle Regulation of metabolic pathways
Practical: Qualitative analysis of mono- and disaccharides. Polarimetry. Polarimetric analysis of carbohydrates. Quantitative protein analysis: Biuret assay. Bradford assay. Assay of glucose. Enzymatic determination of glucose in blood serum.
Self Control Test

12th week:
Lecture: Lipids Nucleotides and nucleic acids.
Seminar: Lipids Nucleotides and nucleic acids.
Practical: Qualitative analysis of mono- and disaccharides. Polarimetry. Polarimetric analysis of carbohydrates. Quantitative protein analysis: Biuret assay. Bradford assay. Assay of glucose. Enzymatic determination of glucose in blood serum.

13th week:
Lecture: Genes and chromatine Coordination chemistry. Function and transport of alkaline and alkaline earth metal cations
Seminar: Genes and chromatine Coordination chemistry. Function and transport of alkaline and alkaline earth metal cations
Practical: Analysis of inorganic salts and complexes. Complexometric titrations. Photometric determination of iron.

14th week:
Lecture: Transition metals: iron, copper, zinc. Biological functions of the nonmetallic elements: oxygen, selenium, halogens
Seminar: Transition metals: iron, copper, zinc. Biological functions of the nonmetallic elements: oxygen, selenium, halogens
Practical: Analysis of inorganic salts and complexes. Complexometric titrations. Photometric determination of iron.

15th week:
Lecture: Research opportunities for students at Dept. Medical Chemistry Preparation for the exam
Seminar: Research opportunities for students at Dept. Medical Chemistry Preparation for the exam
Practical: Practical exam.
Self Control Test

Requirements

The program consists of lectures, seminars and laboratory practices. Attendance at laboratory practices and seminars is recorded. Students should attend at least 80% of seminars and 100% of laboratory practices. Missed and not accepted practices can be made up by the students on the same week or the next week (if the missed lab is still running and the laboratory teacher permits). If the student fails the practical examination (on week 15), (s)he cannot get exemption from the written part of final examination and her/his final exam will also cover the laboratory practices.
Three control tests (general chemistry; organic chemistry; bioorganic and bioinorganic chemistry) covering the topics of lectures and seminars will be written during the semester. Preparation for the tests and exams should be based on the official textbooks, lectures and seminars.
Control tests and final exams will be assessed as follows*:

Percentage (%)*	Mark
0-56	fail (1)
57-65	pass (2)
66-75	satisfactory (3)
76-84	good (4)
85-100	excellent (5)

*Percentage values may slightly vary depending on the actual number of questions in the tests/exams.
The final exam consists of a written exam and an oral examination. The written test is composed of multiple choice questions arranged into three modules: general chemistry; organic chemistry; bioorganic and bioinorganic chemistry. The student may get exemption from any module(s) of the final written exam in case (s)he successfully completed the control tests of the corresponding module. Results of control tests and exam modules can be carried to B or C chance exams. The student can only pass the written part of the exam if the result of all three modules is at least "pass (2)". The second part of the final exam is an oral exam covering all three modules. Only students who passed the written exam qualify to sit the oral exam.
Students who have successfully passed the exam but want to improve their mark are allowed to take one improvement

exam.
In case the students take the exam in the second semester at the end of an exam course, then all three modules of the exam must be taken and results of previous control tests or exam modules cannot be considered.

Division of Biomathematics

Subject: **BIOSTATISTICS**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Seminar: **28**

1st week:
Lecture: 1. Introduction, random variables, qualitative variables, quantitative variables, discrete and continuous random variables 2. Counting techniques (permutations and combination), set theory, definition and properties of probability, conditional probability, Bayes's theorem

2nd week:
Lecture: 3. Descriptive statistics, ordered array, frequency distribution, cumulative frequency distribution, histogram mean, median, mode, range, variance
Seminar: Material related to lecture 1.

3rd week:
Lecture: 4. Probability distributions (discrete, continous), Binomial and Poisson distributions
Seminar: Material related to lecture 2.

4th week:
Lecture: 5. Normal distribution, standard normal distribution, problems for normal and standard normal distributions
Seminar: Material related to lecture 3.

5th week:
Lecture: 6. Sampling, sampling distributions (special focus on SEM and the central limit theorem).
Seminar: Material related to lecture 4.

6th week:
Lecture: 7. Hypothesis testing, type I and type II errors
Seminar: Material related to lecture 5.

8th week:
Lecture: 8. Statistical tests (z, t and F tests)
Seminar: Material related to lecture 6.

9th week:
Lecture: 9. Clinical implications of conditional probability (sensitivity, specificity, positive and negative predictive values). Analysis of discrete random variables.
Seminar: Material related to lecture 7.

10th week:
Lecture: 10. Summary
Seminar: Material related to lecture 8.

11th week:
Seminar: Material related to lecture 9.

Requirements

Aim of the course	The aim of the subject is to give an introduction to biostatistical methods, which can be used in different braches of medicine to solve biostatistical problems and to evaluate experimental results. In addition to providing a solid thoeretical foundation the course will also introduce the students to the art and science of performing the simplest calculations.
Short description of the course	Brief introduction to the most basic concepts of calculus (slop, fitting, area under the curve); counting techniques; descriptive statistics; algebra of events; probability; random variables; statistical distributions and their properties; binomial, Poisson and normal distributions; sampling techniques and characterization of samples; statistical test (z, t, F and chi2 tests)
Attendance	
Conditions for signing the lecture book	Signing of the lecture book is denied if there are more

	than 2 absences from groupwise seminars.
Self control test	Students will write a grade-offering course test between weeks 12-14. The structure of this test will be identical to that of the final exam.
Exam	Students will write a grade-offering course test between weeks 12-14. The structure of this test will be identical to that of the final exam.
Final grade	
Reading materials	Wayne W. Daniel: Biostatistics, A foundation for Analysis in the Health Sciences, John Wiley&Sons
Exemptions	Requests for exemptions from the biostatistics course have to be turned in to the Credit Transfer Committee. Such requests cannot be directly turned in to the Biomathematics Division or the Department of Biophysics and Cell Biology.
Information for repeaters	Credits achieved in a semester cannot be transferred to other semesters. Therefore, students repeating the course are subject to the same rules and requirements as those taking the course for the first time.
Rules for calculator	Rules for calculator usage during course tests and the final examination In order to ensure a fair evaluation, to avoid disturbances in the testing room, and to protect the security of the test material the following types of calculators are NOT permitted: - calculators with built-in computer algebra systems (capable of simplifying algebraic expressions) - pocket organizers, handhold or laptop computers - any device capable of storing text. Calculators with a typewriter keypad (so-called QWERTY devices), electronic writing pads and pen-input devices are not allowed either. Calculators with letters on the keys (e.g. for entering hexadecimal numbers or variable names) are permitted as long as the keys are not arranged in QWERTY format. - calculators or other devices capable of communicating with other devices - calculators built into wireless phones - calculators with paper tape or models that make noise In general, students may use any four-function, scientific or graphing calculator except as specified above. Sharing calculators during tests is not allowed, and the test proctor will not provide a calculator.

Division of Biophysics

Subject: **BIOPHYSICS**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: **30**
Seminar: **30**
Practical: **22**

1st week:
Lecture: 1. Introduction. Electromagnetic waves , the properties of light (interference, photoelectric effect, photon theory). Matter waves.2. X-ray, X-ray crystallography.

Seminar: Introduction.

2nd week:
Lecture: 3. Thermal radiation, light absorption and emission. Atomic and molecule spectra, absorption

spectroscopy.4. Fluorescence spectroscopy, applications of fluorescence.
Seminar: Material related to lectures 1 and 2.
Practical: Week 2-11: Practicals in rotation system. Labs to be performed: (1) Measurement of diffusion constant; (2) Optical measurements; (3) Microscopy; (4) Computer tomography and blood pressure measurement; (5) Measurement with a Geiger-Müller counter. Attenuation of nuclear radiation. For detailed information (timetable, protocols, requirements, etc.) see the web page of the Department.

3rd week:
Lecture: 5. Lasers and their application in medicine.6. Optics, optical microscopy, electron microscopy.
Seminar: Material related to lectures 3 and 4.
Practical: Practicals in rotation system.

4th week:
Lecture: 7. Physical properties of sound, ultrasound, Doppler principle. Medical applications of ultrasound.8. Nuclear physics. Nuclear binding energy, radioactivity, law of radioactive decay, radioactive series.
Seminar: Material related to lectures 5 and 6.
Practical: Practicals in rotation system.

5th week:
Lecture: 9. Features of nuclear radiation and its interaction with absorbing material. Detection of radiation.10. Radiation biophysics: target theory, direct and indirect action of radiation. Dosimetry. Biological effects of radiation.
Seminar: Material related to lectures 7 and 8.
Practical: Practicals in rotation system.

6th week:
Lecture: 11. Experimental and diagnostic application of isotopes. Accelerators, Gamma camera.12. Principles of tomographic methods. PET, SPECT and X-ray absorption CT.
Seminar: Material related to lectures 9 and 10.
Practical: Practicals in rotation system.

7th week:
Lecture: 13. Basic principles of Nuclear Magnetic Resonance (NMR) and Electron Spin Resonance (ESR).14. Magnetic resonance imaging (MRI). Magnetic resonance spectroscopy (MRS).
Seminar: Material related to lectures 11 and 12
Practical: Practicals in rotation system.
Self Control Test

8th week:
Lecture: 15. Free enthalpy, chemical potential. Thermodynamic probability, Brownian motion, osmosis.16. Diffusion at the molecular level, statistical interpretation. Fick's I. and II. Law.
Seminar: Material related to lectures 13 and 14.
Practical: Practicals in rotation system.

9th week:
Lecture: 17. The structure of biological membranes. Membrane transport.18. Thermodynamic equilibrium potentials (Nernst, Donnan). Diffusion potential, Goldman-Hodgkin-Katz equation.
Seminar: Material related to lectures 15 and 16.
Practical: Practicals in rotation system.

10th week:
Lecture: 19. Resting potential, action potential, and electrical excitability. Measurement of membrane potential.20. Ion channels (gating, selectivity), the "patch clamp" technique.
Seminar: Material related to lectures 17 and 18
Practical: Practicals in rotation system.

11th week:
Lecture: 21. The physical background of ECG and EEG.22. Fluid mechanics, blood circulation.
Seminar: Material related to lectures 19 and 20.
Practical: Practicals in rotation system.

12th week:
Lecture: 23. The human ear. Mechanism of hearing. The Weber-Fechner law.24. The human eye. Photoreceptors. The molecular mechanism of vision.
Seminar: Material related to lectures 21 and 22.
Practical: Spare lab.
Self Control Test

13th week:
Lecture: 25. Biomechanics.26. Flow cytometry and its application in medicine.
Seminar: Material related to lectures 23 and 24.
Practical: Practical exam.

14th week:
Lecture: 27. Biophysics of respiration (not required for Dentistry students)28. Modern microscopic techniques, near field, atomic force microscopy, confocal laser scanning microscopy.
Seminar: Material related to lectures 25 and 26.
Practical: Practical exam.

15th week:
Lecture: 29. Research in the Department30. Preparation for the exam: question, answers
Seminar: Material related to lectures 27 and 28.

Requirements

Aim of the course:
To provide the necessary theoretical and practical background for the understanding the physical principles applied in biology and medicine, and for the description of the physical processes in living organisms.
To introduce the biophysical techniques in order to (1) understand the pathomechanism of diseases (2) develop of novel therapeutic approaches (3) develop of novel diagnostic tools: e.g. ECG, MRI, PET (4) understand the operation of cells, tissues and organs at the molecular level (5) provide a solid background for Physiology, Clinical Physiology, Radiology.
Short description of the course:
Students will be introduced to the quantitative description of the physical basis of selected topics in biology and medicine. Structure of the course: (1) Introduction to natural sciences (e.g. basic principles of atomic and nuclear physics) (2) Medical physics (e.g. physical principles of diagnostic and therapeutic procedures) (3) Molecular biophysics (e.g. diffusion, membrane biophysics) (4) Organ biophysics (e.g. vision, hearing, circulation) Compulsory reading:
Medical Biophysics (Editors.: S. Damjanovich, J. Fidy, J. Szöllősi, Medicina, Budapest, 2009, ISBN: 978-963-226-127-0)
Educational material published on the web page of the Department.

1. Lectures

Attendance to lectures is emphatically recommended. All material covered in lectures is an integral part of the subject and therefore included in the self-control tests and the final exam. Some new concepts and ideas are discussed in the lectures only and are not present in the textbook.

2. Seminars

Attendance to seminars is compulsory, however, a student may miss maximum 7 (seven) seminars. Students may attend the seminars according to their group assignment only. In the seminars, students are encouraged to ask questions related to the topic of the lectures discussed (see timetable of lectures and seminars). Besides, students may prepare short presentations (7-15 minutes) about the topic of the seminars (max. 2 students/seminar). The topic list for short presentations is posted to the web page of the Department. The talks are graded on a scale of 0-3. This grade counts toward the bonus points earned during the semester. Students obtaining less than 3 points for the presentation may prepare an additional one (in the student's own group) given that spots are still available. In this case the better score is considered for bonus points (the two presentations are not cumulative). To get the maximum 3 points for the presentation the followings must be fulfilled:

- keeping the allocated time (min. 7, max. 15 min);
- good quality of the figures (axis labels, color combinations, appropriate resolution);
- good quality of the figures (axis labels, color combinations, appropriate resolution);
- teaching merit of the presentation (too many slides without proper explanation is not accepted here).

The presenting student must show up at the beginning of the class to allow time for file uploading and technical arrangements; students arriving late may be denied of the chance to present their work.

3. Practicals

Attendance to labs is mandatory. Labs missed (a maximum of 2 is allowed) with acceptable excuse can be completed during the spare practical on week 12 with a written permission (recorded in the lab logbook) of the manager of education (permission is given during the office hours only). Students may attend the practicals according to their group assignment only. For the practicals a separate logbook should be prepared which is graded at the end of the lab on a scale between 0-3. (Getting 0 means that the lab is not accepted and it has to be repeated.) However, the lab tutor may test the students' preparation for the practical any time during the practical and – based on the result – might instruct the student to repeat the lab (scheduling is the same as for absences). At the end of the semester, the grades for your logs and your attitude during labs will be summed up as a Practical Grade (PG) on a scale of 0-3. Detailed requirements of the labs (reading for the labs, instructions for logbook preparation, details of the grading system, etc.) are posted on the webpage of the Department.
Practical exam (week 13 or 14): Students can take a lab exam during their regular lab class on week 13 or 14. It is not allowed to repeat the lab exam to improve the grade. The duration of the exam is approximately 30 minutes and students have to perform an experiment based on the semester work, assigned randomly. The examiner checks the record of the experiment and also may ask questions from the labs. The grading will be on a scale of 0-3 (PE grade) based on the record of the experiment, calculations/graphs (concept, work plan, clarity and punctuality are primary consideration) as well as oral performance.
Evaluation of the practical part:
PG+PE >=3 and PE >0, practical part accepted, exempted from practical exam on the day of the Final Exam. (a practical exam with 0 points has to be repeated regardless of the practical grade)
1 < PG+PE < 3 practical part accepted, practical exam on the day of the Final Exam.
PG+PE =< 1, practical part is not accepted, the semester is not accepted.

For students who were exempted from attending the practicals, but have to take the lab exam, the exam is evaluated as a pass or fail.

4. Exemptions

In order to get full exemption from the biophysics course the student has to write an application to the Educational Office. The Department of Biophysics and Cell Biology does not accept such applications. Applications for exemptions from part of the courses are handled by the department. The deadline for such applications is Friday on the third week. No application will be considered after this date.

The following documents have to be submitted to the study adviser:

1. application with an explanation why the student thinks that he/she is eligible for an exemption;
2. certificates about the courses the student has taken;
3. a reliable description of the curriculum of the courses taken.

An application is rejected, accepted, or in most cases students applying for an exemption will be examined by the Biophysics Chairman before granting an exemption. Applicants will be notified whether they have to take such an examination. The deadline for taking such an exam is Friday on week 5.

5. Conditions for signing the lecture book

- 7 or fewer absences from seminars;
- All labs accepted, PG+PE > 1.

6. Self-control tests

There will be 2 self-control tests (SCT) during the semester (week 7 and week 12). None of the SCTs are obligatory. The type of the questions will be similar to those on the final exam (FE). Each SCT will be graded (0-100 %, 0% for absence) and the results of the two SCTs will be averaged (Xave). The missed test is counted as 0% in the calculation of the average. Missed SCTs cannot be made up at a later time. Based on the written tests students may obtain the following bonus points and exceptions from the final exam:

i) if Xave is at least 66 points, the student is exempted from part A of the biophysics final exam (see below);

ii) according to Xave SCT bonus points earned to the FE are as follows:

Xave	SCT bonus points	Xave	SCT bonus points	Xave	SCT bonus points
0- 34.99	0	50-54.99	6	70-74.99	10
35-39.99	3	55-59.99	7	75-79.99	11
40-44.99	4	60-64.99	8	80-100	12
45-49.99	5	65-69.99	9	if >85	see point iii)

iii) if Xave is at least 85 the student is eligible for a grade-offering oral exam conducted at the end of the semester, where – based on his/her performance – grades 4 or 5 can be offered.

If the student does not show up in the oral exam or his/her performance is not sufficient on the grade-offering exam, no grades are offered and the student should take the regular written FE during the exam period.

7. Final Examination (FE)

Students have three chances (A, B, C) for passing the biophysics final exam in the winter exam period after the semester in which the course was taken.

The FE consists of 3 parts:

Part I: Practical exam. The practical exam is similar to that explained in section 3. Those reaching PG+PE >=3 and PE >0 during the semester are exempted. Practical exam taken in the exam period is evaluated as pass or fail, independent of the practical grade (PG). The result of the practical exam is not counted into the result of the written exam (part III. of the FE). The result of a successful practical exam is valid for further exam chances (B- or C-chances).

Part II: Minimum requirement questions. It consists of a written quiz of 20 minimum requirement questions. One must pass this part to have the written test (part III.) evaluated. Minimum requirement questions and the answers thereto are provided on the website of the Department (biophys.med.unideb.hu). Questions regarding the biophysics labs are not asked in the exam. 16 out of 20 have to be answered correctly in order to pass this part. Exemption from this part of the FE is discussed in 6. i). This part is evaluated as pass or fail, once passed it is valid for further exam chances (B- or C-chance) of the FE. The result of the minimum requirement questions are not counted into the result of the written test (part III. of the FE).

Part III: Written exam. It consists of essays, fill-in-the-missing-phrase type questions, relation analysis and various simple test and multiple-choice questions etc. Part III. will only be evaluated if Part I and Part II are both passed.

However, those failing part II. can still do the practical exam (part I.) on the day of the FE. The total bonus for the semester (SCT bonus points (max. 11) + seminar bonus points (max. 3)) will be added to the score of the written exam ONLY IF a minimum score of 45% is achieved in part III. of the FE. Additional exemptions are in point 6. iii)

Rules for C-chance exams:
The C-chance exams are conducted by a committee. All exemptions regarding Part I and Part II of the FE gained in the given semester apply to the C-chance as well. The evaluation process of the C-chance exam differs from the regular procedure (A- and B-chance) in the followings:
- Part III is evaluated even if Part II is failed.
- If either Part II or Part III is failed an oral exam is conducted.
- Part I of the exam must be conducted in front of the committee.

If the student passes all three parts of the FE (either based on exemptions or C-chance written results) the grade will be determined by the result of Part III.

8. Rules for the usage of calculators during self-control tests and the final examination

In order to ensure a fair evaluation, to avoid disturbances in the testing room, and to protect the security of the test material the following types of calculators are NOT permitted:
- calculators with built-in computer algebra systems (capable of simplifying algebraic expressions)
- pocket organizers, handheld or laptop computers
- any device capable of storing text. Calculators with a typewriter keypad (so-called QWERTY devices), electronic writing pads and pen-input devices are not allowed either. Calculators with letters on the keys (e.g. for entering hexadecimal numbers or variable names) are permitted as long as the keys are not arranged in QWERTY format.
- Calculators or other devices capable of communicating with other devices
- Calculators built into wireless phones
- Calculators with paper tape or models that make noise

In general, students may use any four-function, scientific or graphing calculator except as specified above. However, we reserve the right to prohibit the usage of ANY type of calculator, computer and data storage and retrieval device during some tests if no calculations or only very simple calculations are necessary. Sharing calculators during tests is not allowed, and the test proctor will not provide a calculator.

9. Information for repeaters

* if all labs and the practical exam were completed and accepted during the failed semester, the student is exempted from repeating these;
* if all labs were completed and accepted during the failed semester without a valid practical exam, the student must do it as a part of the final exam (section 7 b));
* attendance to seminars is compulsory (see point 2);
* all exemptions and bonuses obtained during the failed semester (self-control tests, exemption from minimals) are lost;
* according to the relevant rules (point 6) self-control tests may be written and exemptions may be obtained again;
* in the case of schedule collisions with 2nd year classes we ask students to choose 2nd year groups such that conflicts with the 1st year subjects can be avoided (i.e. the student is still considered to be a 1st year student!).

10. Information for Exam Course students Points 1-6 and 9 are irrelevant.

Point 7 applies fully, exemptions earned during the semester preceding the exam course (Part I. and Part II) also applies as well as Point 8.

Evaluation of the FE:

Grade is calculated based on the sum of written exam score + bonus points (see conditions for the bonus points above)

Grade	written exam score + bonus points
fail (1)	0 – 54.99
pass (2)	55 – 64.99
satisfactory (3)	65 – 74.99
good (4)	75 – 84.99
excellent (5)	85 –

Dates, sites and detailed instructions for SCTs and the FE will be announced on the notice board of the Department of Biophysics and Cell Biology and on the educational web site (biophys.med.unideb.hu).

Further information

Zsolt Fazekas, Ph.D., manager of education, Dept. of Biophysics and Cell Biology
Web page of the Department: http://biophys.med.unideb.hu/en
E-mail: biophysedu@med.unideb.hu

Office hours: The location and time of office hours are posted in the News section of the Department's web page.

Division of Emergency Medicine

Subject: **FIRST AID AND REANIMATION**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: **6**
Practical: **15**

1st week:
Lecture: Definition of "first aid"; first aid levels; time factor; behavior of first responder in the field; the emergency call

2nd week:
Lecture: Unconsciousness; airway obstruction; airway opening maneuvers.

3rd week:
Lecture: Death as a process; determining of clinical death; the different oxygen demand of the brain depending on age; establishing unconsciousness or death; assessment of vital signs; assessment of breathing, circulation, pupils and muscle tone

4th week:
Lecture: Reanimation on the spot – organization problems; the theory of CPR; complications during the CPR; effect, results and success during CPR

5th week:
Practical: Examination of breathing and circulation; the chest-thrust; airway opening maneuvers; the recovery position (Gábor maneuver); one hour

6th week:
Practical: Practicing the ventilation (one hour)

7th week:
Practical: Practicing the chest compression (one hour)

8th week:
Practical: CPR training without equipment (two hours)

9th week:
Practical: CPR training, two-rescuer method (two hours)

10th week:
Practical: Bleeding control with direct pressure and pressure point techniques; bandages and fixation; equipments, tools and maneuvers; general rules of provisory injury therapy; pressure bandage for controlling of arterial and venous bleeding on the spot (two hours)

11th week:
Practical: Bandages for head, nose; ears, eyes; chin, body and extremities; practicing the bandages (two hours)

12th week:
Practical: First aid in fractures, luxations, distortions and extended soft-tissue injuries; bandage for fixation with special triangle; Schantz collar; stifneck; Dessault bandage; fixation of finger and hand fractures; usage of Kramer splint and pneumatic splint (two hours)

13th week:
Practical: CPR training (two hours)
Self Control Test

14th week:
Lecture: Burning; first aid in burning diseases; shock

15th week:
Lecture: Intoxication; guideline of poisoning in toxicology; typical intoxications, special signs, first aid

Requirements

Condition of signing the Lecture book:
Attendance at practices is compulsory. The tutor may refuse to sign the Lecture book if the student is absent from the practices more than twice in a semester. Missed practices should be made up for after consultation with the practice tutor. Facilities for a maximum of 2 make-up practices are available at the Ambulance Station in Debrecen. The current knowledge of students will be tested two times in each semester in written test.

Department of Anatomy, Histology and Embryology

Subject: **ANATOMY, HISTOLOGY AND EMBRYOLOGY I.**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **29**
Practical: **86**

1st week:
Lecture: General introduction. Epithelial tissue: covering and lining epithelia
Practical: Anatomy: Anatomical terminology. Bones and joints of the upper limb. a. Anatomical terminology. Terms of positions and directions. Bones of the upper limb. Make schematic drawings of the bones: show the characteristic features. Reconstruction of the carpus from individual bones. b. Joints of the upper limb. Please pay special attention to the following issues: Classification of the articular surface according to the shape. Note the presence of disci and menisci. Describe the joint capsule, extracapsular and intraarticular ligaments, bursal cavities and other accessory parts of the joint. - Classification of synovial joints. Freedom, axes and planes of movements at synovial joints. Correlation between the shape of the articular surface and the freedom of movements. Function of individual joints: their contribution to the action of the upper limb. Histology: Introduction to histological methods. The microscope and the resolution. Using the virtual microscope: Case Center and Panoramic Viewer. The evaluation and interpretation of histological sections. Always keep in mind: What you can see in the microscope is a thin (almost 2-dimensional) section of a 3-dimensional object.1. Small intestine (HE)

2nd week:
Lecture: Osteology and arthrology - introduction. The muscular system - general introduction. Innervation of the muscles.
Practical: Anatomy: Joints of the upper limb. Dissection of the upper limb: part one and two a. Dissection of the upper limb: part one. Surface anatomy of the upper limb. Mark the surface projections of superficial veins and cutaneous nerves on the cadaver, show the sites where the fascia is pierced by superficial veins and nerves. Projections and landmarks of the deep elements. Lymph nodes and lymphatic drainage of the upper limb. Places of the intravenous injections. Palpate the pulse on the upper limb. Transmit these markings to the scheme of the upper limb provided in your anatomy schedule handout. Incise the skin from the deltoideopectoral sulcus to the wrist and fold it laterally. Peel off the skin of the hand separately and fold it into the distal direction. Dissection of the infraclavicular region: incise the skin along the clavicle and fold it downward!b. Dissection of the volar side of the upper limb. Axillary fossa, medial and lateral bicipital sulci, cubital fossa, palmar region. The dissection of the latter region can be commenced after finishing the preparation of the infraclavicular region. Show clearly the origin and insertion of muscles. Remove all fasciae.Histology: Epithelial tissues: simple covering and lining epithelia 1. Mesothelium (mesentery, Silver impregnation) 2. Endothelium (small intestine, HE stain) 3. Simple squamous epithelium, simple cuboidal epithelium (kidney, HE stain) 4. Simple columnar epithelium with microvilli (small intestine, HE stain) 5. Pseudostratified columnar epithelium ciliated (trachea, HE stain) 6. Demonstration: movement of cilia (video)Make schematic drawings of the epithelial tissues. Identify epithelial tissues on the basis of the distribution and form of nuclei at low-power magnification.

3rd week:
Lecture: Glandular epithelium. Connective tissue - part one
Practical: Anatomy: Dissection of the upper limb: parts three and four a. Arteries, veins and nerves on the volar side of the upper limb. Dissection of the deep structures. Continue the dissection of the medial and lateral bicipital sulci, the axillary region, cubital fossa, carpal canal, synovial sheaths of the flexor digitorum. Spare the flexor retinaculum. Dissect the nerves and blood vessels on one of the fingers. Dissection of the superficial and deep palmar arches. Show clearly the origin and insertion of muscles. b. Dorsal side of the upper limb. Peel off the skin of the dorsal surface and fold it proximally and then medially towards the thorax. Peel off the skin of the dorsal surface of the hand and fold it into the distal direction. Muscles of the shoulder. Histology: Stratified epithelial tissues. l. Stratified squamous nonkeratinizing epithelium (esophagus, HE stain) 2. Stratified squamous keratinizing epithelium (skin, HE stain) 3. Stratified columnar epithelium (urethra masculina, HE stain) 4. Transitional epithelium: urothelium (ureter, HE stain)

4th week:
Lecture: Connective tissue - part two. Clinical anatomy of the upper limb.
Practical: Anatomy: Dissection of the upper limb: parts five and six. a. Dorsal side of the upper limb: deep structures. The osteo-fibrous tunnels deep to the extensor retinaculum. Action of individual muscles and muscle groups of the upper limb. Nerve supply of muscles. Cardinal symptoms of injuries to nerve trunks: paralysis of different muscle groups. b. Completion of the dissection of the upper limb. Histology: Glandular epithelium, pigment epitheliuml. Sebaceous, sweat and apocrine glands (axillary skin, HE stain) 2. Serous and mucous glands (submandibular gland, HE stain) 3. Serous, mucous glands (sublingual gland, PAS+H stain) 4. Pigment epithelium (retina). 5. Pigment containing cells (skin, methyl-green) (Classification of exocrine glands, mechanism of secretion and their microscopical features, the chemical character of the secretion product. Localization of different types of glands in various organs.)

5th week:
Lecture: Connective tissue-part three. Adipose tissue. Cartilage
Practical: Anatomy: SELF CONTROL: upper limb. a. SELF CONTROL: The upper limb. (Bones, joints, muscles, blood vessels and nerves) b. SELF CONTROL - REMEDIAL: The upper limb. (Bones, joints, muscles, blood vessels and nerves). Histology: Cells of the connective tissue: l. Mesenchyme (umbilical cord, HE stain) 2. Fibroblasts (granular tissue, HE stain) 3. Mast cells (healing wound from rat skin, Toluidin blue stain) 4. Macrophages (Skin, Trypan blue - nuclear fast red stain) 5. Demonstration: l. Plasma cells (lymph node, HE stain) 2.

Fibroblasts (tissue culture, H stain)

6th week:
Lecture: Histology of bone. Development and growth of the bone.
Practical: Anatomy: Bones of the lower limb. The structure of the pelvis. a.Bones of the pelvic girdle: hip bone, sacrum. Joints, ligaments and walls of the pelvis. Statics of the pelvis. Make schematic drawings! b. Bones of the lower limb. Make schematic drawings of the bones! Histology: Fibers of the connective tissue: 1. Collagen fibers (large intestine, HE stain) 2. Collagen fibers (large intestine, Azan stain) 3. Elastic fibers (aorta, orcein stain)4. Reticular fibers (liver, silver impregnation) 5. Collagen and elastic fibers (spermatic cord, Van Gieson and Resorcin-fuchsin) Make distinction between collagen and elastic fibers.Fine structure of collagen fibers.

7th week:
Lecture: Muscular tissue - part one. Muscular tissue - part two.
Practical: Anatomy: Joints of the lower limb. Dissection of the lower limb: part one. a. Joints of the lower limb. Follow the instruction that was given at the upper limb. b. Surface anatomy of the lower limb. Mark the surface projections of the following structures on the cadaver: cutaneous nerves, superficial veins. Projections of the deep structures: femoral artery, popliteal artery, anterior and posterior tibial arteries, arteries of the sole and dorsum of the foot, femoral and ischiadic nerves. Femoral canal, femoral triangle, popliteal fossa and their structures. Lymph nodes of the lower limb. Places of the intramuscular injections. Palpate the pulse on the lower limb. The drawings from the body have to be transmitted to the scheme in your anatomy schedule. Remove the skin from the ventral surface. Make incisions along the inguinal ligament along the midline all the way down to the level of the ankles. Fold the skin laterally in the thigh and leg, and distally in the foot. Histology: SELF CONTROL (Basic histological methods. Epithelial and connective tissues.)

8th week:
Lecture: Spermiogenesis. Oogenesis. The structure of the foot.
Practical: Anatomy: Dissection of the lower limb: parts two and three. a. Dissection of the ventral surface of the lower limb. Muscles of the ventral part of the lower limb. Hiatus subinguinalis. Adductor and femoral canal. Saphenous opening. Femoral triangle. b. Dissection of the dorsal surface of the lower limb. Incise the skin at the level of the heel, and fold it back in the rostral direction as far as the iliac crest, and keep continuous with the skin of the back. Leave the skin covering the perineal region in position. The skin of the sole is removed at the level of the plantar aponeurosis starting from the calcaneus and is folded back at the toes. Spare the superficial nerves and blood vessels. Muscles of the dorsal surface of the lower limb. Histology: SELF CONTROL: REMEDIAL

9th week:
Lecture: Fertilization, beginning of the pregnancy. Clinical anatomy of the lower limb
Practical: Anatomy: Dissection of the lower limb: parts four and five. a. Dissection of the gluteal region, popliteal fossa and the sole. Clear all fasciae from the gluteus maximus muscle before transsection. Note the relationships of the fascia of back and thigh (thoracolumbar, gluteal fascia, iliotibial tract).b. Dissection of the dorsal surface of the lower limb. Cut the tendo calcaneus and fold back the triceps surae. Dissection of the structures at the medial malleolus. Arteries and nerves of the dorsal surface of the lower limb. Actions and movements of the muscles and joints of the lower limb. Muscle actions in different forms of joint movements. Nerve supply of muscles. Cardinal symptoms of the injuries to peripheral nerve trunk - peripheral paralysis of different muscle groups. Histology: The adipose tissue and the cartilage. 1. Fat cells (skin, Osmium + H stain) 2. Hyaline cartilage (trachea, HE stain) 3. Elastic cartilage (epiglottis, orcein stain) 4. Fibrocartilage (knee joint, HE stain) 5. Fibrocartilage (knee joint, Azan stain) 6. Fibrocartilage and hyaline cartilage (knee joint, toluidin-blue stain)7. Intervertebral disc (HE stain)Demonstration: White and brown adipose tissues (adrenal gland, HE)

10th week:
Lecture: Gastrulation. The early differentiation of the mesoderm. Histology of the blood vessels
Practical: Anatomy: SELF CONTROL: lower limb.a. SELF CONTROL: lower limb (bones, joints, muscles, blood vessels, nerves).b. SELF CONTROL - REMEDIAL: lower limb (bones, joints, muscles, blood vessels, nerves).Histology: Histology and development of the bone.l. Cross section of compact bone (Schmorl stain).2. Longitudinal section of compact bone (Schmorl stain).3. Intramembranous ossification (skull of a rat, HE stain)4. Enchondral ossification and the epiphysial plate. (rabbit knee joint, HE stain) 5. Enchondral ossification and the epiphysial plate. (rabbit knee joint, Azan stain)6. Enchondral ossification and the epiphysial plate. (rat knee joint, toluidin-blue stain)

11th week:
Lecture: The differentiation of the ectoderm and mesoderm. Blood
Practical: Anatomy: Bones and joints of the thoracic cage and vertebral column. The muscles of the back. a. Bones and joints of the thorax b. The structure of the thorax and vertebral column. Movements of the thoracic cage. Muscles of the back. Structure of the posterior abdominal wall. Thoracolumbar fascia. Histology: Muscle tissuel. Striated muscle (HE stain).2. Striated muscle (iron-H stain).3. The smooth muscle (large intestine) HE stain.4. The cardiac muscle (HE stain)5. The cardiac muscle (PTAH)Demonstration: Electron micrographs of longitudinal sections of striated muscle.

12th week:
Lecture: The differentiation of the entoderm, the folding

of the embryo. Bone marrow
Practical: Anatomy: The skull: parts one and two a. Parts of the skull: the braincase and the facial skeleton. The bones of the braincase - overview. Main parts of the bones of the braincase. Parts of the braincase: the vault /calvaria/ and the cranial base. The structure of the braincase. b. Recapitulation of isolated bones: frontal, temporal, parietal, occipital, sphenoid bones. Superior view of the cranial base. Subdivisions of the internal cranial base: anterior, middle and posterior cranial fossae. Parts and foraminae of the fossae. Make drawings of the fossae. Histology: The microscopic structure of blood vessels. l. Elastic artery (HE stain). 2. Elastic artery (orcein stain). 3. Muscular artery and vein (HE stain) 4. Large intestine (HE stain) 5. Demonstration: Spermatic cord (Van-Gieson resorcin fuchsin stain)

13th week:
Lecture: Fetal membranes. Stages of development: embryonic and fetal periods. Twins. Developmental mechanisms The formation of blood cells.
Practical: Anatomy: The skull: parts three and four a. Inferior aspect of the skull. Vault of the skull (calvaria), sutures, fonticuli. Drawings b. Bones of the facial skeleton including the mandible - overview Individual bones: shape, main parts. The structure of the facial skeleton.Histology: Blood. Bone marrow.1. Sinusoids (Hypophysis, HE stain)2. Bone marrow (HE stain)3. Peripheral blood smear (May-Grünwald-Giemsa stain)4. Demonstration: Bone marrow smear (May-Grünwald-Giemsa stain) video

14th week:
Lecture: Development of the skull and vertebrae Overview of general embryology
Practical: Anatomy: Skull - parts five and six a. The orbit, nasal cavity, and paranasal sinuses. Facies malaris. b. The pterygopalatine fossa, temporal fossa, infratemporal fossa. The temporomandibular joint, atlantooccipital and atlantoaxial joints. Histology:SELF CONTROL (Adipose tissue, cartilage, bone, development and growth of the bone, muscular tissue. The histology of blood vessels, blood and bone marrow.)

15th week:
Lecture: -
Practical: Anatomy: SELF CONTROL. Bones and joints of the thoracic cage and vertebral column. The muscles of the back. Bones and joints of the skull. a. SELF CONTROL: Bones and joints of the thoracic cage and vertebral column. The muscles of the back. Bones and joints of the skull. b. SELF CONTROL - REMEDIAL: Bones and joints of the thoracic cage and vertebral column. The muscles of the back. Bones and joints of the skull. Histology: SELF CONTROL: REMEDIALSELF CONTROL: Embryonic development.

Requirements

Concerning attendance, the rules written in the Regulations Governing Admission, Education and Examinations of the University are valid. The attendance on the seminars and practices and at least 30% of the lectures is compulsory. The presence in practices and seminars will be recorded. The head of the department may refuse to sign the Lecture Book if a student is absent more than twice from practices and seminars (including anatomy, histology and embryology) in one semester even if he/she has an acceptable reason. Compensation of practices and seminars is possible only on the same week at another student's group. The compensation of three practices and/or seminars is allowed (including anatomy, histology and embryology) in one semester.

Rules of examinations:

Midterm examinations:

The dates and topics of the midterm examinations are indicated in the English program Bulletin. The exams cover the topics of lectures and practices of the semester and include relevant material from official textbooks. The midterm exams will be evaluated with points.

Improvement of a failed midterm examination:

Failed midterm examinations can be improved if the score of the failed midterm examination is between 40 and 59 %. With this restriction the following midterm examinations can be improved:

1. All three anatomy midterm examination; on the second practical of the week of the self control.
2. Both histology midterm examinations; on the histology practical at the consecutive week.

Five grade evaluation of the overall academic performance of the student at the end of the semester:

At the end of the semester the overall academic performance (OAP) of the students will be evaluated with a five grade mark (OAP mark) on the basis of the following rules:

The performance of the students on the midterm examinations from anatomy, histology and embryology will be evaluated separately on each self control. To obtain a pass or better OAP mark the student has to collect at least 60% of the total score from each anatomy, histology and embryology self controls. If the student does not reach the 60% limit from all parts the OAP mark is fail (1). If the midterm performance of the student is at least 60% from all parts, the scores of the three parts (anatomy, histology, embryology; max. 100% each) will be added and the OAP mark will be calculated on the basis of the following rules:

Overall performance	Mark on the midterm exams
36 - 41%	2 (pass)
42 - 47%	3 (satisfactory)
48 - 53%	4 (good)
54 - 60%	5 (excellent)

End-semester exam at the end of the 2nd semester
The end semester exam is an oral exam in anatomy and written in histology and embryology, that covers the topics of lectures and practices of the semester as well as the relevant material in the official textbooks. Those students who have got a pass (2) or better OAP mark may ask the department to accept it as a mark for the end semester exam. Those students who have got a fail (1) OAP mark have to sit for the end semester exam, but the student will be examined only from those parts from which he/she did not reach the 60% limit on the midterm examinations. The first exam is an A-chance exam.
The end of semester oral examination at the end of the 2nd semester consists of the following parts:
Oral part.
Anatomy. 3 preparations
a. upper limb
b. lower limb
c. back - skull

Written parts:
Embryology
Histology I.: microtechnic, epithelial tissue, connective tissue
Histology II.: adipose tissue, cartilage, bone, bone formation muscle tissue, blood vessels, red bone marrow, blood
If the student, on the basis of his/her performance on the midterm examinations, earn an exemption (collecting at least 60% of the total score) from one or more parts of the end-semester exam, the results of the midterm examinations will be converted into partial end-semester marks as follows:

Overall performance	Mark on the midterm exams
60 - 69%	2 (pass)
70 - 79%	3 (satisfactory)
80 - 89%	4 (good)
90 - 100%	5 (excellent)

Registration and postponement: Through the NEPTUN system.

Department of Biochemistry and Molecular Biology

Subject: **MOLECULAR BIOLOGY**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **42**
Seminar: **14**
Practical: **15**

1st week:
Lecture: Molecular dimensions of life in space and time. Energies governing molecular interactions. Covalent and non-covalent molecular interactions. The importance of water. Molecular organization of cells. The importance of water. The molecular organization of the cells. Origin of eukaryotic cells. Cellular compartmentalization. Organization and hierarchy of biological structures. Proteins. Structure and function of proteins. Structural organization of proteins. Protein folding. Techniques for studying proteins structures. Protein evolution.

2nd week:
Lecture: Enzymology. Characterization and classification of enzymes. General features of enzyme action: enzyme specificity, the active site. The transition state theory. Examples of catalytic action: ribonuclease-A, lysozyme, and carboxypeptidase-A. Enzyme kinetics: the Michealis-

Menten and Briggs-Haldane kinetics. Definition and determination of KM and vmax. Multisubstrate reactions. Enzyme inhibition: irreversible and reversible inhibition of enzymes. Competitive, non-competitive and uncompetitive inhibition. Regulation of the enzymes by allostery. Medical significance of enzymes. Isoenzymes.

3rd week:
Lecture: Chemical features of DNA. DNA packaging in prokaryotes and eukaryotes. Histones and nucleosomes. DNA as an information storage material. The central dogma of molecular biology. Definition of the genome. Molecular nature of genes. Coding and noncoding genome sequences. Chromosomal and extrachromosomal genomes in prokaryotes. The gene organization in prokaryotes. Eukaryotic genome. Mitochondrial and nuclear genomes. Gene structure in eukaryotes. Genome evolution. Vertical inheritance and horizontal gene transfer. Extrachromosomal and bacteriophage/virus genomes. Mobile genetic elements. Genome evolution in prokaryotes. Pathogenicity islands. Genome evolution in eukaryotes. Exon-shuffling.

4th week:
Lecture: DNA isolation. Enzymatic modifications of DNA molecules. DNA polymerases. Ligases. Nucleases. Restriction endonucleases and DNA methylases. Separation of DNA molecules according to the size. Application of restriction endonucleases. Creating recombinant DNA: vectors, strategy of DNA cloning. Genomic libraries.

5th week:
Lecture: Molecular biological methods relying on DNA-DNA hybridization. Fundamental aspects of nucleic acid hybridization, main steps of the hybridization procedure. Southern-blotting. In situ hybridization. DNA chip. Molecular background of DNA polymerization. Primers. The basics of chemical synthesis of primers. DNA-polymerization-based molecular biological methods. Theory of Polymerase Chain Reaction (PCR). DNA sequencing. Genome sequencing projects.

6th week:
Lecture: Prokaryotic and eukaryotic genome replication. Replication initiation. The structure of the replication fork. Replication of leading and lagging DNA strands. Solution for the topological problems caused by the replication process. Problems associated with the replications of non-circular chromosomes; the telomeres and telomerase. Molecular biology of recombination. DNA damaging agents, mutations. Principles of DNA repair. Main types of DNA-repair, the excision repair and removal of non-complementary nucleotides (mismatch repair).

7th week:
Lecture: Overview of gene expression and its significance. The chemical features of RNA. Main RNA classes. Principles of RNA polymerization. Reverse transcriptases. Enzymatic modifications of RNA. Ribonucleases. Transcription in prokaryotes. Stages of transcription. Transcription regulation in prokaryotes. The promoter. Transcription factors. Binding of transcription factors to the DNA. The operon. Repressors and activators. The mode of operation of the lac and ara operons. Catabolite repression.

8th week:
Lecture: Transcription in eukaryotes. Transcription of mRNAs. Stages of eukaryotic transcription. Formation of caps (capping). Excision of introns (splicing), snRNAs and the splicosome. The polyadenylation. Alternative splicing. Export of mRNA. Quality control of mRNA. Transcription and posttranscriptional modifications and transport of rRNA and tRNA.
Practical: Protein blotting and immunological identification by specific antibodies.
Self Control Test

9th week:
Lecture: Regulation of transcription in eukaryotes. Transcription regulation by epigenetic modifications. The role of DNA methylation. The importance of DNA packaging in transcription regulation. The role of histone modifications in DNA packaging. Transcription regulation through regulation of transcription initiation. Regulatory sequences located on the DNA. Promoters and enhancers/silencers. Eukaryotic transcription factors.
Practical: Protein blotting and immunological identification by specific antibodies.

10th week:
Lecture: Regulating multiple genes at the same time. Gene clusters, isolator sequences. The role of noncoding RNA in regulation of gene expression. Molecular biological methods for studying transcription and transcription regulation. RNA isolation and separation based on size. Northern blotting. Synthesis of cDNA. Construction, sequencing and screening of cDNA libraries. RT-PCR. Microarray technology.
Practical: Protein blotting and immunological identification by specific antibodies.

11th week:
Lecture: Translation. The genetic code. Codons, anticodons and tRNAs. Loading of tRNA with amino acids. Wobbliness of the codon-anticodon recognition and its evolutionary significance. Ribosome structure. Biochemistry of protein synthesis. Translation initiation, elongation and termination. Energy balance of the translation process. Comparison of prokaryotic and eukaryotic translation. Regulation of protein synthesis. Protein maturation. Protein folding.
Practical: Studies on phosphatases

12th week:
Lecture: Protein fates. Synthesis and degradation of cytoplasmic and nuclear proteins. Cytoplasmic, nuclear and membrane targeting. The signal recognition particle. Transition of polypeptide chain through the membrane.

Posttranslational modifications of the proteins: ubiqutination and the proteasome system. Proteases.
Practical: Studies on phosphatases

13th week:
Lecture: Posttranslational protein modifications: phosphorylation-dephosphorylation, glycosylation, acylation, prenylation, carboxylation and ADP-ribosylation. Methods for purification, separation and characterization of proteins. Immunochemical methods applied in molecular biology: ELISA, Western blotting, immunofluorescence and immunoprecipitiation.
Practical: Studies on phosphatases

14th week:
Lecture: Protein expression systems. Expression libraries. Protein expression in biotechnology. Modification of the genome: transgenesis. Creation and significance of transgenic mice. Gene therapy and its importance. The significance of molecular biology in medicine, the molecular medicine.

15th week:
Self Control Test

Requirements

Requirements for signing the semester: attendance in laboratory practices and seminars.

Required knowledge from Molecular Biology: topics of molecular biology presented at the lectures (slides are available at the http://bmbi.med.unideb.hu web site, username: student, password: student2015) and topics discussed in the seminars.

Attendance on the **lectures** is not compulsory, but recommended: in case of one lecture absence seminar bonus points are erased, in case of two lecture absence all collected points (control test points) are also erased.

On the **seminars**, lectures of the previous week can be discussed. Based on the knowledge and activity of the students on the seminars, the best students can collect 6 bonus points during the semester. (6 bonus points can be given to max. 10 % of the students, 3 bonus points can be given to max 30% of the students). Half of the seminar bonus points can also be added to the result of the written exam. In case of the seminars maximum three absences are accepted. Students can't make up a seminar with another group.

All of the **laboratory practices** have to be performed, if someone is absent due to any serious reason, proved by medical paper, the missing experiment have to be performed within the three weeks practical period joining to another group (after obtaining permission from the practical teacher of the other group). Period of the practices: "Western-blot" on week 8-10, "Study of phosphatases" on week 11-13. The laboratory practice leader through signing the practice "lab-book" of the student acknowledges the acceptance of a practice. Students have to be prepared for the practices. Please check our homepage to get more information and the schedule of the practices (http://bmbi.med.unideb.hu/Education/Molecular Biology)! For obtaining the signature students need to attend the two practices, submit the laboratory books in the required format.

Control tests: During the semester students can write two control tests from the material of the lectures and seminars. Both tests are composed of 40 single choice test questions (one correct answer must be marked among five possible answers, each good answer is 1,25 points. By the two control test max. 2 x 50 points can be collected. Control tests are not obligatory.

Offered grades: at the end of the semester, on the basis of the collected points, grade will be offered. During the semester 100 (+6) points can be collected by the two control tests of the material of the lectures (50+50 points) and by the seminar activity (6 points). Grades: 2 (pass): 60-69.5 points, 3 (satisfactory): 70-79.5 points, 4 (good): 80-89.5 points and 5 (excellent): 90-106 points.

Students have to decide to accept the offered grade at the end of the semester. If someone accept the grade, it will be registered in the Neptun and the grade can be improved once during the exam period. If one declines the offered grade one must proceed to the semester exam.

Semester points will be automatically erased of those students, who break the rules of test writing.

Semester exam: Those students who did not collect 60 points during the semester (or didn't accept the offered grade) have to take a written exam in the exam period. The written exam composed of 40 single choice test questions (one correct answer must be marked among five possible answers, each good answer is 1,25 points). By the test maximum 50 points can be collected, and half of the seminar bonus points is also added to the result of the exam. 60% (30 points) is needed to get a passing mark, and the grade increases with every 5 points (30-34.5 pass, 35-39.5 satisfactory, 40-44.5 good, 45-50 excellent).

If a student fails the "C" semester exam, the department provides him/her a chance to prove his/her knowledge of molecular biology in an oral exam in front of an official examination committee. If the student passes the oral exam he/she will given a grade 2 (pass). The department will provide one examination date per week during the exam period.

Improvement exam: One may choose and is allowed to take one improvement exam for a fee in the form of a semester exam. Both the offered grade and the exam grade can be improved. The policy of the institute is that one may not worsen the already achieved grade.

Exemption from the written part of the final "Biochemistry and molecular biology" exam: Those students who collect at least 220 points during the three semesters taught by the Department of Biochemistry and Molecular Biology

and have more than 60 points from each of the three semesters during the course of their Biochemistry and Molecular Biology studies (Molecular Biology, Biochemistry I., Biochemistry II.) will be exempted from having to write a written part of the biochemistry and molecular biology final exam. Minimum questions of the Biochemistry final exam will also contain basic questions of Molecular Biology.

Please follow the announcements of the department on the announcement table (LSB downstairs 1st corridor), and on the website (http://bmbi.med.unideb.hu)

Department of Foreign Languages

Subject: **HUNGARIAN LANGUAGE I/2.**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: Organization of the course. Revision

2nd week:
Practical: Pretest

3rd week:
Practical: Unit 6

4th week:
Practical: Unit 7

5th week:
Practical: Unit 8

6th week:
Practical: Unit 8

7th week:
Practical: Revision. Mid-term test

8th week:
Practical: Unit 9

9th week:
Practical: Unit 9

10th week:
Practical: Unit 10

11th week:
Practical: Unit 10

12th week:
Practical: Unit 11

13th week:
Practical: Unit 11

14th week:
Practical: Revision. End-term test.

15th week:
Practical: Oral minimum requirement exam. Evaluation

Requirements

Attendance

Language class attendance is compulsory. The maximum percentage of allowable absences is 10 % which is a total of 2 out of the 15 weekly classes. Students arriving late for the classes are not allowed to enter the class. Being late is counted as an absence. If the number of absences is more than two, the final signature is refused and the student must repeat the course. Students are required to bring the textbook or other study material given out for the course with them to each language class. Active participation is evaluated by the teacher in every class. If students' behaviour or conduct does not meet the requirements of active participation, the teacher may evaluate their participation with a "minus" (-). If a student has 5 minuses, the signature may be refused due to the lack of active participation in classes.

Testing, evaluation

In each Hungarian language course, students must sit for 2 written language tests and a short minimal oral exam.

A further minimum requirement is the knowledge of 200 words per semester announced on the first week. There is a (written or oral) word quiz in the first 5-10 minutes of the class, every week. If a student has 5 or more failed or missed word quizzes he/she has to take a vocabulary exam that includes all 200 words along with the oral exam. The results of word quizzes may modify the end-semester evaluation.

The oral exam consists of a role-play randomly chosen from a list of situations announced in the beginning of the course. Failing the oral exam results in failing the whole course. The result of the oral exam is added to the average of the mid-term and end-term tests.

Based on the final score the grades are given according to the following table:

Final score	Grade
0 - 59	fail (1)
60-69	pass (2)
70-79	satisfactory (3)
80-89	good (4)
90-100	excellent (5)

If the final score is below 60, the student once can take an oral remedial exam covering the whole semester's material.

Consultation classes

In each language course once a week students may attend a consultation class with one of the teachers of that subject in which they can ask their questions and ask for further explanations of the material covered in that week. These classes are optional.

Course book: See the website of the department.

Website: Audio files to the course book, oral exam topics and vocabulary minimum lists are available from the website of the Department of Foreign Languages: ilekt.med.unideb.hu.

Department of Human Genetics

Subject: **MEDICAL GENETICS**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **30**
Practical: **30**

1st week:
Lecture: 1. Introduction to molecular genetics and genomics.
Thompson: Genetics in Medicine; Ch. # 1.
2. Molecular organization of chromosomes.
Thompson: Genetics in Medicine; Ch. # 2.
3. Cytogenetics I. Karyogram, ideogram, banding techniques. Human autosomal trisomies; Thompson: Genetics in Medicine; Ch. # 5.
Practical: Methods of study, required and advised readings. Laboratory safety in biochemical and microbiological laboratories. Study of electron micrographs. Cellular and subcellular structures. The nucleus and chromatin. Cell division. Mitosis and meiosis.

2nd week:
Lecture: 4. Cytogenetics II. Abnormalities of the X and Y chromosomes. Structural aberrations of human chromosomes. Genomic imprinting Uniparental disomy.
Thompson: Genetics in Medicine; Ch. # 6.
5. Cytogenetics III. Sex determination in humans. Molecular cytogenetics.

Thompson: Genetics in Medicine; Ch. # 5.6. The structure of genes.
Thompson: Genetics in Medicine; Ch. #3.
Practical: Seminar on molecular genetics. Gene structure and function.

3rd week:
Lecture: 7. The function of genes. Gene expression;
Thompson: Genetics in Medicine Ch# 5.
8. Bacterial genetics. Gene regulation in prokaryotes
Lecture notes on departmental homepage.
9. Gene regulation in eukaryotes
Thompson: Genetics in Medicine; Ch # 3.
Practical: Seminar in molecular genetics.
Gene regulation. Bacterial genetics.

4th week:
Lecture: 10. Genomics, proteomics, the human genome project.
Lecture notes on the departmental homepage.
11. Transmission genetics. genes and alleles. Genotype and phenotype. Monohybrid cross. Mendel's 1st law. Reciprocal cross and test cross. Autosomal and X-linked genes
Thompson: Genetics in Medicine Ch 7;
12. Dihybrid cross. Mendel's 2nd law. Different types of inheritance. Gene interactions, epistasis, lethal genes. Multiple alleles.

Practical: Cytogenetics seminar. Evaluation of karyograms. (homework).
1st test in extra time.

Self Control Test (Thompson: Genetics in Medicine Ch # 1, 2, 3, 4, 5, 6, lectures 1-9, seminars 1-3)

5th week:
Lecture: 13. Dominant and recessive genes: a molecular view. Extranuclear inheritance.
Thompson: Genetics in Medicine; Ch # 7
14. The genetic basis of complex inheritance.
Thompson: Genetics in Medicine; Ch # 8.
15. The genetic role of RNA.
Lecture notes on departmental homepage.
Practical: Mendelian genetics. Pedigree analysis of human single gene disorders.

Problems in classical genetics (homework). Practical courses in genetics pp 35-44.

6th week:
Lecture: 16. Mutation and repair.
Thompson: Genetics in Medicine; Ch. # 9.
17. Human genetic diversity. DNA polymorphism.
Thompson: Genetics in Medicine Ch. # 9.
18. Human genetic diversity. genetics of blood types and MHC.
Thompson: Genetics in Medicine Ch. # 9.
Practical: Seminar on molecular genetics of genetic diseases. Internet search in databases (homework).

7th week:
Lecture: 19. The molecular, biochemical and cellular basis of genetic diseases I.
Thompson: Genetics in Medicine Ch. # 11.
20. The molecular, biochemical and cellular basis of genetic diseases II.
Thompson: Genetics in Medicine; Ch. # 12.
21. Population genetics I.
Thompson: Genetics in Medicine; Ch. # 9.
Practical: Changes in genetic information.

8th week:
Lecture: 22. The treatment of genetic diseases.
Thompson: Genetics in Medicine; Ch #13.
23. Cancer genetics and genomics.
Thompson: Genetics in Medicine; Ch #16.
24. Pharmacogenetics, pharmacogenomics. Ecogenetics and ecpgenomics.
Thompson: Genetics in Medicine; Ch #18.
Practical: Seminar on recombinant DNA, developmental or oncogenetics.

9th week:
Lecture: Medical genomics lecture 1
Medical genomics lecture 2
Medical genomics lecture 3
Practical: Medical genomics seminar 1.
Second genetics test in extra time.
Self Control Test (Thompson: Genetics in Medicine Ch 7, 8, 9, 10, 11, 12, Lectures 10-24. Seminars 4-8.)

10th week:
Lecture: 25. Human gene mapping and disease gene identification I.
Thompson: Genetics in medicine; Ch # 10.
26. Human gene mapping and disease gene identification II.
Thompson: Genetics in medicine; Ch # 10.
27. Developmental genetics and birth defects.
Practical: Medical genomics seminar 2.

11th week:
Lecture: 28. Bacterial genetics.
Lecture notes on departmental homepage.
29. Prenatal diagnosis. Personalized medicine.
Thompson: Genetics in Medicine; Ch. # 15, 17.
30. Genetic counseling and ethical issues.
Thompson: Genetics in Medicine; Ch. # 19, 20.
Practical: Demonstration of the X chromatin. Practical courses in genetics pp 7-13. Demonstration of mammalian chromosomes, pp 15-25. Polytene chromosomes of Drosophila.

12th week:
Lecture: Medical genomics lectures 4-6.
Practical: Complementation test. The gene concept.
Practical courses in genetics. pp. 47-52.

13th week:
Lecture: Medical genomics lectures 7-9.
Practical: Detection of a human DNA polymorphism by polymerase chain reaction.
Practical courses in Genetics pp. 85 - 89 and handout from homepage.3rd test in extra time.
Self Control Test (Thompson: Genetics in Medicine, Ch 13, 14, 15, 16, 17, 18, 19, 20. Lectures: 25-30, Practicals: weeks 11-12)

14th week:
Lecture: Medical genomics lectures 10-12.
Practical: Model investigation in population genetics. Problem solving in population genetics (homework).
Laboratory manual pp. 91-102.

15th week:
Lecture: Medical genomics lectures 13-15.
Practical: Induction of beta-galactosidase in E. coli cells. Operons.
Practical courses in Genetics pp. 53-58.

Requirements

Conditions of signing the lecture book:
Concerning attendance, the rules are set out in the Rules and Regulations of the University are clear.
The presence of students at laboratory practices and seminars is obligatory and will be recorded. Students are responsible for signing the list of attendance. The professor refuses his/her signature in the student's Lecture Book for the semester's course-work in the case of over four weeks of absence, even if the student has an acceptable excuse.
If the student is absent from more than two practices or seminars, the semester will be accepted only if he/she passes an examination based on the material covered by the laboratory classes of the semester (labtest). Students have to take notes during lab classes and seminars. The notes are occasionally inspected and signed by the instructors. If 3 or more laboratory or seminar notes are missing, the student must take a labtest to qualify for the signature of the lecture book. Missed laboratory classes may only be made up for in the classes with other groups during the same week. For permission to make up a missed laboratory class please consult the academic advisor. If the student is absent from more than 4 practices and seminars, the signature will be denied and the student has to repeat the semester.
During the semester there will be three self-control tests offered in the 4th, 9th and 13th weeks. The questions include multiple choice and short essay questions, figures, pedigrees, definitions, etc. Based on the % average of the three tests a final grade will be offered according to the next table:

Percentage (%) Mark
60.00 - 64.99 pass (2)
65.00 - 74.99 satisfactory (3)
75.00 - 84.99 good (4)
85.00 - 100 excellent (5)

Attendance of at least two of the tests is obligatory and it is a condition for signing your lecture book. Those students who want a better mark have to take the regular end of semester "A" exam. The result of this ESE is binding, it can be better, the same or worse than the offered mark. Students with lower achievement than 60 % should take the regular ESE.

Rules concerning repeaters:
Attendance of labs and seminars for those repeaters who have a signed lecture book from the previous year (i.e. they failed, or they are repeaters because they have never taken Genetics exam) is dispensable. Students should register for the subject electronically during the first weeks of the semester. They can take the three midterm tests in order to qualify for an offered grade based on these tests, or for test bonuses and they take the regular exam at the end of the semester. They cannot have home-work bonuses. Students, who did not earn a signature in the previous year have to register and attend the labs and seminars and they are considered as the other students registering the course at the first time.

Exemption requests:
Applications for exemption from the course (based on previous studies at other schools) should be submitted during the first two weeks of the semester. Requests are not accepted after that deadline! Exemption is granted if an "assessment of knowledge" test is passed. The passing limit is 50%.

End of Semester Exam(regular assessment of your course work):
There will be a written examination (ESE) at the end of the semester that covers all the material of the semester taken in the lectures, seminars, and laboratory practices. The examination questions include multiple choice and short essay questions, figures, definitions, etc. The marks are based on the student's performance, expressed in percentage (%) as shown in the table below:

Percentage (%) Mark
0 - 49.99 fail (1)
50.00 - 64.99 pass (2)
65.00 - 74.99 satisfactory (3)
75.00 - 84.99 good (4)
85.00 - 100 excellent (5)

The percentage values include the student's performance at the ESE as well as the bonus percentage they have obtained by taking the three mid-semester tests, and submitting the homeworks. The bonus percentage is based on the average result of the three mid-semester tests. Absence counts as 0%. Bonuses are calculated only in the year of acquisition.

Further bonus points (1 points each) are given for the timely and correct completion of the following midterm home-works:
Analysis of human karyograms. Problem solving in genetics. Use of databanks through the Internet. Problem solving in population genetics. Maximum number of bonus points is 14.
The submission of home-works is voluntary. Homeworks are not accepted after the submission deadline.
As a first task of the examination medical student receives 10 basic questions. You have to answer correctly at least 7 of them to qualify for the exam. If you cannot answer correctly the required minimum number of questions your exam is considered unsuccessful. You have to pass this basic question exam only once in a semester. If you have to repeat the semester, you have to repeat the basic question exam, too. Students, who received offered grade do not have to answer the basic questions.

The slides of the lectures and up-to-date information can be found at www.genetics.dote.hu, username: medical_genetics, password: arachnodactylia. Click on "Oktatás" (teaching) and Downloads or Information and Medical genetics.

Division of Cell Biology

Subject: **CELL BIOLOGY**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **30**
Seminar: **25**
Practical: **20**

1st week:
Lecture: 1. Introduction. Cell membrane.2. Membrane transport, ABC-transporters.
Seminar: Introduction, preparation for labs, signing up for short presentations.

2nd week:
Lecture: 3. Cytoskeleton I: microtubules.4. Cytoskeleton II: intermedier filaments, actin cytoskeleton.
Seminar: Material related to lectures 1-2.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

3rd week:
Lecture: 5. Cellular organelles. Trafficking overview.6. Intracellular membrane systems, lysosome, peroxisome, endoplasmic reticulum.
Seminar: Material related to lectures 3-4.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

4th week:
Lecture: 7. The Golgi complex, endo- and exocytosis, protein sorting.8. Ion channels, membrane potential.
Seminar: Material related to lectures 5-6.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

5th week:
Lecture: 9. Calcium homeostasis.10. Osmo-, volume and pH regulation.
Seminar: Material related to lectures 7-8.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

6th week:
Lecture: 11. Energetics/mitochondrion.12. Cell-cell contacts.
Seminar: Material related to lectures 9-10.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).
Self Control Test

7th week:
Lecture: 13. The nucleus.14. Structure of chromatin.
Seminar: Material related to lectures 11-12.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

8th week:
Lecture: 15. Cell signaling I. General concepts. Nuclear receptors. G-protein coupled receptors.16. Cell signaling II. Receptor tyrosine kinases. The Ras/MAPK, PI3K/Akt and PLC/CaMK pathways.
Seminar: Material related to lectures 13-14.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

9th week:
Lecture: 17. Cell signaling III. Pathways to the nucleus. Oncogenes in signaling.18. Cell signaling IV. Cell-cell communication in the nervous and the immune system.
Seminar: Material related to lectures 15-16.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

10th week:
Lecture: 19. The nuclear membrane.20. Cell cycle I: Methods, experimental systems.
Seminar: Material related to lectures 17-18.
Practical: See schedule on the web page (spare labs).

11th week:
Lecture: 21. Cell cycle II: Regulation.22. Cell cycle III: Regulation of the G0/G1 transition.
Seminar: Material related to lectures 19-20.
Practical: See schedule on the web page (spare labs).
Self Control Test

12th week:
Lecture: 23. Cell fates I: Overview, differentiation24. Cell fates II: Stem cells
Seminar: Material related to lectures 21-22.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

13th week:
Lecture: 25. Cell fates III: Cell senescence, apoptosis.26. Cell fates IV: Tumor cell biology.
Seminar: Material related to lectures 23-24.

14th week:
Lecture: 27. Cell fates V: Meiosis.28. Cellular interactions, viruses and bacteria.
Seminar: Material related to lectures 25-26.
Self Control Test

15th week:
Lecture: 29. Cellular motility.30. Structure of pro- and eukaryotes. Summary
Seminar: Material related to lectures 27-28.

Requirements

Short description of the course:
This is an intermediate level university course on cell biology. It gives an overview of the functional anatomy of the higher eukaryotic animal cells with examples of the paradigmatic molecular mechanisms. The students successfully completing the course will have acquired an active professional vocabulary sufficient to study biochemistry, molecular biology, genetics, histology and physiology, as a minimal requirement. The "inductive" philosophy of teaching, the efforts to make connections between phenomena belonging to different chapters and the organism level context several key mechanisms are discussed in will give a broad and at the same time deep understanding to the more demanding students of the course.

Requirements:

Lectures:
Attendance of lectures is highly indispensable for acquiring the knowledge required to pass! They are your best source of synthesized and structured information. Some new concepts are discussed exclusively at the lectures. To further facilitate attendance, an attendance bonus system was introduced also in the case of Cell Biology lectures: If a student is present in every lecture, he/she automatically receives 5 bonus points which is added to the result of the final exam score. Attendance will be checked randomly. The student will lose all these (5) bonus points, if he/she is caught missing any one of the lectures at these random checkings. Certificates of any kind, including a medical certificate, will NOT be considered.

Books to be studied:
4th ed. of Essential Cell Biology (Alberts et al.,Garland Publ Inc. 2014. ISBN: 978-0-8153-4454-4) is the course book recommended as a foundation. It is concise, easy to read and the thorough knowledge of the material contained in its chapters (1. and 11-20.) is absolutely necessary for passing at the Final Exam. The preceding chapters contain explanations for basic molecular concepts: these chapters serve as reference and will not be directly asked in tests, except for certain parts indicated by the lecturer and also published in our website. In addition, there is a lot of additional information presented at lectures, and also discussed in the seminars, which the students are also required to know. The slides presented in lectures will be provided at the department website; however, you must attend the lectures and take notes to be able to interpret them. To read a full-text version of this additional material we recommend two books: Molecular Cell Biology (Lodish et al.) and Molecular Biology of the Cell (Alberts et al.)

Seminars:
In the seminars, students should ask their questions related to the topic of the lectures discussed (see final timetable of lectures and seminars that will be announced on the week 1. of the semester). Besides, every student (two in each group in every seminar) will give a short presentation on the topic of one of the lectures discussed in the seminar. The topics will be distributed in the first seminar. The talks are graded on a scale of 0-3. Getting a "0" on the presentation means a failure and the presentation has to be repeated on a new topic, in a seminar of the student's own group. Otherwise everyone is entitled to give 1 presentation only. No lecture book can be signed without getting at least 1 point for the

presentation. If the student receives 0 point, he/she must ask for another topic and present it at another seminar. However, no presentation can be done after the end of the study period. Students ending up without any point for the presentation will have to answer assay questions from their presentation topic in the time of the second self-control test. This also involves that they do not have a possibility to take the second self-control test and collect bonus points or to get an offered grade. If a student fails on this written examination, it means that he/she does not get a signature and cannot take the Cell Biology Final Exam. The presentation has to be a free talk, not a reading. The duration of a presentation should not exceed 15 minutes. You have to read the relevant background information from your textbook and make the topic understandable to your fellow students. You should use the lecture material available at the cell biology website to make your presentation easy to follow. You are expected to be ready to present at least 10 slides of the lecture, from those that contain figures/pictures, rather than just explanatory text. Only exceptionally good presentations that clearly present good summaries of the lectures are awarded with 3 points. It is the professor / tutor in the seminar who alone decides the number of bonus points awarded, based on his/her own judgment. The material covered in the presentations is fully part of the SCT-s and the Final Exam. Including extra material obtained through the student's own research in textbooks or the internet will be appreciated, but will not substitute for a clear and detailed knowledge of the lecture/textbook material.

Labs:
Completing all labs, and writing up the results and their interpretation in a lab log book on the spot is required. You must prepare for the lab before the lab starts. The compulsory preparation for the lab includes the writing of an introduction to your lab logbook BEFORE THE LAB that outlines the problem you will address in the lab and the methods and approaches that are used to answer the question. ONLY HANDWRITTEN, BOUND LAB LOG BOOKS ARE ACCEPTABLE! The student's preparation and their work at lab will be graded by the lab teachers giving 0-3 bonus points. If a student's preparation is considered unacceptable by the tutor (e.g. the handwritten introduction is missing in the lab logbook, etc.), he/she gets 0 point. The average value of the lab bonus points is added to the exam points at the end of the semester.
Maximum one practice can be missed, and it must be made up for in the last week. Only medical or official excuses are accepted, after showing the appropriate documents. After completing the lab, the lab tutor should sign on the cover of the log book, certifying your presence at the lab and sign separately for the acceptance of your work. You are eligible for this second signature only if you know what and why you did during the lab and what the result was. You should obtain these two signatures and the grade at the end of the lab and no later. Those who do not have all their labs accepted (after the single (!) make-up lab), are obliged to take a written lab exam covering not only the lab practice itself, but also the theoretical background of the practices in the time of the second self-control test. This also involves that they do not have a possibility to take the second self-control test and collect bonus points or to get an offered grade. If a student fails on this written examination, it means that he or she does not get a signature and cannot take the Cell Biology Final Exam.
Reading source for the lab:
A Cell Biology lab manual written by the members of the department is provided in the Book Store (In Theoretical Building). Additional material is available on the web site.
Lab schedule:
Small groups (subgroups) consist of 3-7 people for doing the various labs in a rotary system are formed in the first seminar. The rotary system is published on the web page and shown on the lab door. If you missed the first seminar you will be put into a subgroup where you fit and you should check your assignment with your fellow students.
YOU ARE NOT ALLOWED TO CHANGE SUBGROUPS!

Self-control Tests (SCT-s):
There are two SCT-s. The dates and topics for SCT-s will be announced on week 1 of the semester. Exact times and locations for each group will be posted during the semester. Types of the SCT questions are akin to the Final Exam questions; i.e. true or false, simple selection, multiple selection, relation analysis, fill in questions or define a definition type questions may be awaited. Lab questions will be included in the 2nd self-control test as well as in the Final Exam test, to approximately 10% of the total points. Based on the score of the SCT-s, you receive bonus points that count towards your grade in the Final Exam.

Conversion of SCT points into bonus points for Final Exam:
Bonus points based on the score (as a %) of an SCT. The bonus points are calculated as 0,05 x score (as a %). Maximum 5 bonus points can be earned with each SCT, so totally 10. Writing the SCT-s is highly recommended. If you miss a SCT, you will miss valuable points from your Final Exam score!

Grade offering based on SCT results:
For those performing well on SCT-s, i.e. earning 50 % or more in the average of the two SCT-s, based on the sum of their bonus points (lab points + lecture bonus + short presentation) and average SCT result we offer final grades as

follows:
60-69.5 points: pass (2)
70-79.5 points: satisfactory (3)
80-89.5 points: good (4)
above 90 points: excellent (5)

The offered grades will be posted on the Neptun system where students must declare acceptance or refusal. Accepting the grade means exemption from the final exam, so the accepted grade will be entered into the lecture book as the final grade. Students without offered grade must attend the Final Exam (see below). If a student did not accept the offered grade, but his/ her average of the two SCT-s is 60 % or more, he/she does not have to write A-part of the written Final Exam (see later). They got 14 points or the average of the A parts of the two SCTs.

The conditions for signing the lecture book are the following:
(1) presence at, and acceptance of all the labs or passing the written lab exam,
(2) presence at the seminars and (2) minimum 1 point for the presentation at the seminar (see above).

Rules concerning repeaters:
Attendance of labs is not compulsory if you had all the four labs accepted last year and your lecture book was signed. Please note, however, that questions on the lab will be part of the SCT-s and the Final Exam.
Attendance of seminars is compulsory. Your short presentation of last year does not have to be repeated if it scored 1 point or more, otherwise you have to redo it.

Final Exam: The exam is a written test of two parts (A and B).
Part A:
Part A of the written test is a set of 10 questions addressing the basic concepts listed among the key-words published in our website. These questions will include 5 brief descriptions of basic concepts, and 5 questions of yes/no type. The descriptions should contain 2 valuable and relevant facts/statements on the subject asked, for maximal score (2 points each; partial points may be considered). It is strongly recommended that the students themselves elaborate a few basic statements for each key-word during the semester, as part of their preparation and studying. The A test has to be completed in 10 minutes. You will need to collect at least 14 points to pass the A test. Those earning below 14 points in part A fail the entire exam without regard to their score on part B, what will not be corrected and scored in this case. The score of a passed A test will be added to the score of part B, thus yielding 14-20% of the total exam points.
Part B:
Part B is a complex test, including two short essays (2x10=20%), fill-in, short answer, multiple choice, relation analysis, sketch-recognition as well as simple choice and yes/no questions (50%). It contains material from the textbook, lectures and seminars. The lab questions are a section of the part B exam (to approximately 10% of the total test points).

Cell Biology part A written	max. 20 points
Cell Biology part B written	max. 80 points

Bonus points will be added only if the score of A+B part alone is above 50%:

Cell Biology short presentation bonus	max. 3 points
Bonus points for lecture attendance	max. 5 points
Cell Biology lab bonus points	max. 3 points
Bonus points based on SCT scores	max. 10 points
Total	121 points

Your grade on the Final Exam:

below 60% points:	fail (1)
60-69.5% points:	pass (2)
70-79.5% points:	satisfactory (3)
80-89.5% points	good (4)
above 90% points	excellent (5)

Repeated exams:
On repeated exams during the exam period of the 2nd semester, points earned from SCT-s, lecture attendance, lab points during the current semester and from short presentations are valid throughout. However, all bonuses and merits expire by next spring exam period except for Cell Biology lab points and bonus points for short presentations. Note that all parts have to be repeated on repeated exams, that is, cell biology written part B (including the lab questions), and cell

biology written part A with less than 14 points
The test/exam grade earned should reflect the true knowledge of the student. Therefore, if there are doubts whether the result of the written tests (SCTs, A, B, exam) really reflect the true knowledge of the student, the teachers/professors may also ask oral questions so as to be able to give a grade they deem justified. The C chance exam always consists of both a written part (similarly to A and B chance exams) and an oral part. The committee summarizes the results of both and decides the grade, not necessarily averaging them.

Further Information:
•Study advisor from Cell Biology: Zsolt Fazekas Ph.D. (cellbioedu@med.unideb.hu)
•Info regarding tests, seminars, lectures is posted on the lab door ("Biophysics lab", ground floor, Theoretical Building), the department bulletin board and http://biophys.med.unideb.hu.
User names and passwords will be given out at the first cell biology seminar during the first week of the semester.
•We offer to keep an e-mail contact with the students whenever possible. This is smooth, fast and effective. Please write to cellbioedu@med.unideb.hu.
•Personal consultation with the study advisor: office hours are posted on the web site and the bulletin board of the Department. For appointments outside office hours please write an email.

Recommended books accessible online free of charge can be reached at the following URLs:
Lodish et al.: MOLECULAR CELL BIOLOGY (4th ed.):
http://www.ncbi.nlm.nih.gov/bookshelf/br.fcgi?book=mcb
Alberts et al.: MOLECULAR BIOLOGY OF THE CELL (4th ed.):
http://www.ncbi.nlm.nih.gov/bookshelf/br.fcgi?book=mboc4
Every online book can be searched electronically for keywords.

Exemptions:
In order to get full exemption from the cellbiology course the student has to write an application to the Educational Office. The Department of Biophysics and Cell Biology does not accept such applications. Applications for exemptions from part of the courses are handled by the department. The deadline for such applications is Monday on the second week. The following documents have to be submitted to the study adviser: 1. application with an explanation why the student thinks that he/she is eligible for an exemption; 2. certificates about the courses the student has taken; 3. a reliable description of the curriculum of the courses taken. The decision about exemption is based on a result of an "open-book"' exam test on the third week. Applicants will be notified whether they have to take such an examination.

CHAPTER 14
ACADEMIC PROGRAM FOR THE 2ND YEAR

Department of Anatomy, Histology and Embryology

Subject: **ANATOMY, HISTOLOGY AND EMBRYOLOGY II.**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **51**
Practical: **130**

1st week:
Lecture: Topographical anatomy of the head and neck - part one. Topographical anatomy of the head and neck- part two. Topographical anatomy of the oral and nasal cavities. Anatomy, histology and development of the teeth.
Practical: Anatomy: Topographical anatomy of the head and neck I.-II. a. Topographical anatomy of the head and neck: part one. Surface anatomy: Draw the surface projections and landmarks of the following structures on the cadaver: Head: cutaneous branches of the trigeminal nerve. Branches of the facial nerve on the face and neck. Facial, superficial temporal and external carotid arteries. Retromandibular vein. Parotid gland and parotid duct. Lymph nodes and lymphatic drainage of head. Neck: Triangles of the neck. Superficial veins (ext. jugular vein). Cutaneous branches of the cervical plexus. Position of the hyoid bone, thyroid cartilage, thyroid gland. The carotid sheath (vagina vasorum) and its structures. The site of cricothyrotomy. Surface projection of the apex of the lungs. Relations of the scalene muscles. Lymphatic drainage of the neck. Make schematic drawings of these structures! Incise the skin in the midline and peel off laterally. The incision of the facial skin has to be made from the medial part of the orbit down to the philtrum passing round the nose, then continued through the lower lip to the chin. At the neck region a vertical incision has to be made in the midline, from the base of the mandible to the sternum, and a transversal incision along the clavicle. The skin is to be folded laterally. Attention: Branches of the supraclavicular nerves cross the clavicle! b. Dissect the superficial structures: branches of the Vth and VIIth cranial nerves, facial artery and vein, parotid duct, cutaneous branches of the cervical plexus, superficial cervical artery, external jugular vein, triangles of the neck. Careful preparation of the muscles of face. Face: Topography of the parotid gland. Nerves and blood vessels related to the parotid gland. Remove the parotid gland only one side by careful preparation of branches of the facial nerve and blood vessels. Dissection of the frontal and temporal regions. Neck: dissection of the supraclavicular triangle. Spare the sternocleidomastoid muscle. Histology: a. - b. Repetition of general histology 1. Large intestine (HE stain) 2. Trachea (HE stain) 3. Esophagus (HE stain) 4. Axillary skin (HE stain)5. Urethra masculina (HE stain) 6. Ureter (HE stain) 7. Granulation tissue (healing wound from rat skin) (HE stain) 8. Knee joint (HE stain) 9. Cardiac muscle (PTAH) 10. Blood smear (May-Grünwald-Giemsa stain)

2nd week:
Lecture: Pharynx. Larynx. Development of the face, and oral and nasal cavities. Development of the pharyngeal gut.
Practical: Anatomy: Topographical anatomy of the head and the neck: III.-IV. a. Dissection of the submandibular triangle. Continue the dissection of the frontal, temporal and supraclavicular regions. Cut the sternocleidomastoid muscle. At the side of the intact parotid gland dissect the structures which pierce the gland. The parotid gland itself remains in position. b. Carotid triangle and the middle part of the neck. Sulcus lateralis linguae, muscles of the floor of the mouth. Topography of the salivary glands. Dissection of the scalenotracheal fossa. Branches of the subclavian artery. Repetition of the superficial regions of the head and neck.Histology: a. -b. Lip, tongue and salivary glands 1. Lip (HE stain). 2. Tongue (filiform and fungiform papillae) (HE stain). 3. Tongue (circumvallate papillae) (HE stain) 4. Parotid gland (HE stain) 5. Submandibular gland (HE stain) 6. Sublingual gland (PAS + H stain)

3rd week:
Lecture: Clinical anatomy of the head and neck - part one. Clinical anatomy of the head and neck - part two. Lymphatic tissue - part one. Lymphatic tissue - part two.
Practical: Anatomy: Topographical anatomy of the head and the neck: V.-VI.a. Head: Infratemporal fossa. At the side of the removed parotid gland dissect the alveolar nerve and artery from the mandibular canal and remove that half of the mandible. Cut out the masseter, the external and internal pterygoid muscles by careful preparation of the structures between the two pterygoid muscles. Preparation of the inferior alveolar nerve, lingual nerve, chorda tympani, maxillary artery, auriculotemporal nerve, middle meningeal artery, stylohyoid, styloglossus, stylopharyngeus muscles, glossopharyngeal nerve. Remove the lateral plate of the pterygoid process of the sphenoid bone. Find the muscles of the soft palate.b. Dissection of the nucheal region from the external occipital protuberance to the 7th thoracic vertebra. Occipital artery, muscles of the nucheal region from layer to layer. Identify the suboccipital triangle and its elements. Remove all muscles attached to the occipital bone. Make visible the posterior arch of the atlas and exarticulate the atlantooccipital joint. Cut through the alar ligaments and the apical ligament. Bend the head forward. The head

remains connected to the body only through the pharynx and esophagus. In the other cadaver, structures related to the pharynx are dissected. Histology: a. - b. Tooth. l. Tooth grinding (Fuchsin) 2., 3. Development of teeth (teeth primordia in the rat's head) (HE stain). 4., 5. Development of teeth (teeth primordia in the rat's head) (Azan stain).

4th week:
Lecture: Lymphatic tissue - part three. The skin.The hypothalamo-hypophyseal system. Hypopysis and epiphysis.
Practical: Anatomy: Topographical anatomy of the head and the neck: VII.-VIII. a. Open the posterior wall of the pharynx and investigate the related structures. Study the faucial isthmus. Dissection of the larynx in situ. b. Demonstration of the median section of the head and neck. Conclusion of the dissection of the pharynx and larynx. Make a schematic drawing of the median section of the head. Demonstration of the pharynx, larynx, tongue, palatine and lingual tonsil. Make schematic drawings of these structures. Histology: a. Lymphatic tissues - part one1. Thymus (HE stain) 2. Lymphatic follicle (large intestine) HE stain 3. Lymph node (HE stain) 4. Demonstration: Cells of the lymph node (video) b. Lymphatic tissues part two 1.Spleen (HE stain) 2.Palatine tonsil (HE stain) 3.Lingual tonsil (HE stain)

5th week:
Lecture: Thyroid gland, parathyroid gland, suprarenal gland.The APUD system. Heart - part one. Heart - part two.
Practical: Anatomy: Topographical anatomy of the head and the neck: IX. SELF CONTROL. a. Repetition of the topographic anatomy of the head and neck. b. SELF CONTROL: Topographical anatomy of the head and neck. Pharynx, larynx, oral and nasal cavities. Histology: a. The skin 1.Fingertip (HE stain) 2.Skin (HE stain) 3.Mammary gland (HE stain) b. Endocrine organs - part one 1. Hypophysis (HE stain) 2. Hypophysis (Azan stain) 3. Epiphysis (HE stain)

6th week:
Lecture: Heart - part three. Development of the heart - part one. Development of the heart - part two. Trachea and lungs.
Practical: Anatomy: Dissection of the thoracic cavity I-II. a. Surface projections of the thoracic organs. On the anterior thoracic wall draw the following landmarks, projection lines of the heart and its orifices, the auscultation areas of the cardiac valves, margins of the cardiovascular shadow, projections of the lungs, pleurae and pleural recesses. These drawings are to be transmitted into the body scheme provided in your anatomy schedule handout. Carefully relate the projections to the position of the sternum and ribs in the schematic drawing! Presentation of radiographs. b. Structure of the thoracic wall. Topography of the intercostal spaces. Lymphatic drainage of the breast. After removing the pectoralis major muscle, dissect the intercostal branches of the internal thoracic artery and the intercostal muscles. Opening of the thoracic cavity: exarticulate the sternoclavicular joint and cut the ribs along the anterior axillary fold. Compare the surface projection lines on the body and in your own schematic drawings with the in situ positions of the thoracic organs. Mediastinum and its divisions. Histology: a. Endocrine organs - part two 1. Thyroid gland (HE stain) 2. Parathyroid gland (HE stain) 3. Suprarenal gland (HE stain) 4. Demonstration: Thyroid gland: parafollicular cells (C) cells (silver impregnation, immunohistochemistry)b. SELF CONTROL Histology of the lip, tongue, salivary glands, teeth (with its development), lymphatic tissue, skin, endocrine organs.

7th week:
Lecture: Pleural sac. Development of the respiratory system. Mediastinum. Esophagus. Clinical anatomy of the organs of the thorax. Structure of the abdominal wall.
Practical: Anatomy: Dissection of the thoracic cavity III.-IV.a. Study of the heart on isolated preparations. Size and position of the heart. External anatomy of the heart. Preparation of arteries and veins of the heart. Internal anatomy of the atria and the ventricles of the heart. Types and functions of the heart valves. Layers of the heart wall. The conducting system. Functional aspects of the circulatory system. Pulmonary and systemic circulation. b. In situ dissection of the heart, its vessels and chambers. Topography of the heart and pericardium and its sinuses. Open the pericardium between the superior and inferior vena cava and near the diaphragm along an L shaped line. Demonstration of the excised heart. Dissect the coronary arteries, the coronary sinus, the small cardiac vein, the great cardiac vein, the middle cardiac vein. Open a window on the anterior surface of the right auricle and turn backward. Remove and wash the coagulated blood to make the structures of the right atrium and the right atrioventricular orifice visible. Then cut a window on the anterior surface of the right ventricle starting from the conus, and turn the flap caudally while preserving the moderator band. Investigate the structures of the right ventricle including the tricuspid valve. Make a hole on the left ventricle by cutting out a piece of its wall, and identify its structures through the opening. The semilunar valves are studied at the aortic and pulmonary orifices after making window-like holes on their anterior walls. Presentation of radiographs. Dissection of the structures of the supracardiac mediastinum. Histology:a.-b. SELF CONTROL REMEDIAL.

8th week:
Lecture: Digestive system - introduction. Development of the primitive gut.Stomach. Small intestines. Large intestine.
Practical: Anatomy: Dissection of the thoracic cavity V.-VI.a. Study the pleura and its recesses. Remove the lungs and inspect the surfaces. Make schematic drawings of the medial surfaces of the lungs. Dissect bronchopulmonary segments (in one of the lungs) and bronchial arborization (in lung). Structures of the posterior mediastinum. b. Structures of the posterior mediastinum. Dissection of the intercostal vessels and nerves. Topography of the

intercostal space and the cupula pleurae. Presentation of radiographs. Histology:a. Respiratory system. 1. Larynx (HE stain) 2. Trachea (HE stain) 3. Lung (HE stain) 4. Lung (The vascular system filled with drawing ink + HE) b. Digestive system - part one 1. Esophagus (HE)2. Stomach (HE stain) 3. Stomach (PAS+H) 4. Demonstration: Sromach (GEP cells: silver impregnation and immunohistochemical reaction)

9th week:
Lecture: Histology of the stomach and the intestines. Pancreas. Liver - part one. Liver - part two. Portal system. Peritoneum. Lesser sac of the peritoneum.
Practical: Anatomy: SELF CONTROL: Dissection of the abdominal cavity I. a. SELF CONTROL. Anatomy of the thorax. Development of the heart, respiratory system, face, oral ad nasal cavities, pharyngeal gut. b. Demarcate the regions of the abdominal wall and cavity and draw the surface projections of abdominal organs on the cadaver. These drawings should be introduced in the body scheme in your anatomy schedule handout. Dissection of the median abdominal and the inguinal regions. Structure of the posterior abdominal wall (repetition). Presentation of radiographs. Histology:a. Digestive system - part two 1. Gastro-duodenal junction (HE stain) 2. Gastro-duodenal junction (PAS+H stain) 3. Jejunum (HE stain) 4. Jejunum (Goldner's stain) b. Digestive system - part three 1. Colon (HE stain) 2. Demonstration: Colon (GEP cells, immunohistochemical reaction) 3. Appendix (HE stain)4. Rectum (HE stain)

10th week:
Lecture: Development of the peritoneum and intestines. Separation of the body cavities. Retroperitoneum. Gross anatomy of the kidneys.
Practical: Anatomy: Dissection of the abdominal cavity II.-III. a. Structure of the abdominal wall, layers of the abdominal wall, thoracolumbar fascia. Opening of the abdominal cavity. Inspection and identification of the abdominal organs. Compare the surface projections on the body and in your own drawings with the actual positions of the organs. Presentation of radiographs. b. Dissection of the lesser omentum and branches of the celiac trunk. Dissection of the blood vessels of the small and large intestines. Memorise the position of the abdominal viscera. Presentation of radiographs. Histology: a. Digestive system - part four 1. Pancreas (HE stain) 2. Demonstration: Pancreas (GEP cells: silver impregnation and immunohistochemical reaction) 3. Liver from pig (HE stain) 4. Liver from pig (Azan stain) 5. Human liver (HE stain) 6. Liver from rat (Trypan blue vital stain + Nuclear fast red stain) 7. Gall bladder (HE) b. SELF CONTROL: Respiratory system. Digestive system.

11th week:
Lecture: Structure of the kidneys and urinary system. Development of the urinary system. Topographical anatomy of the wall of the pelvis and perineal region. Male genital organs: testis and epidydimis.
Practical: Anatomy: Dissection of the abdominal cavity IV.-V.a. Dissection of the blood vessels. Discussion of the abdominal lymphatic system. Removing the intestines from the duodeno-jejunal flexure to the sigmoid colon-rectal border (only from one cadaver). Cut and demonstrate the inner surface of different parts of the intestine (including the cecum). In the cadaver from which intestines were removed dissect the structures of the retroperitoneal region. b. Topography and relations of the stomach, duodenum, pancreas and spleen. Liver: inspect and make a drawing of the visceral (inferior) surface. Make schematic drawings of the relations of abdominal organs. Topography and sheaths of the kidney. Layers of the retroperitoneal space.Histology: a. SELF CONTROL REMEDIALb. Urogenital system - part one 1. Kidney - coronal section (HE stain)

12th week:
Lecture: Ductus deferens, spermatic cord, seminal vesicle, prostate, scrotum. Penis. Mechanism of erection. Female genital organs: the ovary. Anatomy of the uterine tube and the uterus. Broad ligament. Vagina.
Practical: Anatomy: Dissection of the abdominal cavity VI-VII. a. Paired visceral branches of the abdominal aorta. Kidneys, suprarenal glands. - Dissection of the kidney, demarcate a lobe of the kidney. Make a schematic drawing of the coronal section of a kidney. b. Dissection of the retroperitoneal space. Diaphragm. Openings of the diaphragm and its piercing structures. Lumbar plexus. Parietal branches of the abdominal aorta. Histology: a. Urogenital system - part two 1. Kidney - tangential section (HE stain) 2. Kidney (Vascular infiltration with drawing ink + HE stain) b. The urogenital system - part three l. Ureter (HE stain) 2. Urinary bladder (HE stain) 3. Urethra masculina (HE stain) 4. Cross section of an embryonic penis (HE stain) 5. Demonstration: Penis (HE stain)

13th week:
Lecture: Attachment and peritoneal relations of the uterus. Female external genital organs. Structure of the uterus and uterine tube. Menstrual cycle and its endocrine regulation. Implantation. The pregnant uterus. Placenta - part one.
Practical: Anatomy: True pelvis and perineal region I.-II. a. Topography of the organs in the true pelvis. External genital organs - demonstration. Dissection of the branches of the internal iliac artery. b. Dissection of the perineal region. Structures of the anal region. Ischiorectal fossa. (Removing of the lower limbs from one of the cadavers).Histology: a. Urogenital system - part four l. Testis and epididymis (HE stain) 2. Spermatic cord (HE stain)3. Seminal vesicle (HE stain) 4. Prostate (HE stain) 5. Demonstration: Prostate (Goldner's stain) b. Urogenital system - part five l. Vagina (HE stain) 2. Ovary (HE stain) 3. Ovary with corpus luteum (HE stain)

14th week:
Lecture: Placenta - part two. Fetal circulation. Development of the blood vessels. Development of the genital organs. Subdivision of the cloaca. Sexual differentiation. Sexual anomalies of genetic and hormonal origin.

Practical: Anatomy: True pelvis and perineal region III.-IV. a. Dissection of the urogenital region and external genital organs. Nerves and blood vessels on the dorsal surface of the penis. Preparation of the roots of penis/clitoris. Preparation of the corpora cavernosa and corpus spongiosum penis. Layers of the scrotum. Preparation of the pelvis for median section. b. Halving of the pelvis in the median plane. Dissection of the organs of the true pelvis from the lateral aspect. Branches of the internal iliac artery. Make schematic drawings of the female and male pelvic organs. Histology: a. Urogenital system - part six l. Uterine tube (HE stain) 2. Uterus - proliferative stage (HE stain)3. Uterus - secretory stage (HE stain)Demonstration: Uterine tube with peg-shaped cells (HE stain)b. Urogenital system - part seven1. Pregnant uterus (HE stain)2. Placenta (HE stain)

15th week:
Lecture: -
Practical: Anatomy: True pelvis and perineal region V. a. Male and female genital organs - demonstration of excised preparations. Placenta. Sacral plexus. b. SELF CONTROL. Anatomy of the abdominal cavity, pelvis and perineal region. Histology: a. SELF CONTROL. Histology of the urogenital system. b. -

Requirements

Concerning attendance, the rules written in the Regulations Governing Admission, Education and Examinations of the Faculty of Medicine, University of Debrecen are valid. The presence in practices, seminars and lectures will be recorded. The head of the department may refuse to sign the Lecture Book if a student is absent more than four times from practices (including anatomy, histology and embryology) in one semester even if he/she has an acceptable reason. Compensation of practices is possible only on the same week at an other student's group. The compensation of three practices is allowed (including anatomy, histology and embryology) in one semester.
Rules of the examinations:
Midterm examinations;
Attendance in the midterm examinations is compulsory. The exams cover the topics of lectures, seminars and practices of the semester, and include relevant material from official textbooks.
Three anatomy and three histology midterm examinations will be organized with the following topics:
Anatomy 1: Gross and topographic anatomy of the head and neck.
Anatomy 2: Gross and topographic anatomy including visceral relations of the organs of the thorax.
Anatomy 3: Gross and topographic anatomy including visceral relations of the organs of the abdomen, pelvis and perineum.
Histology 1: Histology of the lip, tongue, salivary glands, teeth (with its development), lymphatic tissue, skin, endocrine organs.
Histology 2: Respiratory system and digestive system. Histology 3: Histology of the urogenital system.
Evaluation of the midterm examinations:
Midterm examinations will be evaluated with points. The midterm examination is successful in case of 60% or better performance. In case of successful midterm examinations the student will be exempted from the corresponding parts of the final practical examination.
Improvement of a failed midterm examination:
Failed midterm examinations can be improved if the score of the failed midterm examination is between 40 and 59 %. With this restriction the following midterm examinations can be improved:
1. The first anatomy midterm examination; on the 6th week (on Monday at 8 o'clock).
2. The second anatomy midterm examination; on the 11th week (on Monday at 8 o'clock).
2. The first two histology midterm examinations; on the weeks following the midterm examinations at the time of the histology classes according to the detailed program.
Conversion of the successful midterm examination to grades for the end of semester final exam:
The achievements on successful midterm examinations are converted to grades for the end of semester final exam on the basis of the following scheme of conversion:
60-69 % 2 (pass)
70-79 % 3 (satisfactory)
80-89 % 4 (good)
90-100 % 5 (excellent)
Final examination at the end of the 1st semester:
The final examination consists of a practical and a theoretical parts. The examination begins with the practical part. Students can sit for the theoretical part only after passing all parts of the practical examination.
Practical examination:
The exam is an oral examination conducted with the continuous aid of anatomical and histological preparations.
The exam consists of the following parts:
1. Anatomy (3 topics from different regions of the human body)

a. Head and neck: (gross and topographic anatomy including visceral relations)
b. Visceral organs 1: (gross and topographic anatomy including visceral and skeletal relations of the organs of the thorax)
c. Visceral organs 2: (gross and topographic anatomy including visceral and skeletal relations of the organs of the abdomen, pelvis and perineum
2. Histology (3 slides)
a. Histology 1: Histology of the lip, tongue, salivary glands, teeth (with its development), lymphatic tissue, skin, endocrine organs.
b. Histology 2: Respiratory system and digestive system.
c. Histology 3: Histology of the urogenital system. The parts of the exam will be evaluated separately from each other. The exam is successful if the student pass all six parts successfully. On the "B" and "C" examinations the student will be exempted from the parts that have been successfully passed previously.
Theoretical examination
The exam is an oral examination. The topics of the examination are formulated in a way that students should present a synthetic knowledge from anatomy, histology and embryology. On the "B" and "C" examinations the entire theoretical examination has to be repeated.
Calculation of the mark for the final examination
To calculate the mark for the final examination the performance on both the practical and theoretical examinations will be taken into consideration.
Registration for the examination:
Students are supposed to register for the exam through the NEPTUN system.

Department of Biochemistry and Molecular Biology

Subject: **BIOCHEMISTRY I.**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **42**
Seminar: **14**
Practical: **30**

1st week:
Lecture: Energy in biology. Oxidative phosphorylation. The citric acid cycle and its regulation. The mithocondrial genom.
Practical: Safety instructions and fire regulations. Introduction to the practicals.

2nd week:
Lecture: Introduction. Main pathways of the carbohydrate metabolism, central role of glucose. Absorption and transport of monosaccharides. Carbohydrate metabolism in various tissues. Glycolytic pathway. Rapoport-Luebering shunt. Energy production of the glycolytic pathway. Non-physiological inhibitors of the glycolytic pathway. Shuttle pathways. Cori cycle. Glucose-alanine cycle. Gluconeogenesis. Substrates of the gluconeogenesis.
Practical: Determination of the activity of glycolytic enzymes (aldolase, LDH), electrophoresis of LDH.

3rd week:
Lecture: Regulation of the glycolytic pathway in liver and muscle. Regulation of gluconeogenesis. Glycogen in liver and muscle. Degradation and synthesis of glycogen. Regulation of glycogen synthesis and degradation. Metabolism of galactose and fructose.
Practical: Determination of the activity of glycolytic enzymes (aldolase, LDH), electrophoresis of LDH.

4th week:
Lecture: Pentose phosphate pathway. Synthesis of disaccharides. Metabolism of glucuronic acid. Inherited diseases in the carbohydrate metabolism. Biochemistry of diabetes mellitus. Pyruvate dehydrogenase complex .
Practical: Determination of the activity of glycolytic enzymes (aldolase, LDH), electrophoresis of LDH.

5th week:
Lecture: Organization of lipid structures. Mixed micelles in the digestive tract. Lipoproteins in blood plasma. Covalent interactions between proteins and lipids. Oxidation of fatty acids. Synthesis of fatty acids.
Practical: Study on transaminases.

6th week:
Lecture: Synthesis of triacyl-glycerol. Lipid metabolism during starvation. Ketone bodies.
Practical: Study on transaminases

7th week:
Lecture: The mevalonate metabolic pathway. Synthesis of cholesterol Cholesterol transport in the body. The LDL receptor and its gene. Excretion of cholesterol. Biochemical explanation of elevated blood cholesterol levels.

Practical: Study on transaminases

8th week:
Lecture: Steroid hormones. Bile acids. Vitamin D. Eicozanoids. Lipid peroxidation. Synthesis of sphyngolipids and phospholipids
Practical: Extraction and separation of lipids. Determination of free fatty acids.

9th week:
Lecture: Comparison of the amino acid metabolism with the carbohydrate and lipid metabolisms. Formation and utilisation of the intracellular amino acid pool. Nitrogen balance. Exogenous amino acid sources, digestion of proteins. Amino acid transports. Structure and function of glutathione. Endogenous amino acid sources: intracellular protein breakdown. Common reactions in the amino acid metabolism: fate of the nitrogen. Transaminations and deaminations. Enzymes containing pyridoxal phosphate cofactors, and their mechanism of action: stereoelectronic control. Formation and elimination of ammonia in the body. Nitrogen transport between the tissues.
Practical: Extraction and separation of lipids. Determination of free fatty acids.

10th week:
Lecture: The urea cycle and its regulation. Mitochondrial carbamoyl phosphate synthetase. Intracellular glutamine cycle. Decarboxylation and carboxylation reactions in the amino acid metabolism. C1 transfer and transmethylation, related enzyme and vitamin deficiencies. Monooxygenation and dioxygenation reactions. Fate of the carbon skeleton of amino acids: glucogenic and ketogenic amino acids. Degradation of amino acids in the pyruvate pathway. Transport function of alanine. Degradation and synthesis of cysteine. Formation and utilization of PAPS. Degradation and synthesis of serine and glycine. Pathways of threonine degradation. Degradation of amino acids in the - ketoglutarate pathway. Degradation of histidine, histidinemia.
Practical: Extraction and separation of lipids. Determination of free fatty acids.

11th week:
Lecture: Degradation and synthesis of proline. Degradation and synthesis ofarginine and ornithine, their precursor functions: NO, creatine, polyamines. Aspartate and asparagine degradation and synthesis in the oxaloacetate pathway. Degradation of amino acids in the succinyl-CoA pathway. The vitamine requirements and enzyme deficiencies in the propionyl CoA succinyl CoA conversion. Degradation of isoleucine and valine, related enzyme deficiencies. Comparison of leucine degradation with the degradation of isoleucine and valine. Degradation of lysine and tryptophane, their precursor functions. Carnitine synthesis. Degradation of phenylalanine and tyrosine, related enzyme deficiencies and precursor functions. Synthesis and degradation of cathecolamines.
Practical: Evaluation and discussion of the practices. Control test.

12th week:
Lecture: Nucleotide pool. Digestion and absorption of nucleic acids. Sources of atoms in purine ring. De novo synthesis of purine nucleotides. Regulation of purine nucleotide synthesis. Salvage pathways for the purine bases. Degradation of purine nucleotides. Diseases associated with purine nucleotide metabolism.

13th week:
Lecture: De novo synthesis of pyrimidine nucleotides. Regulation of pyrimidine nucleotide synthesis. Salvage pathways for the pyrimidines. Degradation of pyrimidine nucleotides. Nucleoside and nucleotide kinases. Synthesis of deoxythymidilate. Nucleotide coenzyme synthesis (NAD,FAD,CoA). Antitumour and antiviral action of base and nucleoside analogues. Biochemistry of nutrition. Energy requirement. Basic metabolic rate. Energy content of the food. Energy storage and thermogenesis. Biochemical mechanism of obesity. Protein as N and energy source. N balance. Essential amino acids. Protein malnutrition. Vegetarianism. Clinical aspects of protein nutrition. Carbohydrates and lipids. Pathological mechanisms in obesity. Vitamins. Structure, biochemical functions. Relationship between the biochemical functions and the symptoms of deficiency. Essential inorganic elements of the food (metabolism, function, deficiency).

Requirements

Requirements for signing the semester: attendance and participation in all laboratory practices and seminars as well as in the obligatory lectures (see the list of the obligatory lectures). Only one absence is accepted from the obligatory lectures, in case of more absences the semester won't be accepted.

Required knowledge from Biochemistry I.: topics of metabolism presented at the lectures (available at the http://bmbi.med.unideb.hu web site, username: student, password: student2015) and topics discussed in the seminars.

On the **seminars** the lectures of the previous week can be discussed. New scientific information connected to the lectures will also be presented; those materials will also be asked on the exams. Based on the activity of students on the seminars, the best students can collect 6 bonus points during the semester (ask details from the seminar teachers). In case of the seminars maximum three absences are accepted. Students can't make up seminar with another group.

Every **laboratory practices** must be performed, if someone is absent due to any serious reason proved by medical papers, the missing experiment have to be performed within the three weeks practice period joining another group (after obtaining permissions from both practice teachers). In case of more than one remedial practice, students cannot get any points for the additional practice units.

Achievements during the semester will be evaluated in terms of points. During the semester 100 (+ 6) points can be collected. 100 points could come from the laboratory test (10 points), note book (3 x 5 points) and from the control tests of the material of the lectures (75 points). Control tests consist of test questions and recognition of chemical structures. The list of the chemical structures can be found in the biochemistry practical guide. Bonus points earned the seminar activity (6 points) will be added to the total collected points (half of the bonus points will be added to the result of the semester exam).

At the end of the semester, grade will be offered on the basis of the collected points for all those students, who collected at least 60 points (and reached at least 60% of the practical points!): pass for 60-69,5 points; satisfactory for 70-79,5 points; good for 80-89,5 points; excellent for 90-106 points. Those students who want to get a better grade, can take an exam. Those, who did not collect 60 points, have to take a written exam in the exam period.

At the written end-semester exam 50 points can be collected, it consists of single- and multiple choice test questions from the lecture material (45 points) and from the practice (5 points). 60% (30 points) is needed to get a passing mark, and the grade increases with every 5 points (30-34.5 pass, 35-39.5 satisfactory, 40-44.5 good, 45-50 excellent).

Those students who collect at least 220 points during the three semesters from the three main courses (Molecular Biology, Biochemistry I., Biochemistry II.) of the Department of Biochemistry and Molecular Biology and have more than 60 points from each subjects will be exempted from the written part of the final exam.

Please follow the announcements of the department about the control tests, exams and other current information on the announcement table (LSB downstairs, 1st corridor), and on the website (http://bmbi.med.unideb.hu).

Department of Foreign Languages

Subject: **HUNGARIAN LANGUAGE II/1.**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: Revision.

2nd week:
Practical: Pretest.

3rd week:
Practical: Unit 1

4th week:
Practical: Unit 2

5th week:
Practical: Unit 3

6th week:
Practical: Unit 4

7th week:
Practical: Unit 5

8th week:
Practical: Revision. Mid-term test.

9th week:
Practical: Unit 6

10th week:
Practical: Unit 7

11th week:
Practical: Unit 8

12th week:
Practical: Unit 9

13th week:
Practical: Unit 10

14th week:
Practical: Revision. End-term test.

15th week:
Practical: Oral minimum exam. Evaluation.

Requirements

Attendance

Language class attendance is compulsory. The maximum percentage of allowable absences is 10 % which is a total of 2 out of the 15 weekly classes. Students arriving late for the classes are not allowed to enter the class. Being late is counted as an absence. If the number of absences is more than two, the final signature is refused and the student must repeat the course. Students are required to bring the textbook or other study material given out for the course with them

to each language class. Active participation is evaluated by the teacher in every class. If students' behaviour or conduct does not meet the requirements of active participation, the teacher may evaluate their participation with a "minus" (-). If a student has 5 minuses, the signature may be refused due to the lack of active participation in classes.

Testing, evaluation

In each Hungarian language course, students must sit for 2 written language tests and a short minimal oral exam.

A further minimum requirement is the knowledge of 200 words per semester announced on the first week. There is a (written or oral) word quiz in the first 5-10 minutes of the class, every week. If a student has 5 or more failed or missed word quizzes he/she has to take a vocabulary exam that includes all 200 words along with the oral exam. The results of word quizzes are added to the average score of the written tests.

The oral exam consists of a role-play randomly chosen from a list of situations announced in the beginning of the course. Failing the oral exam results in failing the whole course. The result of the oral exam is added to the average of the mid-term and end-term tests.

Based on the final score the grades are given according to the following table:

Final score	Grade
0 - 59	fail (1)
60-69	pass (2)
70-79	satisfactory (3)
80-89	good (4)
90-100	excellent (5)

If the final score is below 60, the student once can take an oral remedial exam covering the whole semester's material.

Consultation classes: In each language course once a week students may attend a consultation class with one of the teachers of that subject in which they can ask their questions and ask for further explanations of the material covered in that week. These classes are optional.

Course book:

Audio files to the course book, oral exam topics and vocabulary minimum lists are available from the website of the Department of Foreign Languages: ilekt.med.unideb.hu.

Department of Physiology

Subject: **MEDICAL PHYSIOLOGY I.**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **60**
Seminar: **30**
Practical: **45**

1st week:
Lecture: Introductory remarks Preparation for laboratory practices Humoral regulation of cell function Membrane transport mechanisms Electrical properties of the cell membrane

2nd week:
Lecture: Mechanisms underlying the action potential. Neuromuscular junction. Synapse The autonomic nerves Basic receptor function. Regulation of striated muscle contraction Smooth muscle physiology

3rd week:
Lecture: Physiology of the body fluids, homeostasis Red blood cells, blood types Blood plasma, jaundice Hemostasis Blood derivatives in human therapy

4th week:
Lecture: Electrical properties of the heart Mechanisms of the different types of arrhythmia; the ECG Excitation-contraction coupling in cardiac muscle Cardiac Ca2+ -entry mechanisms Contractile properties of the heart

5th week:
Lecture: Effects of humoral agents and the autonomic nervous system on the heart The cardiac output and the cardiac cycle Principles of hemodynamics Features of arterial circulation

6th week:
Lecture: Microcirculation Lymphatic circulation, venous circulation Components of vascular tone Cardiovascular reflexes I. Cardiovascular reflexes II.

7th week:
Lecture: Humoral control of circulation. Endothelial functions Integrated regulation of circulation Pulmonary circulation Cerebral and coronary circulation

8th week:
Lecture: Splanchnic, cutaneous and muscular circulation Circulatory shock Regulation of cell function "My heart"

9th week:
Lecture: Mechanics of respiration Compliance, work of breathing Gas transport in the blood Control of breathing Neural regulation of gastrointestinal functions

10th week:
Lecture: Endocrine and paracrine regulation of gastrointestinal functions Motor functions of the gastrointestinal tract I Motor functions of the gastrointestinal tract II Secretion of saliva and gastric juice Exocrine functions of pancreas, liver and intestines

11th week:
Lecture: The liver Absorption of nutrients Food intake and its regulation Energy balance Regulation of body temperature Energetics of muscle contraction

12th week:
Lecture: Energetics of muscle contraction Excercise physiology Regulation of cardiovascular functions in physiological and pathological conditions Integrated response of the cardiovascular and respiratory system Measurements of intracellular Ca2+ cc

Requirements

1. Signature of Lecture Book
Attendance of lectures, laboratory practices and seminars is compulsory. The signature of the Lecture Book may be refused for the semester in case of more than five absences from the seminars and/or more than two absences from the practices.
Completion of a missed seminar with a different group is not possible. All missed practices must be must be made up, however this does not reduce the number of absences! Completion of all topic sheets in the Exercise Book, each verified by the signature of the teacher, is also a precondition of the signature of the Lecture Book.
If one has six or more lecture absences, the end-semester examination (ESE) may not be substituted with the average test score (see later).
Each student must attend seminars with the group specified by the Education Office. For continuous updates on all education-related maters, please check the departmental web-site (http://phys.dote.hu).

The lectures of Medical Physiology I. are listed at the web site of the Department of Physiology (http://phys.dote.hu)

2. Evaluation during the semester
The knowledge of students will be tested 3 times per semester in the form of a written test (multiple choice questions). Participation on mid-semester written tests is compulsory. If one wishes to improve on his/her general performance, it is possible to take a make-up (remedial) test on one of the three topics. Note that the calculation of the average score will be based upon the result of the remedial test, even if it is worse than the original score. At the end of the 2nd semester the 1st semester test results will be used to calculate your bonus points. The bonus points are valid only for a given academic year! The calculation of bonus points are detailed at the description of Medical Physiology II.
Laboratory practical knowledge of the students will be tested at the end of the first semester as part of the Closing Lab, evaluation with two level marks (accepted or not accepted). As a precondition of attending the Closing Lab, the fully completed Exercise Book (with all the verified topics) must be presented during the Closing Lab. Students are expected to perform the given experiment on their own and must be familiar with theoretical background also. In case of a negative result, the Closing Lab can be repeated, but only once. If the final evaluation of the Closing lab is "Not Accepted", then the student will be given laboratory practical questions on the end-semester examination.

3. Examination
The first semester is closed by an oral end-semester exam (ESE) covering the topics of all lectures, seminars and laboratory practices of the semester. The list of exam questions is available on the departmental website (http://phys.dote.hu).
If the final evaluation of the Closing lab is "not accepted", then the student will be given laboratory practical questions, too.

The ESEmark based on the average score of mid-semester tests will be offered if
- one's average score of the three mid-semester tests is above 60%, and
- (s)he successfully completed the Closing Lab, and
- (s)he has fewer than 6 lecture absences, and
- the Dept. of Physiology signs the lecture book.

The mark based on the average score of mid-semester tests is calculated according to the following table:
scoremark
0 – 59 %:fail
60 – 69 %pass
70 – 79 %satisfactory
80 – 89 %good
90 – 100 %excellent

- If one is not satisfied with this result, (s)he may participate in ESE during the examination period.

Department of Anatomy, Histology and Embryology

Subject: **NEUROBIOLOGY (NEUROANATOMY, NEUROBIOCHEMISTRY, NEUROPHYSIOLOGY)**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **62**
Seminar: **15**
Practical: **52**

1st week:
Lecture: The histology of the nervous system. I. The neuron. The histology of the nervous system. II. The neuroglia. Relations of neurons and neuroglial cells. The development of the nervous system – neurohistogenesis. Parts of the nervous system. The development and structure of the spinal cord.
Seminar: See practical.
Practical: a. Dissection of the brain: part one,: Demonstration of the cerebral hemispheres and lateral ventricles. Flechsig's cut. Demonstration of the cerebral blood vessels and cisterns. Main steps in the dissection: removing of the membranes is followed by surface demonstration. At the right hemisphere a horizontal section is to be made at the level of corpus callosum. The position of the lateral ventricle can be felt on this side. First the central portion of the lateral ventricle, then its frontal and occipital horns are to be opened. After removing the operculum, the insula and the superior temporal gyrus become visible. Establish the position of the temporal horn with the aid of a probe then open the horn. On the left hemisphere the so-called Flechsig's section is made to explore the basal ganglia. Remove the trunk of the corpus callosum, cut and fold back the fornix. Demonstration of the tela choroidea of the 3rd ventricle. b. Dissection of the brain: part two. The third ventricle, diencephalon. Midsagittal section of the brain. Explore the brainstem by removing the remaining parts of the hemisphere. Demonstration of the midbrain. In order to explore the cerebellar nuclei, a section is made directed from the superior cerebellar peduncle to the ventral surface of the cerebellum. Cut out a wedge-shaped part of the cerebellum for the observation of the 4th ventricle. Make a schematic drawing of the floor of the 4th ventricle. Demonstration of the pons and the medulla. Histology: Nervous tissue 1. Peripheral nerve (HE stain) 2. Peripheral nerve (OsO4 + H stain) 3. Spinal ganglion (HE stain) 4. Sympathetic ganglion (Bielschowsky's silver method) 5. Neuroglia: Astrocyte from cerebral cortex and medulla (Cajal's gold method)

2nd week:
Lecture: The development and structure of the brain stem. The fourth ventricle. The development and structure of the diencephalon. The third ventricle. The development and structure of the telencephalon. The lateral ventricles. The structure of the cerebral cortex.
Seminar: See practical.
Practical: Anatomy: a. Dissection of the brain - part three. Gross anatomy of the brain stem and its structures. Cranial nerve nuclei. Attachment of cranial nerves to the brain. Sturcture of the brainstem - discussion.b. Dissection of the spinal cord. Opening of the vertebral canal on a separate torso. Gross anatomy of the spinal cord and its structure - discussion. Scalp. Meninges. Blood supply of the brain. Cerebrospinal fluid. Opening of the cranial cavity. Structure of the scalp and vault, meninges. Demonstration: blood supply of the brain. Discussion of the flow of the cerebrospinal fluid. Histology: Spinal cord 1. Spinal cord (HE stain) 2. Spinal cord (Bielschowsky's silver method) 3. Spinal cord (Golgi impregnation) 4. Only for demonstration: b. Frog spinal cord labeled with cobalt lysine 1. dorsal root filling 2. ventral root filling 3. intracellular labeling

3rd week:
Lecture: The structure of the cerebellum. The structure and pathways of the medulla oblongata. The structure and pathways of the pons and mesencephalon. The meninges. Blood circulation and cerebrospinal fluid.
Seminar: See practical.
Practical: Anatomy: a. Dissection of the brain - part four. Dissection on in situ brain. Follow the instructions given at the dissection of the excised brain. b. Dissection of the brain - part five. Preparation of the brainstem in situ. Cranial and dural exits of the cranial nerves. Histology:

Structure of the cerebellar and cerebral cortex. l. Cerebellum (HE stain) 2. Cerebellum (AgNO3 impregnation according to Bielschowsky) 3. Cerebellum (Golgi impregnation) 4. Cerebrum (Nissl stain) 5. Cerebrum (Golgi impregnation)

4th week:
Lecture: The anatomy of the eye. The muscles of the eyeball, conjunctiva, eyelids, lacrimal apparatus. The oculomotor system. The structure of the retina. The visual pathway. The gross anatomy of the middle ear and the inner ear.
Seminar: See practical.
Practical: Anatomy: a. Dissection of the brain - part six. Conclusion of brain dissections. Structures of the cranial base. Venous sinuses of the dura mater. Cranial exits of the cranial nerves. Review of cranial nerves (n. V)b. Dissection of the brain - part seven. Coronal sections of the brain. Review of cranial nerves (n. VII)Histology: Sense organs: part one l. Eye (HE) 2. Eyelid (HE) 3. Lacrimal gland (HE)

5th week:
Lecture: The vestibular system. The acoustic system. The taste and olfactory systems.
Seminar: See practical.
Practical: Anatomy: a. Dissection of the brain - part eight. General review. Review of cranial nerves (n. IX, X, XI, XII)b. Dissection of the visual organs. Dissection of the eye and orbital structures. Review of the visual system and the control of eye movements Dissection of the middle and inner ear. Review of the vestibular and auditory systems Histology: Sense organs: part three. 1. Inner ear (HE)

6th week:
Lecture: The neuronal excitatory process, roles of the ionic channels. (P) Features and significance of the central excitatory and inhibitory synapses. (P) Basic forms of neuronal interaction in the central nervous system, neuronal integration. (P)
Practical: Anatomy: a. SELF CONTROL b. Histology: SELF CONTROL

7th week:
Lecture: Metabolism of the central nervous system. (B)Signal propagation and transmission. (B) Postsynaptic mechanisms of neurotransmission. (B) Roles and effects of amine neurotransmitters I. (B) Roles and effects of amine neurotransmitters II. (B) Axonal transport, degeneration, regeneration. (A) Signal transduction in the nervous system. (A) Synaptic and non-synaptic neurotransmission. Interneuronal synapses. Ultrastructure and molecular architecture. (A)
Practical: Anatomy: a. SELF CONTROLb. Histology: SELF CONTROL

8th week:
Lecture: Receptors. Primary afferents. Sensory functions of the spinal cord. The somatosensory system. The viscerosensory system. General characteristics of the receptros, somato- and viscerosensory functions. (P)

9th week:
Lecture: Physiology of temperature and pain sensation. (P) Neuronal mechanisms of the pain sensation, theoretical background of therapy. (P)

10th week:
Lecture: Signal generation in sensory organs. (B) Information storage. (B)

11th week:
Lecture: Optics of the vision. (P) Retinal mechanism of the vision. (P) Central processing of the visual information. (P) Physiology of the auditory function. (P)Somatomotor functions of the spinal cord. The motor endplate. The motor unit. The spinal motor apparatus. (A)Reflex functions of the spinal cord and brain stem. Proprioceptive reflexes and nociceptive reflexes. (A)The somatomotor sístem. The hierarchy of the motor system. The basal ganglia and the cerebellum as part of the somatomotor system. (A)

12th week:
Lecture: The visceromotor system. (A)Spinal control of skeletal muscle activity. (P)Vestibular apparatus and movement coordination. (P)Roles of the brain stem and cerebellum in the coordination of movements. (P)

13th week:
Lecture: Roles of the basal ganglia and cerebral cortex in the coordination of movements. (P) Physiology of taste and smell. (P) The monoaminergic system. (A) The limbic system. (A)Central vegetative regulation I. (P) Central vegetative regulation II. (P) EEG, sleep. (P) Learning, memory. (P)

Requirements

The neurobiology course is an integrated one, delivered as a joint effort of three departments (Departments of Anatomy, Histology and Embryology; Biochemistry; Physiology). The educational activities of the Neurobiology course include lectures, seminars and practices. Most of the regulations concerning these activities are specific to the individual departments and will be introduced by the respective education officers.

In the detailed program of the course (which, in fact, corresponds to the list of requirements) as well as here, both the compulsory and suggested textbooks are listed. Note, however, that the requirements of the course include material delivered in the lecture hall only, not necessarily available in the recommended textbooks, while in other cases some information in the suggested textbook is not regarded as part of the exam material.

Attendance of the lectures, seminars and practices is compulsory, although one may have five absences from the lectures and two absences of in the following distribution: neuroanatomy and neurohistology together: two absences; neurophysiology (seminar and practices) two absences together. If one collects six or more lecture absences (regardless of the reason of the absences) all the exam advantages are withdrawn without further notice. In the case of three or more absences from either the practices or seminars, the verification of the lecture book may be refused. Making up the missed seminars and practices may be possible, but the individual departments determine the actual procedure.

During the term, three self-controls (SCs) are organised. If one meets the passing conditions (see below), the end-semester examination may be substituted with the result achieved on the basis of these tests (i.e. exemption of the final exam). The maximum achievable score is **100 points** in the following distribution:

Neuroanatomy:**50 points**
Neurobiochemistry**10 points**
Neurophysiology**40 points**

The first SC (week 7) is organised by the Department of Anatomy. It has two parts: neurohistology practicum and neuroanatomy oral/practicum. All three departments participate, however, in the second (week 10) and third (week 14) self-controls (both of them are written tests). The first SC can be repeated once, on the 8th week. Either the 2nd or the 3rd SCs may also be repeated at the end of the semester, but not both. In this case, all subjects (neuroanatomy, neurophysiology and nerobiochemistry) of either the 2nd or the 3rd SCs have to be repeated and the previously achieved scores are lost. Any remedial can be made only in the case of the respective regular SCT has been attempted.

The points collected in the frame of the three SCs will be summarised on a subject and departmental basis. If someone collects at least 60 % of the total number of points for all five subjects individually provided by the departments, she/he will be exempted of the end-semester examination (ESE). Please, note that in the case of the Anatomy Department, the 60 % limit is separately applicable for the neurohistology practicum, neuroanatomy oral/practicum and the cumulative written score achieved in the frame of the 2nd and 3rd SCs. If someone fails to reach the 60 % in the case of any of the subjects of a department then the student must take the examination on the appropriate subject(s) during the examination period (the actual dates will be determined later).

If someone reaches the 60 % limit of all departmental scores (i.e. all subjects), the ESE result is calculated as follows:

Total number of points score

0 – 59 points:f ail
60 – 69 points pass
70 – 79 points satisfactory
80 – 89 points good
90 – 100 points excellent

If someone wishes to improve the result of her/his ESE, it can be done on any of the exam days (registration is required). Please note, that in this case all previous exam results are lost.

Details of the self-controls on a departmental basis:
Anatomy (neuroanatomy, neurohistology):
The total number of points available in the frame of the first SC:
Neurohistology practicum:10 points
Neuroanatomy oral/practicum:20 ponts
If the score of the first SC is less than 60 % (regarding either part of the SC) it can be repeated on the following week. Additional 20 points can be collected in the frames of the 2nd and 3rd SCs. The preconditions of the exam exemption: at least 6 points on histology practicum; at least 12 points on neuroanatomy oral/practicum and at least 12 points on the written tests.

Biochemistry(neurobiochemistry):
Altogether 10 points can be collected in the frames of the 2nd and 3rd SCs. One must have at least 6 points for the exemption.

Physiology(neurophysiology):
Altogether 40 points can be collected in the frames of the 2nd and 3rd SCs. One must have at least 24 points for the

exemption. Four extra points can be collected from neurophysiology practicals on the 14th academic week during the Neurophysiology closing lab. In case of a failure there is no possibility of improvement. Nevertheless, the maximum achievable neurophysiology score is 40 points and these extra 4 points are valid only and exclusively in the current academic year (students repeating Neurobiology can register for the end-semester neurophysiology closing lab again.)

Department of Biochemistry and Molecular Biology

Subject: **BIOCHEMISTRY II.**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **45**
Seminar: **15**
Practical: **30**

1st week:
Lecture: Levels of eucariotic gene expression. The active chromatin. Regulation of transcription. Regulation at the mRNA level. Translational regulation. Posttransational events. Gene therapy.
Practical: Introduction to the practicals.

2nd week:
Lecture: Term and levels of regulation. Significance and interrelationship between metabolic, cytokine, hormonal and neuronal regulation. Forms of external signals. Receptors and transducers. Systems increasing the sensitivity of regulation: allosteria, substrate cycle, interconversion cycle, cascades. Signaling pathways of nonpenetrating signals. Ionchannel receptors. Seven transmembrane domain receptors G proteins and GTP-ases. The adenylate cyclase and the phospholipase C signaling pathway. G proteins and GTP-ases. The adenylate cyclase and the phospholipase C signaling pathway. Control of enzyme activity.
Practical: Study on blood clotting

3rd week:
Lecture: Other phospholipases. cGMP phosphodiesterase sytem. Signaling via one-hydrophobic domain proteins: the cGMP system. Coupling of tyrosin kinase receptors to the signaling pathways, raf, MAP kinases. Metabolic effects of insuline.
Practical: Study on blood clotting

4th week:
Lecture: Signals acting via cytoplasmatic targets : the NO system. Coupling of signaling pathways to the regulation of genes and to the actin filament movement. Nuclear receptors. Signal crosstalks.
Practical: Study on blood clotting

5th week:
Lecture: Biochemistry of cell proliferation. Mitotic cascade. M-phase kinase. Products and biochemical function of protooncogenes. Mechanism of oncogene formation.
Practical: Fractionation and quantitative determination of plasma proteins.

6th week:
Lecture: Tumor suppressor genes and their biochemical function. Biochemical features of terminal differentiation. Biochemistry of programmed cell death.
Practical: Fractionation and quantitative determination of plasma proteins.

7th week:
Lecture: Stress proteins and enzymes in eukariotic cells. Heat shock proteins and their functions under normal circumstances. Hsp 70 and hsp 60 protein families. Role of chaperones and chaperonins. Thermotolerance of the cell. Hsp 90 protein family and their role in the cells. Transcriptional regulation of heat shock genes. Stress signals.
Practical: Fractionation and quantitative determination of plasma proteins.

8th week:
Lecture: Biochemistry of the liver. Biotransformation. Biochemical consequences of ethanol consumption.
Practical: Study on neurotransmitters

9th week:
Lecture: Biochemistry of the blood. Metabolism of red blood cells. Genetic diseases leading to haemolysis. Hemoglobin; structure, function and regulation. Pathological forms of hemoglobin. Specific biochemical reactions of leukocytes. Leukocytes and inflamma-tion. Serum proteins.
Practical: Study on neurotransmitters

10th week:
Lecture: Uroporphynoids, hem-proteins. Synthesis of hem, regulation of the synthesis in eukariotic cells. Degradation of hem: formation, conjugation and excretion of bile pigments. Hem oxygenase. Disorders in hem metabolism. Iron transport, storage and distribution in the human body. Molecular regulation of the iron level in cells: stability of transferrin receptor and ferritin mRNA, IRE binding protein. Risk of the free iron and intracellular hemolysis.
Practical: Study on neurotransmitters

11th week:
Lecture: Cellular, humoral and vascular aspects of blood clotting. Structure, activation, adhesion and aggregation of thrombocytes. Classification of blood clotting factors and their role. Factors depending on vitamin K.
Practical: Evaluation of the results of practicals. Control test. Visit of the department.

12th week:
Lecture: Contact phase of blood coagulation. Blood clotting in the test tube and in the body. Classification of blood coagulation. Role of thrombocytes and the vascular endothel. Limiting factors , inhibitors and activators of blood coagulation. Fibrinolysis.

13th week:
Lecture: Biochemistry of the extracellular matrix: function and components. Glucosaminoglycans and proteoglycans. Collagens: structure, function and genetic origin. Synthesis of type I. collagen. Macromolecular organization of collagen monomers. Disorders in the synthesis of collagen. Collagenases. Structure and function of elastin. Elastase. Structure and functional domains of fibronectins. Plasma and tissue fibronectins, genetic background: alternative splicing. Receptors of fibronectins: integrins and other type of receptors. Role of fibronectins. Other adhesion proteins (laminin, entactin, thrombospondin, von Willebrand factor, tenascin, etc).

14th week:
Lecture: Biochemistry of the sport. Biochemistry of the cytoskeleton. Proteins of myofibrils. Molecular mechanism for the generation of force. Metabolic fuel of muscle. Metabolism of muscle in various work load. Effect of exercise. Special metabolism of the skin.

15th week:
Lecture: Adaptation, health, disease.

Requirements

Content of Biochemistry II.:topics of cell- and organ biochemistry presented at the lectures (available at the http://bmbi.med.unideb.hu web site, username: student, password: student2015) and discussed on the seminars.

Requirements for signing the subject: participation in each practice, in the seminars and in the obligatory lectures (see the list of the obligatory lectures on the back page). Only one absence is accepted from the obligatory lectures; in case of more absences the subject will not be signed.

On the **seminars** lectures of the previous week can be discussed. New scientific information, connected to the lectures will also be presented on the seminars; this material will be asked on the exams, too. The most prepared students can collect 6 bonus points on the seminars (6 bonus points can be given to max. 10 % of the students, 3 bonus points can be given to max 30% of the students). In case of the seminars maximum three absences are accepted. Students can't make up a seminar with another group. Seminars are not obligatory for repeaters.

Every **practice**must be performed, if someone is absent because of any serious reason, the missing experiment have to be performed within the three weeks practice period joining to another group (after previous discussion with the laboratory teacher of the other group). In case of more than one remedial practice, students can not get any points for that practice. Practices are not obligatory for repeaters.

Achievement during the semester will be evaluated in term of points.

During the semester 100 + 6 points can be collected for the laboratory test (10 points), note book (3 x 5 points) and by the control tests from the material of the lectures (75 points). Control tests consist of single- and multiple choice test questions. Bonus points earned by seminar activity will be added to the total points collected during the semester (half of these bonus points can be added to the result of the written exam.) Semester points will be automatically erased of those students, who break the rules of test writings.

Those students who finally reach 70 points in this semester, will get further 5 bonus points, those who reach 80 points will get further 8 bonus points that will be added to the results of the written part of the exam. Further bonus points can be collected with good results on the biochemistry competition.

Those students, who reaches at least 220 points during the three semesters (Molecular Biology, Biochemistry I., II.), will be exempted from the written part of the final exam (for this exemption at least 60 points must be collected separately in each semester).

Final exam. The final exam consists of a written and oral part for everyone. On the written exam 50 points can be collected, it consists of 50 single- and multiple choice test questions from "Molecular Biology" (5 points), "Metabolism" (15 points), "Cell- and organ biochemistry" (25 points) and from the practices of the three semesters (5 points).

Oral exam can be taken only if the student collects at least 60 % (30 points) in the written part. The successful result of the written part is valid for the "B" and "C" exams. In case of unsuccessful written "C" exam, students will get oral questions, too.

The oral part of the examination starts with one basic question of medical orientation, which should be answered immediately. The list of these questions will be given to students at the beginning of the second semester together with the exam titles of the final exam. After properly answering the medical question, students will have three theoretical

questions (from metabolism, from cell- and from organ biochemistry).

Students must register for the exams on the NEPTUN until the end of the 15th week.

Please follow the announcements of the department on the announcement table (LSB downstairs 1st corridor), and on the website (http://bmbi.med.unideb.hu)

Department of Foreign Languages

Subject: **HUNGARIAN LANGUAGE II/2.**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: Revision.

2nd week:
Practical: Pretest.

3rd week:
Practical: Unit 11

4th week:
Practical: Unit 13

5th week:
Practical: Unit 13

6th week:
Practical: Unit 14/1

7th week:
Practical: Revision. Mid-term test

8th week:
Practical: Unit 14/2

9th week:
Practical: Unit 14/3

10th week:
Practical: Unit 15

11th week:
Practical: Unit 15

12th week:
Practical: Unit 16

13th week:
Practical: Unit 16

14th week:
Practical: Practice. Revision. Mid-term test.

15th week:
Practical: Oral minimum exam. Evaluation.

Requirements

Attendance

Language class attendance is compulsory. The maximum percentage of allowable absences is 10 % which is a total of 2 out of the 15 weekly classes. Students arriving late for the classes are not allowed to enter the class. Being late is counted as an absence. If the number of absences is more than two, the final signature is refused and the student must repeat the course. Students are required to bring the textbook or other study material given out for the course with them to each language class. Active participation is evaluated by the teacher in every class. If students' behaviour or conduct does not meet the requirements of active participation, the teacher may evaluate their participation with a "minus" (-). If a student has 5 minuses, the signature may be refused due to the lack of active participation in classes.

Testing, evaluation

In each Hungarian language course, students must sit for 2 written language tests and a short minimal oral exam.

A further minimum requirement is the knowledge of 200 words per semester announced on the first week. There is a (written or oral) word quiz in the first 5-10 minutes of the class, every week. If a student has 5 or more failed or missed word quizzes he/she has to take a vocabulary exam that includes all 200 words along with the oral exam. The results of word quizzes are added to the average score of the written tests.

The oral exam consists of a role-play randomly chosen from a list of situations announced in the beginning of the course. Failing the oral exam results in failing the whole course. The result of the oral exam is added to the average of the mid-term and end-term tests.

Based on the final score the grades are given according to the following table:

Final score	Grade
0 - 59	fail (1)
60-69	pass (2)
70-79	satisfactory (3)
80-89	good (4)
90-100	excellent (5)

If the final score is below 60, the student once can take an oral remedial exam covering the whole semester's material.

Consultation classes: In each language course once a week students may attend a consultation class with one of the teachers of that subject in which they can ask their questions and ask for further explanations of the material covered in that week. These classes are optional.
Course book: See the website of the department.
Website: Audio files to the course book, oral exam topics and vocabulary minimum lists are available from the website of the Department of Foreign Languages: ilekt.med.unideb.hu.

Department of Internal Medicine

Subject: **NURSING PRACTICE**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Practical: **120**

Department of Physiology

Subject: **MEDICAL PHYSIOLOGY II.**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **36**
Seminar: **18**
Practical: **27**

1st week:
Lecture: Preparation for laboratory pract. Principles in renal physiology Quantitative description Glomerular filtration

2nd week:
Lecture: Regulation of GFR Tubular transport I. Tubular transport II. Urinary concentration & dilution

3rd week:
Lecture: Water-balance, osmoregulation Control of body fluid volume Acid-base balance Acid-base disturbances, K-homeostasis

4th week:
Lecture: Ca-homeostasis, physiology of bone Micturition, diuretics, clinical correlates

8th week:
Lecture: General principles of endocrinology Mechanisms of hormone action Hypophysis Growth hormone

9th week:
Lecture: The thyroid gland I The thyroid gland II Glucocorticoids I. Glucocorticoids II The hormones of adrenal medulla The actions of catecholamines

10th week:
Lecture: The hormones of pancreatic islets I-II, Regulation of the function of pancreatic islets, Endocrine regulation of metabolism, Hormones of the skin

11th week:
Lecture: Neurobiology lecture

14th week:
Lecture: General principles in the regulation of gonadal functions Male gonadal functions Female gonadal functions Pregnancy, lactation Spinal neuronal circuits "Rhythm section of the brain"

Requirements

1. Signature of Lecture Book
Attendance of lectures, laboratory practices and seminars is compulsory. The signature of the Lecture Book may be refused for the semester in case of more than four absences from the seminars and/or more than two absences from the laboratory practices. In cases of more than four lecture absences these special advantages are withdrawn (see below). Completion of a missed seminar with a different group is not possible. All missed practices must be must be made up, however this does not reduce the number of absences! Completion of all topic sheets in the Exercise Book, each verified by the signature of the teacher, is also a precondition of the signature of the Lecture Book.
Each student must attend seminars and practices with the group specified by the Education Office. For continuous updates on all education-related maters, please check the departmental web-site (http://phys.dote.hu)

The lectures of Medical Physiology II. are listed at the web site of the Department of Physiology (http://phys.dote.hu)

2. Evaluation during the semester
The knowledge of students will be tested 2 times during the 2nd semester in the form of a written test (multiple choice questions). Participation on mid-semester written tests is compulsory and the results of all mid-semester tests will be presented to the examiner during the final exam. During this semester there will be no remedial test. We do not provide any possibilities to improve or make-up for missed tests.
Laboratory practical knowledge of the students will be tested at the end of the semester as part of the Closing Lab, evaluation with two level marks (Accepted or Not Accepted). As a precondition of attending the Closing Lab, the fully completed Exercise Book (with all the verified topics) must be presented during the Closing Lab. Students are expected to perform the given experiment on their own and must be familiar with theoretical background also. In case of a negative result, the Closing Lab can be repeated, but only once. If the final evaluation of the Closing lab is "not accepted", then the student will be given laboratory practical questions in the written part of the final exam and the student will lose the advantages which are detailed below.

3. Examination
The second semester is closed by the final exam (FE), which is composed of a written test plus an oral section, covering the topics of all lectures, seminars and laboratory practices of the full academic year. The result of the exam is failed if the student fails either on the written part or on the oral part. The list of exam questions is available on the departmental website (http://phys.dote.hu).
If the final evaluation of the Closing lab is "not accepted", then the student will be given laboratory practical questions in the written part of the final exam. The laboratory practical questions cover the material of both semesters and the student will lose the advantages what are detailed below.

Depending on the average result of the five self-controls of 2015/2016 academic year, the following special advantages are granted:

The average score of the five mid term tests (three in the first term and two in the second semester) is calculated. (If one took the end-semester examination, the calculation of his/her average is detailed below.)

a). If the average score is 80% or higher, there is no need to take the written part of the final exam, and only the oral examination will be performed.
b). If the average score is between 70% and 80%, 10 bonus points will be added to the result of the written part of the final examination.
c). If the average score is between 60% and 70%, 5 bonus points will be awarded.

-If the final evaluation of the Closing lab is "Not Accepted" or the Department of Physiology refuses to sign the lecture book or in cases of more than four lecture absences these special advantages are withdrawn!

- If the result of the written examination together with the bonus points does not reach the 60% limit, the examination attempt will be regarded as a failed exam, without giving the chance to perform the oral part.

If one took the end-semester examination during the 2015/2016 academic year, the mark of the oral exam is converted into percentage scores in the following way (each 1st term self-control will be replaced with these percentage scores):
- If the end-semester examination was taken in order to improve on an otherwise valid grade, the conversion is: 2: 69%; 3: 79%; 4: 89%, and 5: 100%.
- If the examination was attempted because no score could be offered (i.e. one had to take the exam): 2: 65%; 3: 75%; 4: 85%; 5: 95%.

CHAPTER 15
ACADEMIC PROGRAM FOR THE 3RD YEAR

Department of Behavioural Sciences, Faculty of Public Health

Subject: **MEDICAL ANTHROPOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Seminar: **15**

1st week:
Seminar: "Roots" and "shoots" of medical anthropology: the web of basic concepts.

2nd week:
Seminar: Historical - cultural determination of medical concept of man.

3rd week:
Seminar: Medical knowledge: cultural and epistemological background of its legitimity.

4th week:
Seminar: Post-modern knowledge and concept of man in medicine: a critical-interpretive approach to medical anthropology.

5th week:
Seminar: Doctor-patient interaction: a cultural anthropological aspect.

6th week:
Seminar: Explanatory models and illness narratives explaining doctor-patient bonds.

7th week:
Seminar: Cultural definition of anatomical and physiological concepts.

8th week:
Seminar: Medical treatments vs. alternative treatments: the concepts of alternative medicine.

9th week:
Seminar: Death and dying: anthropology of loss and bereavement.

10th week:
Seminar: Biological and social death in Western societies.

11th week:
Seminar: Rituals and their relation to health.

12th week:
Seminar: Ethnomedicine and its European school.

13th week:
Seminar: The concept of man in medicine: a text analysis.

14th week:
Seminar: The nature of the scientific basis in medical knowledge: a test analysis.

15th week:
Seminar: Concluding discussion.

Requirements

Participating in seminars, giving a presentation on a given topic.
Evaluation: Based on the activity at seminars and on a 14th week test.
Course Objectives and Course Outline: The object of medical anthropology is the human being, as he/she appears in the context of health and disease, in the healing processes and in the health-care system. The basic method of medical anthropology is historic-hermeneutical in the sense that man is investigated by this discipline in historical and cross-cultural relations; it is an integrative study and in this role it uses the contributions of different forms of knowledge (philosophical anthropology, social philosophy, cultural anthropology, psychoanalysis, sociology, etc.); the problems of health-illness is discussed in socio-economic dynamics; it deals with biomedical approach as a cultural product and in this way it draws the attention to the relation between individual experience, cultural meaning and social structure. The medical anthropology semester consists of 15 hours seminar; these are organised in two-hour seminars in every second week.
Method: Every student should actively participate by presenting a short lecture on a chosen topic (possibly in group-work). One hour from the 15 hour course will be reserved for tutorial discussion with the instructor during the preparation period. Every student should read a given paper for every seminar and is expected to put the presenters questions concerning the topic a few days before the seminar. The seminars can only be successful, if students participate actively in the discussions. Requirement for the AW5 evaluation: Passing the last week test/essay, which is based on the course textbook, the compilation of readings and seminar discussions.

Subject: **MEDICAL SOCIOLOGY**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **8**
Seminar: **7**

1st week:
Lecture: Introduction to Medical Sociology

2nd week:
Seminar: Social Aspects of Health and Illness.

3rd week:
Seminar: Social Aspects of Health and Illness.

4th week:
Lecture: Social Inequalities and Health

5th week:
Seminar: Social Aspects of Doctor-Patient Relationship

6th week:
Seminar: Social Aspects of Doctor-Patient Relationship

7th week:
Lecture: Sociology of Medical Knowledge

8th week:
Seminar: Medicalization

9th week:
Seminar: Medicalization

10th week:
Lecture: Quality of Life. Sociology of Dying.

11th week:
Seminar: End of Course Test

12th week:
Seminar: End of Course Test
Self Control Test

Requirements

Requirements. Making a presentation is prerequisite for the end of course test.

Department of Foreign Languages

Subject: **HUNGARIAN LANGUAGE III/1.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: Orientáció

2nd week:
Practical: Személyi adatok, családi és szociális anamnézis.

3rd week:
Practical: Nőgyógyászati kérdések, korábbi betegségek.

4th week:
Practical: Műtétek, gyakori betegségek.

5th week:
Practical: Jelen panaszok: a fájdalom leírása.

6th week:
Practical: Egyéb kérdéscsoportok: testsúly, hőmérséklet, széklet, vizelet.

7th week:
Practical: Szédülés, hányás, izzadás, köhögés, fulladás. Bőrtünetek.

8th week:
Practical: Revision, practice. Mid-term test.

9th week:
Practical: Gyógyszerelés.

10th week:
Practical: Gyógyszerérzékenység, mellékhatások.

11th week:
Practical: Fizikális vizsgálatok.

12th week:
Practical: Utasítások.

13th week:
Practical: Orvos-beteg kommunikáció - Gyakorlás

14th week:
Practical: Revision, practice. End-term test.

15th week:
Practical: Oral minimum exam.

Requirements

Attendance

Language class attendance is compulsory. The maximum percentage of allowable absences is 10 % which is a total of 2 out of the 15 weekly classes. Being late is counted as an absence. If the number of absences is more than two, the final signature is refused and the student must repeat the course. Students are required to bring the textbook or other study material given out for the course with them to each language class. Active participation is evaluated by the teacher in every class. If students' behaviour or conduct does not meet the requirements of active participation, the teacher may evaluate their participation with a "minus" (-). If a student has 5 minuses, the signature may be refused due to the lack of active participation in classes.

Students may not take Medical Hungarian course before entering the 3rd year.

Students in the 4th, 5th, or 6th year have to pay an additional tuition fee of 500 USD per semester for taking mandatory Hungarian language courses. These students are organized into a separate group from the 3rd year students.

Testing, evaluation

In each Hungarian language course, students must sit for 2 written and oral language tests and at the end of the 2nd semester a final exam.

A further minimum requirement is the knowledge of 200 words per semester announced on the first week. There is an oral word quiz in the first 5-10 minutes of the class, every week. If a student has 5 or more failed or missed word quizzes he/she has to take a vocabulary exam that includes all 200 words along with the oral exam. The results of word quizzes can modify the end-semester evaluation.

The oral exam consists of a role-play randomly chosen from a list of situations announced in the beginning of the course. Failing the oral exam results in failing the whole course. The result of the oral exam is added to the average of the mid-term and end-term tests.

Based on the final score the grades are given according to the following table:

Final score	Grade
0 - 59	fail (1)
60-69	pass (2)
70-79	satisfactory (3)
80-89	good (4)
90-100	excellent (5)

If the final score is below 60, the student once can take an oral remedial exam covering the whole semester's material.

Consultation classes

In each language course once a week students may attend a consultation class with one of the teachers of that subject in which they can ask their questions and ask for further explanations of the material covered in that week. These classes are optional.

Course book: Lampé, Judit, Ph.D.: Jobbulást kívánok II.

Website: Oral exam topics and vocabulary minimum lists are available from the website of the Department of Foreign Languages: ilekt.med.unideb.hu.

Department of Immunology

Subject: **IMMUNOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **45**
Seminar: **22**
Practical: **8**

1st week:
Lecture: Elements of the immune system and their role in defense against pathogens. Components, characteristics and function of the innate response. Components, characteristics and function of the acquired immune response.
Seminar: Elements of the immune system and their role in defense against pathogens. The structure and function of the immune system, cells and molecules of innate immunity.

2nd week:
Lecture: Characteristics of the acquired immune response. T-lymphocytes. B- lymphocytes.
Seminar: Characteristics of the adaptive response, T- and B-lymphocytes

3rd week:
Lecture: An introduction to antibody structure and function. The structure of lymphoid tissues and organs, tissue stem cells. Lymphatic circulation, immune surveillance by re-circulation of immunocytes within the immune system.
Seminar: Antibody isotypes, Effector functions of antibodies. The structure of lymphoid tissues and organs. Recirculation of immunocytes within the immune system.

4th week:
Lecture: Recognition and elimination of pathogens by the innate arm of the immune system. Inflammation and the acute phase response. The complement system.
Seminar: Recognition and elimination of pathogens by the innate arm of the immune system. Inflammation and the acute phase response. The complement system.

5th week:
Lecture: Molecular basis of antigen recognition by antibodies and B-cells. Generation of B-cell receptor diversity. Antigen-independent differentiation of B-lymphocytes.
Seminar: Molecular basis of antigen recognition by antibodies and B-cells. Generation of B-cell receptor diversity. Antigen-independent differentiation of B-lymphocytes.
Self Control Test

6th week:
Lecture: Structure and function of proteins encoded by the major histocompatibility (MHC) gene complex. Genetics of MHC. Processing and presentation of antigens.
Seminar: The role of MHC gene complex-encoded proteins in the adaptive immune response. Antigen processing and presentation.

7th week:
Lecture: Professional antigen presenting cells. The molecular basis of antigen recognition by T-lymphocytes. T-cell development central tolerance.
Seminar: The molecular basis of antigen recognition by T-lymphocytes. T-cell development central tolerance.

8th week:
Lecture: Requirements and consequences of T-cell activation. Activation and function of cytotoxic T-lymphocytes.
Seminar: T-cell activation, T-cell subsets, effector function of T-cells.
Self Control Test

9th week:
Lecture: Antigen-dependent differentiation of B-lymphocytes. B-cell activation, Production of various antibody isotypes and their functions. The function of regulatory T-cells.
Seminar: Activation and differentiation of B-cells. The function of various antibody isotypes. Production and clinical utility of monoclonal antibodies.

10th week:
Lecture: Mechanisms of peripheral tolerance. The primary and secondary immune response. The development of immunological memory.
Seminar: Mechanisms of peripheral immune tolerance. The role of regulatory T-cells.

11th week:
Lecture: The immune response to extracellular pathogens. The immune response to intracellular pathogens. Immune response to viral infection.
Seminar: Immune response in response to various types of infections.
Self Control Test

12th week:
Lecture: Active and passive immunization. Congenital immunodeficiencies I (B-cell deficiencies). Congenital immunodeficiencies II (T-cell deficiencies).
Practical: The methodology of the Enzyme Linked Immunosorbent Assay (ELISA) and its use in clinical diagnosis, clinical and basic research.

13th week:
Lecture: A hypersensitivity reactions, Type I hypersensitivity (Allergy). Hypersensitivity reactions, Type II-IV hypersensitivity. Mechanisms of the development of autoimmune diseases.
Practical: Blood typing, determination of the ABO-type. Agglutination reaction, theory and practice.

14th week:
Lecture: Characteristics of the most common autoimmune diseases. Tumor immunology. Tumor antigens and immune response to tumors. Escape mechanisms of tumors, suppression of anti-tumor responses. Approaches to overcome tumor-induced tolerance mechanisms. A hope for cancer immunotherapy.
Practical: The utility of flow cytometry in diagnosis, in clinical- and basic medical research.

15th week:
Lecture: The immune response associated with tissue and organ transplantation. Immunological aspects of Immune reconstitution. Hematopoietic stem-cell transplantation. Contemporary (hot) topics in Immunology.
Practical: Methods of MHC-typing.
Self Control Test

Requirements

Signing of the Lecture Book
Participation in the Seminars and the Practical Courses is obligatory. The Department shall refuse to sign the students' Lecture book if they are absent from more than two practices or seminars in a semester. Students can make up for a missed seminar or practice with another group only within the same week.
Examination
To follow the progress of students three self control test (SCT) will be organised (weeks 3,11 and 15). The first SCT contains material of the first three weeks' introductory lectures and seminars. Student need to score 70% or higher to qualify for the next two SCT-s. the second SCT contains questions about the material of lectures and seminars given between weeks 4 and 10. The third SCT contains questions about the material of lectures and seminars given between week 11 and 14.
Students who score an average of 51% or above on the second and third SCT-s will be offered a grade that they may accept as a grade for their end-term exam. Those student who score below 70% on the first or below 51% on the second and third SCTs must take a written entry test before the oral exam. The entry test includes 10 simple choice questions.
Student "B" exam consists of a written entry test and an oral exam. The list of exam topics is available on the departmental website (www.immunology.unideb.hu).

Department of Internal Medicine

Subject: **PROPEDEUTICS OF INTERNAL MEDICINE (INTERNAL MEDICINE I.)**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **30**
Practical: **30**

1st week:
Lecture: Introduction to clinical medicine. History taking, physical examination I.
Practical: The right behaviour of a physician. Physician-patient relationship, how to approach a patient. Physician - medical staff relationship. The physicians ethical, clinical, human and legal accountability towards the patient. History taking (family and patient's). General symptoms and the compulsory questions

2nd week:
Lecture: History taking, physical examination II. Diagnosis of the diseases of respiratory system.
Practical: The right behaviour of a physician. Physician-patient relationship, how to approach a patient. Physician - medical staff relationship. The physicians ethical, clinical, human and legal accountability towards the patient. History taking (family and patient's). General symptoms and the compulsory questions.

3rd week:
Lecture: Physical examination of the thorax I. Physical examination of the thorax II.
Practical: Inspection, palpation, percussion, auscultation: physical examination. Stature, nourishment, skin, hair. Parenchymal organs: borders, consistency. Normal physical findings. Ausculatation of lungs and heart. Blood pressure.

4th week:
Lecture: Examination of the cardiovascular system I. Examination of the cardiovascular system II.
Practical: Inspection, palpation, percussion, auscultation: physical examination. Stature, nourishment, skin, hair.

Parenchymal organs: borders, consistency. Normal physical findings. Ausculatation of lungs and heart. Blood pressure.

5th week:
Lecture: Examination of the cardiovascular system III. Central and peripheral insufficiency of circulation.
Practical: Thorax and respiratory system: inspection, palpitation, percussion, auscultation. Thorax deformities and variations. Pectoral fremitus. Bronchophony. Percussion of the lungs. Auscultation: bronchial, bronchovesicular, vesicular, tubular respiration. Rales (crepitant, sonorous, clicking, coarse, fine, subcrepitant, medium, bubbling, noist, dry). Pulmonary syndromes (infiltration, atelectasias, pleural effusion, pleuritis, pneumoniaa). Transsudates and exsudates, differences.

6th week:
Lecture: Physical examination of the abdomen. Examination of the kidney and urinary tract.
Practical: Thorax and respiratory system: inspection, palpitation, percussion, auscultation. Thorax deformities and variations. Pectoral fremitus. Bronchophony. Percussion of the lungs. Auscultation: bronchial, bronchovesicular, vesicular, tubular respiration. Rales (crepitant, sonorous, clicking, coarse, fine, subcrepitant, medium, bubbling, noist, dry). Pulmonary syndromes (infiltration, atelectasias, pleural effusion, pleuritis, pneumoniaa). Transsudates and exsudates, differences.

7th week:
Lecture: Kidney failure, glomerulopathic syndromes. Gastrointestinal syndromes I.
Practical: Physical examination of the heart (inspection, palpation, percussion, auscultation). Percussion of cardiac dullness. Normal heart sounds and murmurs. The six qualities of the peripheral pulse. Clinical signs of cardiac failure (left and right ventricular failure).

8th week:
Lecture: Gastrointestinal syndromes II. Gastrointestinal syndromes III.
Practical: Physical examination of the heart (inspection, palpation, percussion, auscultation). Percussion of cardiac dullness. Normal heart sounds and murmurs. The six qualities of the peripheral pulse. Clinical signs of cardiac failure (left and right ventricular failure).

9th week:
Lecture: Examination of the liver, biliary tract and pancreas I. Examination of the liver, biliary tract and pancreas II.
Practical: Abdominal examination (inspection, palpation, percussion, topography). Resistances, enlargement of the liver and spleen, ascites. Differential diagnosis of abdominal pain. The importance of stool.

10th week:
Lecture: Physical examination of peripheral vessels. Bleeding disorders. History taking, diagnostics.
Practical: Abdominal examination (inspection, palpation, percussion, topography). Resistances, enlargement of the liver and spleen, ascites. Differential diagnosis of abdominal pain. The importance of stool.

11th week:
Lecture: Thromboembolism. History taking, diagnosis. Haematological disorders: history taking and diagnosis I.
Practical: Examination of locomotor and nerve system. Practicing skills, repetition.

12th week:
Lecture: Haematological disorders: history taking and diagnosis II. Diagnosis of rare diseases.
Practical: Case histories (2-3 students/case), file preparation with special focus of learned skills.

13th week:
Lecture: Diagnosis of metabolic disorders I. Emergency medicine.
Practical: Case histories (2-3 students/case), file preparation with special focus of learned skills.

14th week:
Lecture: Examination of the locomotor system. Examination of the neuroendocrin system.
Practical: Case histories (2-3 students/case), file preparation with special focus of learned skills.

15th week:
Lecture: Examination of the neurological system. Psychiatric examination of the patients.
Practical: practical exam (own patient's file, questions/answers).

Requirements

The subject Propedeutics of Internal Medicine (AOBEL02T5, AOBEL02T5-K4, AOBEL22T5) includes course material equivalent to 3 credits according to the electronic, Moodle-based teaching program entitled “Internal medicine skills module”

Department of Laboratory Medicine

Subject: **CLINICAL BIOCHEMISTRY I.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **30**
Practical: **14**

1st week:
Lecture: 1. Introduction: pathobiochemistry, clinical biochemistry, laboratory diagnostics.2. Different levels of laboratory diagnostics (reference values, requesting test, interpretation of result).

2nd week:
Lecture: 3. Pathobiochemistry and laboratory signs of cell damage.4. Pathobiochemistry of inflammation

3rd week:
Lecture: 5. Clinical biochemistry of tumor metastasis6. Pathobiochemical alterations in association with tumor growth and metastasis formation and their laboratory detection I.

4th week:
Lecture: 7. Pathobiochemical alterations in association with tumor growth and metastasis formation and their laboratory detection II.8. Tumormarkers in the diagnosis of malignant diseases

5th week:
Lecture: 9. Inherited metabolic diseases and their laboratory diagnostics I.10. Inherited metabolic diseases and their laboratory diagnostics II.

6th week:
Lecture: 11. Inherited metabolic diseases and their laboratory diagnostics III.12. Pathobiochemistry of plasma proteins

7th week:
Lecture: 13. Disorders of iron metabolism. Laboratory diagnostics of microcytic anemias.14. Laboratory diagnostics of hemoglobinopathies

8th week:
Lecture: 15. Laboratory diagnostics of macrocytic and hemolytic anemias16. Laboratory diagnostics of quantitative platelet disorders.

9th week:
Lecture: 17. Laboratory diagnostics of acut and chronic leukemias and lymphomas I.18. Laboratory diagnostics of acut and chronic leukemias and lymphomas II.
Practical: Notes on Laboratory Safety. Molecular genetic methods in clinical biochemistry.
Self Control Test

10th week:
Lecture: 19. Laboratory diagnostics of acute and chronic leukemias and lymphomas III.20. History of blood transfusion, blood group serology
Practical: Hematology I. Blood sampling, anticoagulation. Preparation of blood smears, staining.

11th week:
Lecture: 21. Biochemistry, inheritance and antigens of ABO blood group system and its clinical significance 22. Biochemistry, inheritance and antigens of Rh blood group system and its clinical significance
Practical: Hematology II. Morphology of red blood cells in different disorders and reticulocyte counting.

12th week:
Lecture: 23. Other blood group system (Kell, Kidd, Duffy, MN, Ss, Ii) 24. Laboratory diagnostics of central nervous system diseases. Laboratory investigation of the cerebrospinal fluid
Practical: Hematology III. Determination of hemoglobin and hematocrit. Hematology analyzers.

13th week:
Lecture: 25. Clinical biochemistry and laboratory diagnostics of porphyrias26. Clinical biochemistry at the extremes of ages19. Laboratory diagnostics of acut and chronic leukemias and lymphomas III.

Practical: Hematology IV. Investigation of peripheral blood smears in hematological malignancies. Myeloma multiplex.

14th week:
Lecture: 27. Therapeutic drug monitoring I.28. Therapeutic drug monitoring II.
Practical: Transfusiology, ABO and Rh blood group determination.

15th week:
Lecture: 29. Pharmacogenetics30. Disorders of vitamine metabolism
Practical: Detection of irregular antibodies. Antibody screening and compatibility testing.
Self Control Test

Requirements

Participation at practicals: Attendance of practicals is obligatory. Altogether one absence in the first semester and two absences in the second semester are permitted. In case of further absences, the practicals should be made up for by attending the practicals with another group in the same week, or a medical certificate needs to be presented. Please note that strictly only a maximum of 3 students are allowed to join another group to make up for an absence.

Requirements for signing the Lecture book: The Department may refuse to sign the Lecture book if the student is absent from practicals more than allowed in a semester.

Assessment: The whole year 5 written examinations are held, based on the material taught in the lectures and practicals. At the end of the first semester the written examinations are summarized and assessed by a five grade evaluation. If the student failed - based on the results of written exams - he must sit for an oral examination during the examination period. At the end of the year the written examinations are summarized and assessed. The student is exempt from written minimum entry test if her/his evaluation based on the 1st and 2nd semester points average is equal to or above 70% of the whole year total points. The final exam at the end of the second semester consists of two parts: a written minimum entry test and an oral exam (1 theoratical, 1 practical topic and 1 practical picture). The practical pictures will be demonstrated on the last lectures of the 2nd semester. Those who fail the minimum entry test, are not allowed to take the oral exam and they have to repeat the minimum entry test part as well. Those who fail the oral exam only, do not have to take the written test on the B or C chance. There is no written entry test on C chance.

Requirements for examinations: The examination (written and oral) is based on the whole lecture and practical material (Practicals in Laboratory Medicine, eds.: János Kappelmayer and László Muszbek 2010.) as well as the textbook of Marshall and S.K. Bangert: Clinical Chemistry (6th edition, 2008.). Suggested reading : Hoffbrand A.V., Pettit J.E.: Essential Haematology, 3rd edition, 1999.

Department of Medical Microbiology

Subject: **MEDICAL MICROBIOLOGY I.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **30**
Practical: **30**

1st week:
Lecture: 1. The microbial world. The major groups of bacteria
2. Prokaryotic cell structure
Practical: Visualizing bacteria. Examination of unstained and stained specimens

2nd week:
Lecture: 3. The physiology of bacteria
4. Bacterial genetics
Practical: Rules for collecting clinical specimens. Culture techniques. Anaerobic culture

3rd week:
Lecture: 5. Sterilization and disinfection
6. Principles of antimicrobial chemotherapy
Practical: Biochemical activities of bacteria

4th week:
Lecture: 7. Antimicrobial drugs for systemic administration
8. Bacterial pathogenesis I
Practical: Sterilization and disinfection

5th week:
Lecture: 9. Bacterial pathogenesis II
10. Antibacterial immunity. Hypersensitivity
Practical: Determining the sensitivity of bacteria to antibiotics

6th week:
Lecture: 11. Active and passive immunization
12. The Staphylococci
Practical: Scerological reactions

7th week:
Lecture: 13. The Streptococci
14. Mycobacterium genus
Practical: 1st WRITTEN EXAMINATION (General Bacteriology)

8th week:
Lecture: 15. Causative agents of respiratory tract infections
16. Enterobacteriaceae I
Practical: Overview of human pathogenic bacteria

9th week:
Lecture: 17. Enterobacteriaceae II
18. Vibrio, Campylobacter, Helicobacter
Practical: Wound, skin and soft tissue infections caused by bacteria

10th week:
Lecture: 19. Pseudomonas and other non-fermentative Gram negative bacilli

20. Neisseria, Legionella, Brucella
Practical: Bacterial respiratory tract diseases

11th week:
Lecture: 21. The Clostridia
22. Non-Clostridial anaerobic infections
Practical: Agents of bacterial intestinal infections and food poisoning

12th week:
Lecture: 23. Treponema
24. Borrelia, Leptospira
Practical: 2nd WRITTEN EXAMINATION (Bacteriology with the exception of Spirochaetaceae, Chlamydiae, Rickettsiae and Mycoplasms)

13th week:
Lecture: 25. Chlamydia and Mycoplasma
26. Rickettsae
Practical: Urinary tract infections. Bacterial sexually transmitted diseases (STD)

14th week:
Lecture: 27. Mycology I
28. Mycology II
Practical: Central nervous system diseases caused by bacteria

15th week:
Lecture: 29. Normal microbial flora of the human body. Nosocomial infections
30. Consultation
Practical: Consultation

Requirements

The student is required to attend the practices. The Department may refuse to sign the students' Lecture book if they are absent from more than two practices in a semester. Missed practice may be made up in the practice with another group only in the same week. During the 1st semester, two mid-semester tests are written. Students are offered an ESE grade based on the cumulative score of the two mid-semester tests. Those who are below the passing level or who are not satisfied with the offered grade, must sit for an oral end of semester examination (ESE) (A-chance) during the examination period. In the 2nd semester two additional tests are to be written by the student. At the end of the 2nd semester the student is required to take the final examination (FE), based on the whole material taught in Medical Microbiology. The student's performance will be assessed on a five-grade scale. The FE consists of a written entry test and an oral examination, consisting of three theoretical and one practical question. A list of questions and the examination rules will be announced in the Department at the beginning of the 2nd semester.

Department of Pathology

Subject: **PATHOLOGY I.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **30**
Practical: **45**

1st week:
Lecture: -INTRODUCTION TO ANATOMICAL PATHOLOGY.-SURGICAL PATHOLOGY: METHODS AND REPORTING
Practical: Introduction

2nd week:
Lecture: -ADAPTATION AT CELLULAR LEVEL-MORPHOLOGY OF THE REVERSIBLE CELL INJURY AND CELL DEATH (SWELLING, FATTY CHANGE AND NECROROSIS)
Practical: 1. Myocardial infarction.2. Gangrene in the lower extremity.3. Fat necrosis in the pancreas.4. Casesous necrosis (lymphadenitis tuberculosa).

3rd week:
Lecture: -ABNORMAL GLYCOGEN AND PROTEIN ACCUMULATION. STORAGE DISEASES. AMYLOIDOSIS. PIGMENTSTISSUE REGENERATION. REPARATION AND WOUND HEALING. CALCIFICATION
Practical: 5. Fatty liver.6. Fatty liver (Oil-Red-O staining).7. Cholesterolosis in the gallbladder mucosa.8. Atrophia brunea cordis (brown atrophy).

4th week:
Lecture: -HAEMORRHAGE, THROMBOSIS, EMBOLISM. DISSEMINATED INTRAVASCULAR COAGULATION-EDEMA. HYPERAEMIA.CONGESTION, SHOCK
Practical: 9. Simplex endometrial hyperplasia.10. Atrophia + hyperplasia endometrii.11. Nodular hyperplasia of the prostate gland.12. Bile stasis in the liver due to extrahepatic bile duct obstruction.

5th week:
Lecture: -MORPHOLOGIC PATTERNS OF THE ACUTE INFLAMMATORY RESPONSE-THE ROLE OF

MACROPHAGES IN INFLAMMATION. GRANULOMATOSUS INFLAMMATION
Practical: 13. Amyloidosis in the kidney with Congo red staining.14. Seborrhoeic keratosis of the skin with melanin hyperpigmentation.15. Hemosiderosis (Prussian blue).16. Arterial thrombus.17. End stage lesion in Buerger's disease.

6th week:
Lecture: -DYSPLASIA, PRENEOPLASTIC CONDITIONS-CHARACTERISTICS OF TUMOR CELL POPULATIONS (CLONALITY, HETEROGENEITY AND PROGRESSION)
Practical: 18. Necrosis of the small bowel due to incarceration.19. Nutmeg liver.20. Hemorrhagic infact in the lung21. Pulmonary edema.

7th week:
Lecture: -CHARACTERISTICS OF BENIGN AND MALIGNANT TUMORS. DIFFERENTIATION AND ANAPLASIA-TUMOR DIGNITY. PROLIFERATION. GRADING AND STAGING
Practical: 22. Acute suppurative appendicitis.23. Purulent meningitis.24. Septic abscesses in the myocardium due to systemic fungal infection (PAS).25. Chronic non-specific salpingitis.

8th week:
Lecture: -DIAGNOSTIC IMMUNHISTOCHEMISTRY. MARKERS OF DIFFERENTIATION-PROGNOSTIC AND PREDICTIVE TUMOR MARKERS.
Practical: 26. Tuberculous lymphadenitis.27. Foreign body granulomas.28. Subcutaneus rheumatoid nodule.29. Organized pneumonia.

9th week:
Lecture: -MECHANISMS OF LOCAL AND DISTANT TUMOR SPREAD. ANGIOGENESIS-THE BIOLOGY OF TUMOR GROWTH. HEREDITY IN CANCER
Practical: 30. Hypersensitiv vasculitis.31. Polyarteritis nodosa in the skin.32. Synoviti chronica. Rheumatoid arthritis.33. Polymyositis.34. SLE lymphadenopathy.

10th week:
Lecture: -OPPORTUNISTIC INFECTIONS EFFECTS OF NEOPLASIA SYSTEMIC (CACHEXIA, IMMUNOSUPPRESSION, PARANEOPLASTIC SYNDROMES)-HUMORAL AND CELLULAR IMMUNOPATHOLOGICAL MECHANISMS
Practical: 35. Gaucher's disease.36. Gouty tophus.37. Signet ring cell carcinoma in the stomach (PAS).38. Metastatic carcinoma of the ovary (Krukenberg tumor).

11th week:
Lecture: -IMMUNODEFICIENCIES. TUBERCULOSIS-THE PATHOLOGY OF TRANSPLANTATION. AUTOIMMUNITY
Practical: 39. Condyloma.40. Bowen's disease (intraepithelial squamous cell carcinoma of the vulva).41. Keratoacanthoma.42. Squamous cell carcinoma of the penis.

12th week:
Lecture: -SYSTEMIC AUTOIMMUNE DISEASES (SLE, SJÖGREN'S, RA, SS)-VASCULITIS
Practical: 43. Basall-cell carcinoma of the face.44. Compound nevus.45. Superficial-spreading malignant melanoma.46. Nodular-type malignant melanoma.

13th week:
Lecture: -MONO- AND POLYGENIC DISORDERS-PATHOLOGY OF THE LYMPHATIC SYSTEM
Practical: 47. Leiomyoma with bizarre foci.48. Schwannoma.49. Neurofibroma.50. Embryonal rhabdomyosarcoma (botryoid type).

14th week:
Lecture: -MALIGNANT LYMPHOMAS-LEUKEMIAS
Practical: 51. Toxoplasma-lymphadenitis52. Focal infiltration by chronic lymphocytic leukemia of the bone marrow.53. Follicular lymphoma.54. Diffuse large B-cell lymphoma

15th week:
Lecture: -AML. CHRONIC MYELOPROLIFERATIVE DISORDERS-MYELODYSPLASIA. ANEMIAS
Practical: 55. Gastric lymphoma of mucosa associated lymphoid tissue (MALT) origin.56. Classical Hodgkin-lymphoma.57. Extramedullary hematopoesis.Class revision.

Requirements

Validation of Semester in Pathology:
Missing two practicals (histopathology and gross pathology together) is tolerable. Intracurricular replacement of histopathological and/or gross pathological classes is possible on the same week.

Examination:
On the 15th week written and practical exams on both semester (these exams are parts of the ESE and FE - the student is released from the written and/or practical part of ESE or FE if her/his evaluation is: pass). In case of failure student can repeat these parts of the exam during the exam period.
At the end of the 1st semester the student is required to take **End of Semester Examination** (ESE) based on the material taught in the semester.

The Exam consists of: written, practical exam (15th week) and theoretical parts. The student get 10 minimal

questions (can be found on the Department's website). In the 2nd semester 4 questions from the 1st and 6 questions from the 2nd semester minimals. The student has to reach 70% to pass this part of the exam.

The practical exam takes place in the autopsy room. An acceptable result in the practical exam is mandatory to apply for the oral part. During the theoretical exam 3 titles are to be worked out and presented orally and one photo about a slide (with different magnifications) has to be described and diagnosed also orally. The knowledge of students is assessed on a five-grade evaluation scale.

At the end of the 2nd semester the student is required to the take **Final Exam** (FE).

The Exam consists of: written, practical (15th week) and theoretical parts. The practical exam is same as above. During the theoretical exam 3 titles are to be worked out (one from the material of the 1st semester, and two from the material of the 2nd semester). One photo about a slide (with different magnifications) has to be described and diagnosed (from the whole year). At least a (2) level of gross pathological examination and recognition of the histopathological alteration achieved in the course of a previous unsuccessful examination is acceptable without repeating for the next (B or C chance) examination.

For further information: http://pathol.med.unideb.hu

Department of Preventive Medicine, Faculty of Public Health

Subject: **BASIC ONCOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **13**

1st week:
Lecture: Tumor initiation and progression

2nd week:
Lecture: The effect of lifestyle and social factors on tumorigenesis and tumor progression

3rd week:
Lecture: Role of the radioactive and UV radiations in the malignant transformation

4th week:
Lecture: The effect of nutrition on tumorigenesis

5th week:
Lecture: Role of viruses in the malignant transformation. I. Carcinogenic DNA viruses.

6th week:
Lecture: Role of viruses in the malignant transformation. II. Carcinogenic RNA viruses.

7th week:
Lecture: Chemical carcinogenesis. Carcinogenic chemicals in the environment

8th week:
Lecture: Tumor immunology in clinical practice

9th week:
Lecture: Molecular biological techniques in cancer diagnosis and to search for alterations in the cancer genome

10th week:
Lecture: Cancer stem cells

11th week:
Lecture: Epidemiology of malignant diseases

12th week:
Lecture: Cancer screening. Cancer registries

13th week:
Lecture: Prevention strategies in cancer

Requirements

One of the main objective is to provide sufficient theoretical background to the basic principles of carcinogenesis, cellular and molecular biology of cancer, the effect of lifestyle, social factors and nutrition on tumorigenesis. In order to highlight the importance of the various environmental factors in the development and progression of cancer, detailed information is given in the following areas: the health effect of various chemicals and occupational exposures, health hazard of ionizing and nonionizing radiation and the role of viruses in malignant transformation. The genetic background of various cancers will be discussed based on molecular epidemiological data. The course provides sufficient background to pathobiochemical alterations associated with tumor growth and tumor metastasis,

characteristics of benign and malignant tumors and malignant cell populations. The course also aims to give up-to-date information on cancer epidemiology, the major issues in screening programs and the benefit and role of screening tests and prevention strategies.

Division of Operative Techniques and Surgical Research

Subject: **BASIC SURGICAL TECHNIQUES**
Year, Semester: 3rd year/1st semester**,** 3rd year/2nd semester
Number of teaching hours:
Lecture: **15**
Seminar: **18**
Practical: **12**

1st week:
Lecture: Surgical deontology. Administration, ethical and legal respects. Terminology for surgery. Surgical indications/contraindications.
Seminar: Administration of operations (operation report, list of interventions). Ethical problems.

2nd week:
Lecture: Surgical armamentarium.
Seminar: Cutting, hemostatic, grasping-retracting, special and suturing instruments. Clips and staplers. Order of the instrumental trays and tables.

3rd week:
Lecture: Surgical suture materials, sutures, knotting techniques.
Seminar: Knotting techniques on different knotting pads. Conventional hand suturing techniques (interrupted, continuous sutures on gauze model). Special knotting and suturing techniques on surgical training model.

4th week:
Lecture: Surgical hemostasis. Punction of vessels. Dissection and cannulation of blood vessels.
Seminar: Demonstration of steps of the venous cutdown technique.
Practical: Ligation of vessels on gauze model. Vein preparation, cannulation on phantom model, preparation of infusion set. Wound closure with different suture techniques on surgical training model.

5th week:
Lecture: Asepsis, antisepsis. Operating room environment. Preparation for operation personnel. Hand and arm disinfection (Scrubbing). Gowning. Gloving. Isolation. Sterilization techniques.
Seminar: Instrumental order on the big instrumental table and on the Sonnenburg table.Isolation of the operative field.
Practical: Scrubbing, gowning and gloving. Wound closure with different suturing techniques on biopreparate model.

6th week:
Lecture: Injection techniques for diagnostic and therapeutical purpose. Infusions.
Seminar: Blood sampling, intramuscular and intravenous injection, infusion set - video-demonstration on models.
Practical: Blood sampling, intramuscular and intravenous injection on phantom models. Repeat: Vein preparation, cannulation on phantom model, preparation of infusion set.
Self Control Test

7th week:
Lecture: Laparotomies.
Seminar: Paramedian laparotomy - video-demonstration.
Practical: Laparotomy on surgical training models. Repeat: Blood sampling, injection techniques on phantom models. Vein preparation, cannulation on phantom model, preparation of infusion set.

8th week:
Lecture: Tracheostomy, conicotomy.
Seminar: Conicotomy and tracheostomy - video-demonstration.
Practical: Conicotomy on phantom model. Scrubbing. Wound closure with different suturing techniques on biopreparate model. Vein preparation, cannulation on phantom model, preparation of infusion set.

9th week:
Lecture: Basic techniques of the intestinal anastomosis.
Seminar: End-to-end one-layer small bowel anastomosis - video-demonstration.
Practical: Scrubbing. End-to-end one-layer intestinal anastomosis on small bowel biopreparate model.

10th week:
Lecture: Basic principles of vascular surgery.
Seminar: Vascular suture lines (arteriotomy and suturing) - video-demonstration.
Practical: Scrubbing. Vascular suturing techniques on aorta biopreparate model.

11th week:
Lecture: Basic principles in surgery of the parenchymal organs. Organ saving methods.
Seminar: Video-demonstration of spleen resection and spleen autotransplantation.
Practical: Scrubbing.Wound closure with different

suturing techniques on biopreparate model. Parenchymal stitches on spleen biopreparate model.

12th week:
Lecture: Bioplasts and tissue adhesives.
Seminar: Application of surgical tissue adhesives and bioplasts.
Practical: Repeat: Vein preparation, cannulation on phantom models, preparation of infusion set. Blood sampling, injection techniques on phantom models. Wound closure with different suture techniques on surgical training model.

13th week:
Lecture: Types of wounds. Principles of wound care. Drains and catheters. Basic principles of catheterization.
Seminar: Different types of catheters and dressings. Catheterization of the urinary bladder on phantom model - video-demonstration.
Practical: Catheterization of the urinary bladder on phantom model. Repeat: Blood sampling, injection techniques on phantom models. Vein preparation, cannulation on phantom models, preparation of infusion set.
Self Control Test

14th week:
Lecture: New surgical techniques, procedures: laparoscopy, NOTES, da Vinci. Basic principles in microsurgery.
Seminar: Basic surgical procedures - videodemonstration.
Practical: Scrubbing. Wound closure with different suture techniques on biomodels.

15th week:
Lecture: Overviewing of basic surgical knowledge.
Seminar: Repeating of all practices by video-demonstration.
Practical: Practical exam

Requirements

Prerequisite: Anatomy, histology and embryology II., Medical Physiology I.

The lectures and seminars/practices are built on each other. Consequently, it is difficult to make-up missed classes. The make-up of the 2nd-3rd-4th-5th seminars/practices is obligatory. Compensation for missed seminars should be paid according to the Rules and Regulation of the Faculty of Medicine, University of Debrecen. If the student is absent from more than 2 seminars/practices in a semester (without any acceptable reason), the Department may refuse to sign the Lecture Book.
There will be two written tests during the semester (6th and 13th weeks).
A list of topics will be announced at least two weeks before the ESE. The curriculum also contains the hand-outs based on the lectures, given during the seminars.
At the end of the semester the student is required to take the end of semester exam (ESE), which consists of a practical and an oral part.

The subject Basic Surgical Techniques (AOMUT02T5-K1) includes course material equivalent to 2 credits according to the electronic, Moodle-based teaching program entitled "Surgical skills".

Department of Behavioural Sciences, Faculty of Public Health

Subject: **MEDICAL PSYCHOLOGY**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **20**
Practical: **10**

1st week:
Lecture: Medical psychology as a discipline. Approaches to doctor-patient interaction.

2nd week:
Lecture: Psychological causes and consequences of disease. Age dependent illness behaviour. Psychological determinants of health and disease concepts.

3rd week:
Lecture: Pain: psychological and sociocultural aspects. Suffering as a therapeutic motive.

4th week:
Lecture: Stress and coping. Occupational dangers of helping professionals. The helper attitude and the burnout syndrome.

5th week:
Lecture: Psychological crisis: presuicidal syndrome.

6th week:
Lecture: Death and dying. Psychological support of patient and family. Bereavement: the psychology of loss.

7th week:
Lecture: The seeking of professional help. The first encounter: psychological characteristics and functions of history taking and of the diagnostic process.

8th week:
Lecture: Psychological characteristics of doctor-patient interaction. Empathy: an interdisciplinary analysis.

9th week:
Lecture: Disfunctional aspects of doctor-patient interaction, the "difficult patient".

10th week:
Lecture: Psychologist in the medical team. Basic psychodiagnostic and therapeutic issues in general practice.

Requirements

Requirements for signing the lecture book:
By signing the Lecture Book the Department confirms that the student has met the academic requirements of the course and this enables him/her to take the examination. The Head of the Department may refuse to sign the Lecture Book if a student: is absent more than twice from practices even if he/she has an acceptable reason.
Evaluation: third year students should pass "End of Semester Examination" (ESE) at the end of the semester. The Department of Behavioural Sciences will adhere to the requirements of the General Academic Regulations and Rules of Examinations. The student must be present on the examination at the designated time. (He/she must explain the reason for any absence from the examination to the Departmental Adviser within 1 days of the day of examination.)

Department of Foreign Languages

Subject: **HUNGARIAN LANGUAGE III/2.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: Áttekintés, ismétlés. A mellkas vizsgálata

2nd week:
Practical: Légzőszervi betegségek

3rd week:
Practical: A tüdő vizsgálata

4th week:
Practical: Szív- és érrendszeri betegségek

5th week:
Practical: A has vizsgálata

6th week:
Practical: Emésztőszervi betegségek

7th week:
Practical: A vizeletkiválasztó szervek betegségei

8th week:
Practical: Oral mid-term exam

9th week:
Practical: Anyagcsere- és endokrin betegségek

10th week:
Practical: A mozgásszervek vizsgálata, mozgásszervi betegségek

11th week:
Practical: Autoimmun betegségek

12th week:
Practical: Az idegrendszer vizsgálata. Idegrendszeri problémák

13th week:
Practical: Laboratóriumi és műszeres vizsgálatok

14th week:
Practical: Áttekintés, gyakorlás

15th week:
Practical: Szóbeli záróvizsga

Requirements

Attendance
Language class attendance is compulsory. The maximum percentage of allowable absences is 10% which is a total of 2 out of the 15 weekly classes. Students arriving late for the classes are not allowed to enter the class. Being late is counted as an absence. If the number of absences is more than two, the signature is refused and the student has to repeat the course. Students are required to bring the textbook or other study material given out for the course with them to each language class. Active participation is evaluated by the teacher in every class. If students' behaviour or conduct does not meet the requirements of active participation, the teacher may evaluate their participation with a "minus" (-). If a student has 5 minuses, the signature may be refused due to the lack of active participation in classes.
Students are not allowed to take Medical Hungarian course before entering 3rd year. Students in the 4th, 5th, or 6th year have to pay an additional tuition fee of 500 USD per semester for taking mandatory Hungarian language courses. These students are organized into a separate group from the 3rd year students.
Testing, evaluation
In Medical Hungarian course, students have to sit for a mid-term and an end-term written and oral language tests and at the end of the 2nd semester a final exam. Further minimum requirement is the knowledge of 200 words in each semester announced on the first week. Every week there is an or oral) word quiz from 20 words in the first 5-10 minutes of the class. If a student has 5 or more failed or missed word quizzes he/she has to take a vocabulary exam from all the 200 words along with the oral minimum exam. The results of word quizzes can modify the evaluation at the end of the semester. The oral minimum exam consists of a role-play randomly chosen from a list of situations announced in the beginning of the course. Failing the oral minimum results in failing the whole course. The result of the oral minimum exam is added to the average of the mid-term and end-term tests.The minimum requirement for the mid-term and the end-term tests is 50 % each. If a student does not reach this score he/she has to repeat the test. Based on the final score the grades are given according to the following table:

Final score	Grade
0 - 59	fail (1)
60-69	pass (2)
70-79	satisfactory (3)
80-89	good (4)
90-100	excellent (5)

If the final score is below 60 the student once can take an oral remedial exam covering the material of the whole semester. **Consultation classes**
In each language course once a week students may attend a consultation class with one of the teachers of that subject in which they can ask their questions and ask for further explanations of the material covered in that week. These classes are optional for the students.
Coursebook: Lampé, Judit, Ph.D.: Jobbulást kívánok I., II.
Website: Vocabulary minimum lists and further details are available on the website of the Department of Foreign Languages: ilekt.med.unideb.hu.

Department of Internal Medicine

Subject: **INTERNAL MEDICINE II. (IMMUNOLOGY AND RHEUMATOLOGY)**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **27**
Practical: **18**

1st week:
Lecture: 1. Pathogenesis of autoimmune disease. General characteristics of autoimmune disease.2. Mixed connective tissue disease (MCTD). Non-differentiated autoimmune (NDC)3. Systemic lupus erythematosus.
Practical: Laboratory diagnosis of immunpathologic disorders.

2nd week:
Lecture: 4. Systemic sclerosis.5. Raynaud's syndrome.6. Sjögren's disease.
Practical: Case report of SLE and MCTD.

3rd week:
Lecture: 7. Dermato/polymyositis.8. Systemic vasculitides.9. Laboratory diagnostics of allergic diseases.
Practical: Case report on PSS and Raynaud's syndrome. Capillary microscopy and laserdoppler.

4th week:
Lecture: 10. Respiratory allergic diseases. Food allergy.11. Organspecific autoimmune diseases.12. Secondary immunodeficiency.
Practical: Case report on Sjögren's disease and vasculitis.

5th week:
Lecture: 13. Immunity and pregnancy. Antiphospholipid syndrome.14. Immunological consequences of organ and stem cell transplantation.15. Cancer immunology.
Practical: Case report on DM/PM.

6th week:
Lecture: 16. Immunomodulation in the treatment of autoimmune diseases.17. Introduction to rheumatology: history taking, physical exam, diagnostics and therapy.18. Rheumatoid arthritis.
Practical: Physical examination. Presentation of case with RA and other types of arthritis.

7th week:
Lecture: 19. Rheumatoid arthritis: special forms. Juvenile arthritis. Prerheumatoid syndromes.20. Spondyloarthritides.21. Differential diagnosis of arthritides and autoimmune diseases.
Practical: Presentation of a case with RA and spondyloarthritides.

8th week:
Lecture: 22. Crystal deposition diseases.23. Reactive and septic arthritides.24. Oseoarthritis, spondylosis. Low back pain.
Practical: Presentation of a case with gout, osteoporosis and other arthritides.

9th week:
Lecture: 25. Differential diagnosis of osteoporosis and metabolic bone disease.26. Physiotherapy, balneotherapy.27. Rehabilitation.
Practical: Presentation of physiotherapy and exercise.

Requirements

Conditions of signing the Lecture book:
The student is required to attend the practices. Should they miss a practice, however, they will be obliged to provide a well-documented reason for it. Missed practices should be made up for at a later date, to be discussed with the tutor. The student is expected to be able to communicate with the patient in Hungarian, including history taking. At the end of the semester the student is required to sit for the end of semester examination (ESE). The ESE covers all the topics of the lectures and those in the recommended books. At week 5 demonstration in writing must be performed.

Subject: **INTERNAL MEDICINE SUMMER PRACTICE**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Practical: **90**

Department of Laboratory Medicine

Subject: **CLINICAL BIOCHEMISTRY II.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **45**
Practical: **30**

1st week:
Lecture: 1. Coagulopathies, (general introduction), haemophilias . 2. von Willebrand disease 3. Other coagulopathies, platelet function disorders
Practical: Laboratory informatics

2nd week:
Lecture: 4. Inherited thrombophilias5. Acquired thrombophilias 6. Prethrombotic state, thromboembolias, consumption coagulopathies
Practical: Laboratory diagnostics of coagulopathias

3rd week:
Lecture: 7. Disorders of sodium and water metabolism I8. Disorders of sodium and water metabolism II9. Disorders of sodium and water metabolism III.
Practical: Laboratory diagnostics of Thrombophilia. Laboratory monitoring of anticoagulant therapy

4th week:
Lecture: 10. Disorders of potassium metabolism11. Pathobiochemistry of the renal function I.12. Pathobiochemistry of the renal function II.
Practical: Laboratory diagnostics of platelet function

disorders. Laboratory monitoring of antiplatelet therapy

5th week:
Lecture: 13. Disturbances of the acid-base balance14. Laboratory diagnostics of renal disorders15. Pathogenesis and pathomechanism of diabetes mellitus
Practical: Laboratory diagnostics of renal disorders

6th week:
Lecture: 16. Laboratory diagnostics of diabetes mellitus 17. Pathobiochemistry and clinical biochemistry of the acute complications of diabetes mellitus18. Hypoglycaemias
Practical: Examination of urine sediment
Self Control Test

7th week:
Lecture: 19. Disorders of lipid metabolism20. Laboratory diagnostics of hyperlipidemia21. Laboratory diagnostics of acute coronary syndrome I.
Practical: Basic laboratory methods in metabolic diseases

8th week:
Lecture: 22. Laboratory diagnostics of acute coronary syndrome II. 23. Risk factors of atherosclerosis24. Laboratory diagnostics of hyperuricaemia and gout
Practical: Case presentation

9th week:
Lecture: 25. Pathobiochemistry of liver disorders I.26. Pathobiochemistry of liver disorders II.27. Laboratory diagnostics of liver disorders. Pathobiochemsitry of acute hepatic disorders
Practical: Serum lipid measurements

10th week:
Lecture: 28. Pathobiochemistry and laboratory diagnostics of cholestasis and cirrhosis29. Pathobiochemistry and laboratory diagnostics of the gastrointestinal tract I.30. Pathobiochemistry and laboratory diagnostics of the gastorintestinal tract II.
Practical: Chromatography, respiratory test
Self Control Test

11th week:
Lecture: 31. Laboratory diagnostics of acute pancreatitis32. Clinical biochemistry of hypothalamus and hypophysis33. Pathobiochemistry of thyroid disorders
Practical: Laboratory diagnostics of myocardial infarction

12th week:
Lecture: 34. Laboratory diagnostics of thyroid functions35. Clinical chemistry of parathyroid disorders36. Disorders of calcium, phosphate and magnesium metabolism
Practical: POCT

13th week:
Lecture: 37. Pathobiochemistry and laboratory diagnostics of adrenal cortex disorders38. Pathobiochemistry and laboratory diagnostics of adrenal medulla disorders39. Clinical biochemistry of gonadal functions
Practical: Laboratory evaluation of liver and pancreas function

14th week:
Lecture: 40. Laboratory diagnostics of muscle disorders41. Laboratory diagnostics of bone disorders 42. Demonsration of practical pictures
Practical: Laboratory evaluation of liver and pancreas function - case presentation
Self Control Test

15th week:
Lecture: 43. Summary of laboratory methods
Practical: Immunoassay

Requirements

Participation at practices: Participation at practices is obligatory. One absence during the first semester and two absences during the second semester are allowed. In case of further absences practices should be repeated by attending practices of another group on the same week.

Requirements for signing the Lecture book: The Department may refuse to sign the Lecture book if the student is absent from practices more than allowed in a semester.

Assessment: In the whole year 5 written examinations are held, based on the material taught in the lectures and practicals. At the end of the first semester the written examinations are summarized and assessed by a five grade evaluation. If the student failed - based on the results of written exams - he must sit for an oral examination during the examination period. At the end of the year the written examinations are summarized and assessed. The student is exempt from written minimum entry test if her/his evaluation based on the 1st and 2nd semester points average is equal to or above 70% of the whole year total points. The final exam at the end of the second semester consists of two parts: a written minimum entry test and an oral exam (1 theoratical, 1 practical topic and 1 practical picture). The practical pictures will be demonstrated on the last lectures of the 2nd semester. Those who fail the minimum entry test, are not allowed to take the oral exam and they have to repeat the minimum entry test part as well. Those who fail the oral exam only, do not have to take the written test on the B or C chance. There is no written entry test on C chance.

Requirements for examinations: The examination (written and oral) is based on the whole lecture and practical material (Practicals in Laboratory Medicine, eds.: János Kappelmayer and László Muszbek 2010.) as well as the textbook of Marshall and S.K. Bangert: Clinical Chemistry (6th edition, 2008.). Suggested reading : Hoffbrand A.V., Pettit J.E.: Essential Haematology, 3rd edition, 1999.

Department of Medical Microbiology

Subject: **MEDICAL MICROBIOLOGY II.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **20**
Practical: **30**

1st week:
Lecture: 1. The protozoal diseases
2. The cestodes
Practical: Anaerobic infections

2nd week:
Lecture: 3. The nematodes I.
4. The nematodes II.
Practical: Infections of sterile body sites (sepsis, bacteriemia, endocarditis, osteomyelitis)

3rd week:
Lecture: 5. The structure and classification of viruses
6. The replication of viruses
Practical: Regulation of antibiotic consumption in the health care system

4th week:
Lecture: 7. The pathogenesis of viral diseases. Host defenses in viral infections
8. Prevention and treatment of viral diseases
Practical: Diagnosis of mycotic infections

5th week:
Lecture: 9. Orthomyxoviruses
10. Paramyxoviruses, Coronaviruses, Rubellavirus
Practical: 3rd WRITTEN EXAMINATION (Clinical Bacteriology and Mycology)

6th week:
Lecture: 11. Hepatitis viruses
Practical: The protozoal diseases

7th week:
Lecture: 12. Herpesviruses I
Practical: Cestodes, Nematodes

8th week:
Lecture: 13. Herpesviruses II
Practical: Laboratory diagnosis of viral infections

9th week:
Lecture: 14. Adenoviridae, Parvoviridae
Practical: Respiratory tract infections caused by viruses

10th week:
Lecture: 15. Picornaviridae, Reoviridae
Practical: Agents of viral skin rash. Congenital virus infections

11th week:
Lecture: 16. Rabies, slow virus infections
Practical: Agents of viral gastroenteritis. Hepatitis viruses

12th week:
Lecture: 17. Arbo- and Roboviruses
Practical: 4th WRITTEN EXAMINATION (Parasitology, Virology)

13th week:
Lecture: 18. AIDS viruses
Practical: Epidemics in human history

14th week:
Lecture: 19. Human tumor viruses
Practical: Review of procedures of microbiological sample collection

15th week:
Lecture: 20. Consultation
Practical: Consultation

Requirements

The student is required to attend the practices. The Department may refuse to sign the students' Lecture book if they are absent from more than two practices in a semester. Missed practice may be made up in the practice with another group only in the same week. During the 1st semester, two mid-semester tests are written. Students are offered an ESE grade based on the cumulative score of the two mid-semester tests. Those who are below the passing level or who are not satisfied with the offered grade, must sit for an oral end of semester examination (ESE) (A-chance) during the examination period. In the 2nd semester two additional tests are to be written by the student. At the end of the 2nd semester the student is required to take the final examination (FE), based on the whole material taught in Medical Microbiology. The student's performance will be assessed on a five-grade scale. The FE consists of a written entry test and an oral examination, consisting of three theoretical and one practical question. A list of questions and the examination rules will be announced in the Department at the beginning of the 2nd semester.

Department of Pathology

Subject: **PATHOLOGY II.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **45**
Practical: **45**

1st week:
Lecture: -OPHTALMIC PATHOLOGY. CEREBROVASCULAR DISEASES-INFECTIVE DISEASES OF THE CNS-TUMORS OF THE CNS
Practical: 58. Diabetic nephropathy.59. Chronic pyelonephritis.60. Crescentic glomerulonephritis.61. Polycystic kidney.

2nd week:
Lecture: -NEURODEGENERATIVE DISEASES I. – DEMENTIAS-NEURODEGENERATIVE DISEASES II. – MOVEMENT DISORDERS-DISEASES OF THE PERIPHERAL NERVES AND SKELETAL MUSCLES (INCL. TUMORS)
Practical: 62. Nasal polyp.63. Hyalin membrane disease in the neonatal lung.64. Obstructive alveolitis.65. Bronchopneumonia complicated by lung abscesses.66. Asthmatic bronchitis.

3rd week:
Lecture: -SOFT TISSUE TUMORS.-MELANOCYTIC AND EPITHELIAL SKIN TUMORS-DISEASES AFFECTING TUBULI AND INTERSTITIUM. KIDNEY STONES. HYDRONEPHROSIS
Practical: 67. Anthracosilicosis (pneumoconiosis).68. Boeck's sarcoidosis of the lung.69. Squamous cell carcinoma in the bronchus.70. Intrabronchial carcinoid tumor.

4th week:
Lecture: -GLOMERULAR DISEASES-CYSTIC DISEASES AND TUMORS OF THE KIDNEY-PATHOLOGY OF THE URINARY TRACT
Practical: 71. Ulcus chronicum pepticum ventriculi.72. Zollinger-Ellison syndrome of the stomach.73. Crohn's disease (regional ileitis).74. Ulcerative colitis.

5th week:
Lecture: -HYPERPLASIA AND CARCINOMA OF THE PROSTATE-DIABETES MELLITUS-ARTERIOSCLEROSIS. HYPERTENSION AND HYPERTENSIVE VASCULAR DISEASE
Practical: 75. Hyperplastic polyp of the stomach.76. Colon adenocarcinoma based on a polyp.77. Mucinous adenocarcinoma of the large bowel.78. Liver cirrhosis with hepatocellular carcinoma.

6th week:
Lecture: -ISCHEMIC HEART DISEASE, CORONARY HEART DISEASE-CARDIOMYOPATHIES. MYOCARDITIS-DISEASES OF THE ENDOCARDIUM AND CARDIAC VALVES
Practical: 79. Transitional cell carcinoma of the urinary bladder.80. Prostatic cancer.81. Tuberculous epididymitis82. Seminoma with testicular atrophy.

7th week:
Lecture: CONGENITAL HEART DISEASES. VENOUS AND LYMPHATIC VESSELS DISORDERS.INTERSTITIAL LUNG DISEASE.CHRONIC OBSTRUCTIVE PULMONARY DISEASES
Practical: 83. Embryonal carcinoma with choriocarcinoma.84. Granulosa-cell tumor of the ovary.85. Papillary serous carcinoma of the ovary.86. Adenocarcinoma of the endometrium.87. Perineal endometriosis.

8th week:
Lecture: -TUMORS OF THE LUNG AND PLEURA-ARDS. PNEUMONIA. PULMONARY EMBOLISMS-BENIGN PRENEOPLASTIC AND NEOPLASTIC LESIONS IN ORAL CAVITY. DISEASES OF SALIVARY GLANDS
Practical: 88. Tubal abortion.89. Squamous cell carcinoma in situ in the uterine cervix.90. Bening fibrocystic disease of the breast with epithelial hyperplasia.91. Invasive lobular carcinoma of the breast.

9th week:
Lecture: -ESOPHAGEAL DISEASES. GASTRITIS. GASTRODUODENAL ULCERS-GASTRIC TUMORS-MALDEVELOPMENT OF INTESTINE. MEGACOLON. CIRCULATORY INTESTINAL LESIONS
Practical: 92. Fibroadenoma.93. Paget's disease of the nipple associated with intraductal carcinoma.94. Hashimoto's thyroiditis.95. Graves'disease.

10th week:
Lecture: -ENTERITIS, ENTEROCOLITIS. MALABSORPTION. INFLAMMATORY BOWEL DISEASES (IBD)-COLORECTAL CANCER-INTRA-AND EXTRAHEPATIC BILIARY TRACT DISEASES.
Practical: 96. Papillary carcinoma of the thyroid.97. Follicular carcinoma of the thyroid.98. Adrenal cortical adenoma.99. Islet-cell tumor of the pancreas.

11th week:
Lecture: -VIRAL HEPATITIS. DRUG INDUCED LIVER DISEASES. ACUTE AND CHRONIC HEPATIC

FAILURE-LIVER CIRRHOSIS-TUMORS AND CIRCULATORY DISORDERS OF THE LIVER
Practical: 100. Normal and osteoporotic bone.101. Acute osteomyelitis.102. Aneurysmal bonal cyst.103. Ganglion.

12th week:
Lecture: -INBORN ERRORS OF METABOLISM AND PEDIATRIC LIVER DISEASES.-THE PATHOLOGY OF THE PANCREAS. THE PATHOLOGY OF THE APPENDIX-PATHOLOGY OF THE THYROID AND PARATHYROID
Practical: 104. Glioblastoma multiforme.105. Retinoblastoma.106. Meningioma.107. Neuroblastoma.

13th week:
Lecture: -PATHOLOGY OF THE ADRENALS-TESTICULAR TUMORS-NON-NEOPLASTIC AND PRENEOPLASTIC CONDITIONS OF THE BREAST
Practical: 108. Osteosarcoma.109. Spina bifida with myeloschisis.110. Cysta post encephalomalaciam.

14th week:
Lecture: -BREAST CANCER-UTERINE TUMORS-TUMORS OF THE OVARIUM
Practical: CLASS REVISION I.

15th week:
Lecture: -PATHOLOGY OF THE PREGNANCY. PATHOMORPHOLOGICAL ASPECTS OF MOST REQUENT OF DISEASES OF THE NEWBORN-NON-NEOPLASTIC LESIONS OF THE BONES. PATHOLOGY OF JOINTS-BONE TUMORS
Practical: CLASS REVISION II.

Requirements

Validation of semester in Pathology:
Missing two practicals (histopathology and gross pathology together) is tolerable. Intracurricular replacement of histopathological and/or gross pathological classes is possible on the same week.

Examination:
On the 15th week written and practical exams on both semester (these exams are parts of the ESE and FE - the student is released from the written and/or practical part of ESE or FE if her/his evaluation is: pass). In case of failure student can repeat these parts of the exam during the exam period.

At the end of the 1st semester the student is required to take **End of Semester Examination** (ESE) based on the material taught in the semester.

The Exam consists of: written, practical exam (15th week) and theoretical parts. The student get 10 minimal questions (can be found on the Department's website). In the 2nd semester 4 questions from the 1st and the 2nd semester minimals a 6 dentistry questions. The student has to reach 70% to pass this part of the exam.
The practical exam takes place in the autopsy room. An acceptable result in the practical exam is mandatory to apply for the oral part. During the theoretical exam 3 titles are to be worked out and presented orally and one photo about a slide (with different magnifications) has to be described and diagnosed also orally. The knowledge of students is assessed on a five-grade evaluation scale.

At the end of the 2nd semester the student is required to the take **Final Exam** (FE).

The Exam consists of: written, practical(15th week) and theoretical parts. The practical exam is same as above. During the theoretical exam 3 titles are to be worked out (one from the material of the 1st semester, one from the material of the 2nd semester, and one dentistry topic). One photo about a slide (with different magnifications) has to be described and diagnosed (from the whole year – dentistry slides included). At least a (2) level of gross pathological examination and recognition of the histopathological alteration achieved in the course of a previous unsuccessful examination are acceptable without repeating for the next (B or C chance) examination.

For further information: http://pathol.med.unideb.hu

Division of Clinical Physiology

Subject: **CLINICAL PHYSIOLOGY**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **15**
Seminar: **30**

1st week:
Lecture: Introduction, cellular and molecular factors of pathologic cardiac excitability.
Seminar: The basics of ECG.

2nd week:
Lecture: Pathologic contractile function of the heart (contractile proteins, intracellular Ca2+-homeostasis and cardiac pumping).
Seminar: ECG diagnosis of arrhythmias I.

3rd week:
Lecture: Myocardial ischemia, myocardial infarction and new ischemic syndromes (hibernation, preconditioning, stunning).
Seminar: ECG diagnosis of arrhythmias II.

4th week:
Lecture: Cardiac hypertrophy and failure.
Seminar: Differential diagnostics or arrhytmias, evaluation of ECG recordings.

5th week:
Lecture: Heart failure (molecular pathophysiology).
Seminar: Conduction disorders, ECG sings of volume and pressure overload.

6th week:
Lecture: Endothelium, smooth muscle, vessels.
Seminar: Angina pectoris, myocardial infarction.

7th week:
Lecture: Hypertension.
Seminar: Exercise stress test ECG, Holter ECG.

8th week:
Lecture: Cellular and molecular background of cardiovascular drugs.
Seminar: Electronic pacemakers, mechanisms of arrhythmias.

9th week:
Lecture: Stem cells in cardiovascular medicine.
Seminar: ECG signs of electrolyte disorders, differential diagnostics, practicing.
Self Control Test (Bonus points for the exam can be collected during the written mid-semester clinical physiology test during the 9th week.)

10th week:
Lecture: Cellular and molecular elements of the respiratory system with clinical significance.
Seminar: Evaluation of ECG recordings.

11th week:
Lecture: Clinical physiology of the respiratory system.
Seminar: Echocardiography I., standard views, normal values.

12th week:
Lecture: Clinical physiology of nutrition and metabolism I.
Seminar: Echocardiography II., consequences of myocardial infarction, stress echocardiography, TEE.

13th week:
Lecture: Clinical physiology of nutrition and metabolism II.
Seminar: Respiratory function tests.

14th week:
Lecture: Clinical physiology of the nervous system I.
Seminar: Cardiac catheterisation.

15th week:
Lecture: Clinical physiology of the nervous system II.
Seminar: Consultation
Self Control Test (Result of the 9th and 15th weeks tests will form the basis for a recommended final mark.)

Requirements

Students are expected to attend lectures and obliged to attend seminars. The Department may refuse to sign the students' Lecture Book if a student is absent for more than two seminars. The successful oral mid-semester ECG test (during the 10th week of the second semester) is also a requirement for the signature of the students' Lecture Book. Third year students are invited to participate in two written mid-semester tests ("Assessment of the work" (AW)) during the 9th and 15th weeks organized by the Division of Clinical Physiology. Results of these tests will form the basis for a recommended final mark. Single choice test questions (single right or single false answer should be chosen from five possibilities) will address students' proficiency from the material of all lectures and seminars. If a final grade cannot be recommended, written exams will be performed during the examination period. Failed exams are repeated in a written test (B chance) and in an oral test (C chance). Students may also improve their mark in an oral exam. Lecture Books are signed by the head of the Division of Clinical Physiology.

CHAPTER 16
ACADEMIC PROGRAM FOR THE 4TH YEAR

Department of Behavioural Sciences, Faculty of Public Health

Subject: **BEHAVIOURAL MEDICINE**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Practical: **20**

1st week:
Lecture: Health illness representations.

2nd week:
Lecture: Perceived control in health changes.

3rd week:
Lecture: Role of personality in changes of health status.

4th week:
Lecture: Psychosocial aspects of hospitalisation.

5th week:
Lecture: Psychologically demanding treatments and their control.

6th week:
Lecture: Common psychological reactions to hospitalisation.

7th week:
Lecture: Children in hospital.

8th week:
Lecture: Chronically ill patient and his/her illness.

9th week:
Lecture: The stigmatised patient.

10th week:
Lecture: Social support.

Requirements

Fourth year students should pass the exam at the end of the first semester (AW5). This examination includes the materials of the lectures. Materials of all lecture will be given to students before the examination. The Department of Behavioural Sciences will adhere to the requirements of the Rules and Regulations for English Program Students. The student must be present and take the examination at the designated time. (He/she must explain the reason for any absence from the examination to the Departmental Adviser within 1 days of the day of examination.)

Subject: **BIOETHICS**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **10**
Seminar: **10**

1st week:
Lecture: Introduction to bioethics. The development of bioethics. Ethics and morality. Morality and ethical theory, types of ethical theory: deontological (utilitarianism). Kant's supreme moral law. Universal and applied ethics. Moral and legal regulation of the medical practice. The Hippocratic Oath. International Code of Medical Ethics.

2nd week:
Lecture: What is bioethics? Medical ethics and the four Principles: beneficence, nonmaleficence, respect for autonomy, justice. The ethics of medical decision making. Case analysis.

3rd week:
Lecture: The doctor-patient relationship. Paternalism and the new ethos of patient autonomy. Inform consent and proxy consent. The therapeutic privilege. Truth-telling. Rules of Privacy and confidentiality. Patients' Rights.

4th week:
Lecture: Abortion and ethics. A critical analysis of the main arguments. The human reproductive technologies and ethics. Reproduction and genetic technology. Embryo experimentation. Case analysis.

5th week:
Lecture: What is death? Death and dying. Euthanasia and suicide. Ethics of the terminal care. Justice in the health

care system (macro- and micro allocation).

6th week:
Lecture: Issues in organ transplantation. Research ethics. Ethical problems in human and animal research.

7th week:
Lecture: Ethical question of genetic technology. Genetic screening and counselling. Written ethical workup.

Requirements

Requirements for signing the lecture book: regular attendance at the seminars.
Evaluation: AW5. Marks will be given to the ethical workup. The students will prepare ethical analysis, and written answers to questions.
Course leader: Péter Kakuk, M.A., Ph.D.
Course objectives: 1. This discipline involves a complex approach of development and problems in ethical aspects of medicine. Its goals are giving basic knowledge on issues of the most important fields of medical ethics, and to introduce students to the central concepts and decision making procedures in medical ethics. 2. The course aims to draw attention to and increase the moral sensitivity of students with regards to a critical reflection own values and future medical duties.

Course outline: Samuel Gorovitz defined bioethics as the "critical examination of the moral dimensions of decision - making in health - related contexts and in contexts involving the biological sciences". This definition highlights the interdisciplinary and social dimensions of bioethics. It points us in the right direction of bioethics. The course will present and overview the issues in the major problem areas of bioethics.
Professional codes and statutes.

Department of Cardiology

Subject: **INTERNAL MEDICINE III. (CARDIOLOGY, ANGIOLOGY)**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **20**
Practical: **10**

1st week:
Lecture: 1. Epidemiology of cardiovascular diseases. Risk factors.2. Pathomechanism of atherosclerosis. Disorders of lipid metabolism and therapy.
Practical: Case presentation: differential diagnosis of chest pain. ECG, Stress ECG, Holter monitoring. Methods of blood pressure measurement and monitoring, principles of ABMP and CardioTens. Interpretation of derived parameters of blood pressure measurements. Risk factors and classification and diagnosis of ischemic heart diseases.

2nd week:
Lecture: 3. Differential diagnosis of chest pain.4. Clinical aspects of chronic ischemic heart disease.
Practical: Case presentation: Heart failure. Examination of patients with heart failure, symptoms, physical deviations. Every day practice of therapy in heart failure. Practical and theoretical aspects of blood pressure measurement. Discussion of ad hoc measurement and monitoring of blood pressure. Relevance of hypertension screening, classification of hypertension. Diagnostic algorithm of hypertension. Antihypertensive treatment with a special attention to the associated diseases.

3rd week:
Lecture: 5. Unstable angina pectoris, non ST elevation myocardial infarction.6. Diagnosis, therapy and complications of acute myocardial infarction.
Practical: Clinical manifestations of acute coronary syndrome. Therapeutic strategy in different types of the disease. Risk stratification after myocardial infarction, secondary prevention. Introduction of the hemodynamic laboratory.

4th week:
Lecture: 7. Percutaneous coronary intervention in the treatment of acute coronary syndrome.8. Hypertension; symptoms, classification and therapy.
Practical: Classification of cardiomyopathies. Diagnosis of valvular heart diseases. Introduction of echocardiography. Invasive treatment of arrhythmias and conduction abnormalities.

5th week:
Lecture: 9. Molecular mechanisms, symptoms and therapy of heart failure. 10. Diagnosis and treatment of arrhythmias. Syncope, sudden cardiac death.
Practical: Physical examination and ultrasound techniques in peripheral arterial diseases and deep venous thrombosis. Functional stages in obliterative atherosclerosis. Doppler ultrasound. Non invasive examinations of endothelial dysfunction. Examination of microcirculation. Laser

Doppler and scanning techniques. Capillary microscopy. Possibilities of antithrombotic treatment, monitoring, complications.

6th week:
Lecture: 11. Pacemaker and catheter ablation therapy in arrhytmias.12. Diagnosis and therapy of myocarditis and infective endocarditis.

7th week:
Lecture: 13. Classification of cardiomyopathies, symptoms and diagnosis.14. Congenital and acquired valvular heart diseases.

8th week:
Lecture: 15. Surgical treatment in cardiology.16. Clinical aspects, diagnosis and pharmacological treatment of peripheral vascular diseases.

9th week:
Lecture: 17. Intervention therapy in vascular diseases.18. Surgical therapy in vascular diseases.

10th week:
Lecture: 19. Cerebrovascular diseases. Cardiac embolism.20. Venous thromboembolism. Anticoagulant and antithrombotic therapy.

11th week:
Lecture: Scientific competition
Practical: Block practice

12th week:
Practical: Block practice

13th week:
Practical: Block practice

14th week:
Practical: Block practice

15th week:
Practical: Block practice

Requirements

Requirements of subject: Type of exam: terminal examination, signature of lecture book: take a part in all practices Uptake of subject.

Department of Internal Medicine

Subject: **INTERNAL MEDICINE BLOCK PRACTICE I. - 4TH YEAR**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Practical: **60**

Department of Obstetrics and Gynecology

Subject: **OBSTETRICS AND GYNECOLOGY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **10**
Practical: **10**

1st week:
Lecture: Obstetric history and examination
Practical: Introduction of the Department. Case presentation: Normal and abnormal pregnancy

2nd week:
Lecture: Physiological pregnancy
Practical: Fetal surveillance in practice

3rd week:
Lecture: Antenatal care
Practical: Case presentation: Labour and delivery

4th week:
Lecture: Labour
Practical: Case presentation: Medication in pregnancy. Obstetric analgesia

5th week:
Lecture: Fetal assessment
Practical: Case presentation: abnormal puerperium

6th week:
Lecture: Preterm labour

7th week:
Lecture: Preeclampsia

8th week:
Lecture: Haemorrhagic complications

9th week:
Lecture: Interventional obstetrics

10th week:
Lecture: Miscarriage, abortion, ectopic pregnancy

11th week:
Practical: Block practice

12th week:
Practical: Block practice

13th week:
Practical: Block practice

14th week:
Practical: Block practice

15th week:
Self Control Test (Oral exam exemption test)

Requirements

Attending practices is mandatory. Absences must be made up even if resulting from medically documented illness or similar, by joining other group, but not more than twice in a semester, as significant unplanned changes of group size will worsen the quality of practical teaching. For the same reason, if more than 3 students from another group will come, the instructor will refuse those who arrived the latest, except if still less than 5 students per one instructor are present.
Signature in the lecture book will be declined if arrears exist at the end of semester.
Block practicals (10x6 hours) are organized according to the curriculum. Each student is allocated to a specified team of instructors, rotating between wards with them daily.
White lab coat in clean, neat condition should be brought and worn when visiting wards or outpatient clinics. If forgotten, a limited number of spare lab coats is available against student cards. It must be arranged with the storekeeper well before (10 min) the starting time to prevent delays.
Attendance at lectures is also highly recommended as certain aspects may be covered only there, and will be asked either in the written or in the oral exam.
End of semester exams (ESE) (oral) are taken in the exam period of both 1st and 2nd semester, covering two titles. List of titles are in accordance with the current textbook, and are shown on the noticeboard in front of the lecture hall.
The Department offers oral exam exemption tests in both semesters. If passed, and the lecture book has been signed, the mark will be offered as a final ESE grade. If the student decides not to accept the offered grade, the above described oral exam can be taken as exam "A". The final grade can be better or worse than the offered grade. Information on the practical part of the exam will be spread out during the semester.

Department of Pharmacology and Pharmacotherapy

Subject: **PHARMACOLOGY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **30**
Seminar: **20**

1st week:
Lecture: Introduction to autonomic pharmacology. Cholinoceptor-activating and cholinesterase-inhibiting drugs. Cholinoceptor-blocking drugs.
Seminar: Basic principles 1.

2nd week:
Lecture: Adrenoceptor-activating and other sympathomimetic drugs I. Adrenoceptor-activating and other sympathomimetic drugs II. Adrenoceptor-blocking drugs.
Seminar: Basic principles 2. Autonomic nervous system 1.

3rd week:
Lecture: Diuretics and antidiuretics 1.Diuretics and antidiuretics 2. Calcium antagonists.
Seminar: Basic principles 3. Autonomic nervous system 2.

4th week:
Lecture: Antihypertensive agents 1. Antihypertensive agents 2. Agents used in hyperlipidemia, insulin resistance.
Seminar: Basic principles 4. Cardiovascular system 1.

5th week:
Lecture: Agents used in cardiac arrhythmias 1.Agents used in cardiac arrhythmias 2.Myocardial ischemia, antianginal drugs.
Seminar: Basic principles 5.Cardiovascular system 2.

6th week:
Lecture: Positive inotropic drugs 1.Positive inotropic drugs 2.NO donors and inhibitors.
Seminar: Basic principles 6.Cardiovascular system 3.

7th week:
Lecture: Vasodilators Bronchodilators and other agents used in asthma. Drugs used in disorders of coagulation.
Seminar: Basic principles 7.Cardiovascular system 4.

8th week:
Lecture: Agents used in anemias, hemopoietic growth factors. Regulation of the appetite. Pharmacotherapy of obesity. Drugs used in acid-peptic disease.
Seminar: Basic principles 8.Drug formulae and prescription writing 1.

9th week:
Lecture: Drugs promoting gastrointestinal motility. Antiemetic drugs. Laxatives. Antidiarrheal drugs. Drugs used in the treatment of chronic inflammatory bowel disease.
Seminar: Basic principles 9.Drug formulae and prescription writing 2.

10th week:
Lecture: Pancreatic enzyme replacement products. Pharmacology of the liver. Botanical (herbal) remedies.
Seminar: Respiratory system. Gastrointestinal system.

Requirements

Prerequisites: Biochemistry, Physiology Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. Attendance register will be performed regularly. Attendance at seminars is compulsory. The Department will refuse to sign the student's Lecture Book if he/she is absent from more than 2 seminars/semester. Please, ensure that your lecture book has been submitted to the Department for signing within 1 week after finishing the semester. Control tests during the semester will help the students to prepare for the exam. At the end of the 1st semester the students are required to take the End of Semester Examination (written and oral), based on the material taught in the semester. Three titles in the question set should be answered in detail. To know the groups of drugs with examples in all of the chapters in pharmacology is compulsory. If one question is remained properly unanswered from the three titles the student is not allowed to pass. If lethal dose, not proper or ineffective treatment is discussed the student have to be failed. For details visit our website: pharmacology.med.unideb.hu

Department of Preventive Medicine, Faculty of Public Health

Subject: **PREVENTIVE MEDICINE AND PUBLIC HEALTH I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **30**
Seminar: **40**

1st week:
Lecture: 1. The history, scope and methods of public health and preventive medicine 2. Introduction to human ecology 3-4. Global environmental pollution
Seminar: 1. Effects of environmental pollution – POPs (case study) 2. Health effects of foodborne exposures (case study)

2nd week:
Lecture: 5. Air pollution and health 6. Water pollution and health 7-8. Toxicology of persistent organic pollutants, pesticides and organic solvents
Seminar: 3. Health effects of exposures of drinking water sources (case study) 4. Effects of workplace-related exposures (case study)

3rd week:
Lecture: 9. Nutritional deficiency diseases 10. Food borne diseases 11-12. Diet related diseases. The role of diet in the pathogenesis of cardiovascular diseases and malignant neoplasm
Seminar: 5. Physical and chemical examination of drinking water and food (lab practice for small group) 6. Bacteriological and mycological examination of water and food (lab practice for small group)

4th week:
Lecture: 13. Introduction to occupational toxicology 14. Scope of occupational health
Seminar: 7. Diet and risk of chronic diseases 8. Diagnosing occupational diseases (case studies)

5th week:
Lecture: 17. Genetic susceptibility to chronic diseases at individual and population levels18. Health effects of noise 19. Heavy metals in the human environment20.

Bioterrorism
Seminar: 9. Water quality control laboratory (visit) 10. Environmental radiation controlling laboratory (visit)

6th week:
Lecture: 21. The history, definition and scope of epidemiology 22. Epidemiological investigations
Seminar: 11. Basic biostatistics 12. Using research results in clinical practice I

7th week:
Lecture: 23. Frequency measures in epidemiology 24. Study design
Seminar: 13. Using research results in clinical practice II 14. Types of epidemiological studies

8th week:
Lecture: 25. Analysis based on aggregate statistics 26. Preventive strategies
Seminar: 15. Validity of epidemiological studies 16. Using epidemiological measures in practice (DEALE method)

9th week:
Lecture: 27. Screening 28. Randomized controlled trials
Seminar: 17. Preventive strategies 18. Screening programs

10th week:
Lecture: 29. Conclusions of the epidemiological studies 30. Interventional studies
Seminar: 19. Clinical trials 20. Critical evaluation of the epidemiological literature

Requirements

Requirements for signing the lecture book:
Attendance of lectures and class seminars is highly recommended. Attendance of the laboratory practices, visits and group seminars is obligatory. The head of the department may refuse to sign the Lecture Book if a student is absent more than twice from practices or seminars in a semester even if he/she has an acceptable excuse. The absences at seminars should be made up with another group only during the same week.

Requirements for the exam:
During the last week of the first semester (on week 10, *the exact date will be announced later*) students are required to take a written test which will cover the topics of all lectures and seminars of the first semester. Evaluation of the written test is assessed on a five-grade scale; successful pass of the exam is a prerequisite of the commencement of the second semester.

The slides of lectures and class seminars can be downloaded from our website .

Department of Radiology

Subject: **RADIOLOGY AND NUCLEAR MEDICINE I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **10**
Practical: **10**

1st week:
Lecture: Principles of Radiological Techniques. Contrast media in Radiology.
Practical: Contrast media in Radiology. Chest Radiology.

2nd week:
Lecture: Chest Radiology. Cardiovascular Radiology.
Practical: Cardiovascular Radiology.

3rd week:
Lecture: Gastrointestinal and abdominal radiology.
Practical: Gastrointestinal radiology I. (esophagus, stomach)

4th week:
Lecture: Urogenital Radiology. Gynecological and Obstetric Radiology.
Practical: Gastrointestinal Radiology II. (liver, spleen, gall, pancreas)

5th week:
Lecture: Breast imaging. Interventional radiology.
Practical: Urogenital Radiology. Breast imaging. Gynecological and Obstetric Radiology.

6th week:
Lecture: Neuroradiology - brain, spine.
Practical: Neuroradiology - brain.

7th week:
Lecture: Head and neck imaging.
Practical: Neuroradiology - spine.

8th week:
Lecture: Musculoskeletal radiology.
Practical: Musculoskeletal radiology.

9th week:
Lecture: Paediatric imaging.
Practical: Paediatric imaging.

10th week:
Lecture: Emergency radiology.
Practical: Emergency radiology.

Requirements

Presence at the practices.

Department of Surgery

Subject: **SURGERY BLOCK PRACTICE - 4TH YEAR**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Practical: **60**

Requirements

Mid-year practice block: Students complete two weeks of practice in the Institute under the supervision of an assigned tutor. Following the daily schedule of their tutor, students are encouraged to participate in the ward activities and the outpatient care. Tutorial consultations and evaluation meetings are organized. Practice hours are between 7.30 AM and 1.30 PM (weekdays only).

Subject: **SURGERY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **12**
Practical: **10**

1st week:
Lecture: The history of surgery
Practical: Vascular surgery practice week

2nd week:
Lecture: Patient counseling, informed consent. Ethical and legal aspects.
Practical: Breast-endocrine surgery practice week

3rd week:
Lecture: Wound healing, surgical infections. Tetanus, gas gangrene
Practical: General surgery, TRP practice week

4th week:
Lecture: Diseases of the esophagus
Practical: Thoracic surgery practice week

5th week:
Lecture: Benign gastric lesions. Gastric cancer
Practical: Gastroenterologic surgery practice week

6th week:
Lecture: Hernia surgery

7th week:
Lecture: Diseases of the biliary tract and gall bladder

8th week:
Lecture: Hepatic surgery

9th week:
Lecture: Lecture 1: Pancreatitis, pancreas malignancies Lecture 2: Plastic surgery operations of the trunk and extremities (Zoltán Péter, M.D.)

10th week:
Lecture: Lecture 1: Diseases of the spleen. Laparoscopy in surgery Lecture 2: Plastic surgery operations in the head and neck region. (Attila Szűcs M.D., PhD)

Requirements

During the first semester the first half of the year has to complete 5x2 hours of practice. If missing a practice, you have to make it up with another group during the same week. The Head of the Department may refuse to sign the Lecture Book if a student was absent from more than one practice during the semester without an acceptable reason.
Examination: written test covering the topics of the first semester.

Department of Traumatology and Hand Surgery

Subject: **TRAUMATOLOGY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: 1. The role of traumatology in medicine. Process of fracture healing (biology, biomechanics). The diagnosis and treatment of fractures. Classifications of closed fractures. The basic principles of fractures treatment. Disturbances of bone healing: delayed union and non-union.2. Classification and treatment of open fractures. Prevention and treatment of post-traumatic and post operative infections.3. Diagnosis and treatment tactics of dislocations. Recognition and treatment of post-traumatic pathological states. Compartment syndrome. Sudeck dystrophy. Posttraumatic arthritis.

2nd week:
Lecture: 1. Process of wound healing. Closed and open soft tissue injuries, wound treatment. Types of bleeding. Diagnosis and treatment of closed and open vessel injuries. 2. Chest injuries, rib fractures. Pulmonary contusion. Pneumothorax, hemothorax. Cardiac and pericardial injuries. Indications for thoracic drainage and thoracotomy.3. Closed and open injuries of the abdomen. Diagnosis and operative treatment of abdominal organ injuries. Diaphragmatic rupture. Injuries to retroperitoneal organs.

3rd week:
Lecture: 1. Injuries in childhood. Injuries specific to growing bone and their treatment principles. Characteristic childhood injuries. 2. Craniocerebral injuries. Fractures of the skull and calvaria. Brain edema. Recognition and treatment of intracranial hemorrhage. 3. Diagnosis and treatment of vertebral fractures with and without nervous system injuries. Physiology of nerve regeneration. Diagnosis and basic treatment principles of peripheral nerve injuries.

4th week:
Lecture: 1. Treatment protocol of severely injured patients, ATLS. Intensive care. Traumatic hemorrhagic shock. Fluid and electrolyte replacement. 2. Occurrence of femur neck fractures, characteristics of fractures in elderly patients. Garden classification. Minimal invasive therapy: osteosynthesis using cannulated screws. Indication for the use of hip replacement. 3. Diagnosis, classification and treatment of per- and subtrochanteric femur fractures. Treatment of femur diaphysis fractures.

5th week:
Lecture: 1. Treatment of mass injuries. Injury severity scales. Treatment of polytrauma. 2. Common fractures of the upper limb - treatment of fractures of the proximal humerus and wrist. 3. Diagnosis, classification and basic principles of treatment of ankle fractures. Pilon fractures.

6th week:
Practical: Physical examination of the trauma patient. Anemnesis. General physical examination. Functional examination of the extremities (neutral 0 method). Examination of circulation and inveration. Imageing in the trauma treatment. Basic principle of x-ray examinations. Special investigations (CT, MRI, DSA, Color-Doppler, ultrasound). How to ask for imaging. Evaluation of X-rays.

7th week:
Practical: The basic principle of wound treatment. Sutures, knot tying, suture removal. Bandage. Tetanus and Lyssa profilaxis.

8th week:
Practical: Types of conservative fracture treatment. Roles of application of plasters. Soft bandages, braces, orthesises. Traction treatment.

9th week:
Practical: Operative fracture treatment. Implantations. Metallosis, corrosion, metal allergy. Types of osteosynthesises. Diagnostic and operative arthroscopy. Basic principles of osteosynthesises.

10th week:
Practical: Treatment of seriously injured patients. ATLS (Advanced Trauma Life Support). Resuscitation.

Requirements

The lectures will take place in the Auguszta big lecture hall. We strongly advise to participate on the lectures, because the official textbook include not all the diagnostic and therapeutic knowledge. The practices will take place two hours a week at the Department of Trauma and Hand Surgery (4031 Debrecen, Bartók B. út 2-26). Participation on the practices is obligatory.
In one semester one absent is acceptable, but the student has to come to the trauma duty to compensate it (confirmed and signed by the chief of the trauma duty). In case of not justified absent the lecture book will not signed, and the student can not go to the exam. Sign of the lecture book will take place the week before the exam period, at the secretariat of the Department of Trauma and Hand Surgery.
Type of the exam: emphasized mode oral exam (ESE). Registration to the exam should be done the day before the exam till 12.00 hour on the internet Neptun3 program.
At the repeated exam the student should present the certification of the Education Department.
The Bulletin and Schedule can be found at the website of Department of Trauma and Hand Surgery (www.traumatologia.deoec.hu).

Department of Urology

Subject: **SMALL SURGERY BLOCK PRACTICE - 4TH YEAR**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Practical: **60**

Faculty of Dentistry

Subject: **STOMATOLOGY**
Year, Semester: 4th year/1st semester**,** 4th year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **16**

6th week:
Lecture: Dental caries and diseases of the dental pulp. Focal infections. Development of the teeth and the face. Developmental anomalies.
Practical: Anatomy of teeth and identification of teeth in the oral cavity.

7th week:
Lecture: Disorders of the TMJ. Facial pain. Oral Medicine.
Practical: Recognizing and treatment of orthodontic disorders. Anomalies of the occlusion and dental arches.

8th week:
Lecture: Diseases of the salivary glands. Periodontal diseases. Inflammatory diseases of the maxillo-facial region.
Practical: Oral symptoms of organs' diseases. Picture of healthy and pathologic oral mucosa. Treatment and prevention of periodontal diseases.

9th week:
Lecture: Stomato-oncology. Pediatric Dentistry. Preventive Dentistry.
Practical: Dental and maxillo-facial traumatology. Treatment and prevention of stomato-oncological diseases.

10th week:
Lecture: Traumatic injuries of the teeth and surrounding soft tissues. Fractures of the jaws, injuries of the face. Prosthetic dentistry. Implantology.
Practical: Local anaesthesia in the dentistry. Simple tooth extraction and possible complications. Instruments of the tooth extraction.

Requirements

Students who are absent from the practice lessons will not have their lecture-books signed.
Compensation of absence: The student has to attend the missed topic with the other group with the agreement of the chief educational officer. The number of compensated or uncompensated practical occasion cannot exceed one (3 hours).
Topic of exam: textbook + lectures + topic of practice lessons Exam-days will be announced 4 weeks before the exam-

period. Students are required to register for the exam through the NEPTUN system.
Information: Mon.- Thurs. 1.30-3 pm., Fri. 1.30-2 pm in the Educational Office of the Faculty of Dentistry
Minimum number of students for an exam day is 5, the maximum is 10.

Department of Internal Medicine

Subject: **4TH YEAR SUMMER PRACTICE**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Practical: **90**

Subject: **INTERNAL MEDICINE BLOCK PRACTICE II. - 4TH YEAR**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Practical: **60**

Subject: **INTERNAL MEDICINE IV. (ENDOCRINOLOGY, NEPHROLOGY)**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **20**
Practical: **10**

1st week:
Lecture: 1. Diagnostic approach to thyroid diseases. Iodine metabolism. Iodine deficiency. 2. Hyperthyroidism, signs and symptoms. Graves'disease. Graves' ophthalmopathy. Toxic adenoma. Thyroid storm.
Practical: Endocrinology I.

2nd week:
Lecture: 3. Hypothyroidism. Thyroiditis. 4. The thyroid nodule. Thyroid cancer. Multiple endocrine neoplasia. The carcinoid syndrome. Hypoglycemic disorders.
Practical: Endocrinology II.

3rd week:
Lecture: 5. Adrenal insufficiency. Hypadrenic crisis. Cushing's disease and syndrome. 6. Case presentation
Practical: Nephrology I.

4th week:
Lecture: 7. Mineralocorticoid excess. Congentianl adrenal hyperplasia. Pheochromocytoma 8. Diseases of the anterior pituitary. Hypo and hyperfunction. Posterior pituitary, diabetes insipidus, SIADH.
Practical: Nephrology II.

5th week:
Lecture: 9. Hyper and hypoparathyroidism. Hypercalcemic states. 10. Case presentation
Practical: Renal replacement therapy /Department of Nephrology

6th week:
Lecture: 11. Clinical examination of renal patients. History talking. Symptoms and syndromes. 12. Chronic glomerulonephritis

7th week:
Lecture: 13. Acute and rapidly progressive glomerulonephritis 14. Tubulointerstitial nephritis.

8th week:
Lecture: 15. Acute renal insufficiency 16. Case presentation

9th week:
Lecture: 17. Pregnancy and the kidney 18. Chronic renal insufficiency

10th week:
Lecture: 19. Diabetes nephropathy. Vascular nephropathy. 20. Renal replacement therapy

11th week:
Lecture: Scientific competition.
Practical: Block practice

12th week:
Practical: Block practice

13th week:
Practical: Block practice

14th week:
Practical: Block practice

15th week:
Practical: Block practice

Requirements

Requirements for signing the lecture book: Nobody should be absent from any practice unless due to well-documented reasons. All missed practices should be repeated some other time, discussed by the tutor. Everyone must be able to communicate with patients including history taken in Hungarian. The official material of examinations may include materials of all lectures and recommended books.

Department of Obstetrics and Gynecology

Subject: **OBSTETRICS AND GYNECOLOGY BLOCK PRACTICE - 4TH YEAR**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Practical: **60**

Requirements

Block practice is an integral part of the curriculum in obstetrics and gynecology, details are shown there.

Subject: **OBSTETRICS AND GYNECOLOGY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **5**
Practical: **10**

1st week:
Lecture: Gynaecological history and examination

2nd week:
Lecture: Infertility and contraception

3rd week:
Lecture: Benign gynaecological conditions

4th week:
Lecture: Gynaecological malignancies

5th week:
Lecture: Operative gynaecology

6th week:
Practical: Gynecological examination

7th week:
Practical: Case presentation: Differential diagnosis of abdominal pain in women

8th week:
Practical: Screening and diagnosis of gynecological malignancies

9th week:
Practical: Radio- and chemotherapy in gynecological oncology

10th week:
Practical: Preoperative investigations and preparation for gynecologic surgery

11th week:
Practical: Block practice

12th week:
Practical: Block practice

13th week:
Practical: Block practice

14th week:
Practical: Block practice

15th week:
Self Control Test (Oral exam exemption test)

Requirements

Attending practices is mandatory. Absences must be made up even if resulting from medically documented illness or similar, by joining other group, but not more than twice in a semester, as significant unplanned changes of group size will worsen the quality of practical teaching. For the same reason, if more than 3 students from another group will come, the instructor will refuse those who arrived the latest, except if still less than 5 students per one instructor are present.
Signature in the lecture book will be declined if arrears exist at the end of semester.

Block practicals(10x6 hours) are organized according to the curriculum. Each student is allocated to a specified team of instructors, rotating between wards with them daily.
White lab coat in clean, neat condition should be brought and worn when visiting wards or outpatient clinics. If forgotten, a limited number of spare lab coats is available against student cards. It must be arranged with the storekeeper well before (10 min) the starting time to prevent delays.
Attendance at lectures is also highly recommended as certain aspects may be covered only there, and will be asked either in the written or in the oral exam.
End of semester exams (ESE) (oral) are taken in the exam period of both 1st and 2nd semester, covering two titles. List of titles are in accordance with the current textbook, and are shown on the noticeboard in front of the lecture hall. Information on the practical part of the exam will be spread out during the semester.

The Department offers oral exam **exemption tests** in both semesters. **Proof of completion of block practical**is a requirement to take part in the second semester test. If passed, and the lecture book has been signed, the mark will be offered as a final ESE grade. If the student decides not to accept the offered grade, the above described oral exam can be taken as exam "A". The final grade can be better or worse than the offered grade.

Department of Orthopedic Surgery

Subject: **ORTHOPAEDIC SURGERY**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **16**

1st week:
Lecture: Frequency, pathology and diagnosis, conservative and operative treatment of congenital/developmental dysplasia, dislocation of the hip (DDH, CDH).
Practical: Basic principles of examination methods in orthopaedic surgery. Part.I. Patient history. Methods of physical examinations of different joints (hip, knee, ankle, foot).

2nd week:
Lecture: Perthes' disease. Transient synovitis of the hip joint. Slipped capital femoral epiphysis. Coxa vara.
Practical: Basic principles of examination methods in orthopaedic surgery. Part II. X-ray pictures evaluation. Methods of physical examinations of different joints (shoulder, elbow, wrist, hand,spine, chest).

3rd week:
Lecture: Osteoarthritis of the hip. Aseptic necrosis of the femoral head. Replacement of the hip joint..
Practical: Introduction of the orthopaedic implants to the students. X-ray pictures evaluation. The use of hip ultrasonography in pediatric patients. Examination of patients by students and discussion.

4th week:
Lecture: Functional anatomy of the foot. Congenital deformities and diseases of the foot.
Practical: Introduction of the orthopaedic implants to the students. X-ray pictures evaluation. The use of hip ultrasonography in pediatric patients. Examination of patients by students and discussion.

5th week:
Lecture: Postural kyphosis. Scoliosis and its treatment.
Practical: Introduction of the orthopaedic implants to the students. X-ray pictures evaluation. Basic physiotherapy and rehabilitation. The use of hip ultrasonography in pediatric patients. Examination of patients by students and discussion.

6th week:
Lecture: Spondylolysis and spondylolisthesis. Congenital anomalies of the spine. Scheuermann's disease and its treatment. Degenerative changes of the spine. Spinal stenosis. Disc degeneration and prolapse. Sciatica. Ankylosing spondylitis.

7th week:
Lecture: Diseases of the neck and upper extremities.

8th week:
Lecture: Knee disorders. Knock knee and bow legs. Congenital, habitual and recurrent dislocation of the patella. Chondromalacia patellae. Osteoarthritis of the knee. Replacement of the knee joint.

9th week:
Lecture: Bone tumours and tumour - like lesions

10th week:
Lecture: Bone infection. Acute and chronic osteomyelitis. Suppurative arthritis.

Requirements

Participation at practicals and compensation for absences from practicals and the requirements of signatures in lecture-books in orthopaedic surgery are not different from the general rules. Besides the textbook and the recommended book the material of lectures is included in the questions of the final examination. Order of verbal exams: The students have to register for the exam on the NEPTUN system. The students pick two titles, from the title list available at the beginning of the Semester. This list can be found on the web site of the Orthopaedic Department. Students who attended at least 70 % of the lectures have to answer one title only. In case of a B or C exam the student is not entitled to the above advantage.

Department of Pharmacology and Pharmacotherapy

Subject: **PHARMACOLOGY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **50**
Seminar: **20**

1st week:
Lecture: Introduction to CNS pharmacology. Neurotransmission and the CNS. Antiepileptics. Sedatohypnotics. Alcohols. Antipsychotics and lithium.
Seminar: Repetition of the pharmacology of the autonomic drugs and the prescription writing.

2nd week:
Lecture: Antidepressants. A ntiparkinsonian agents. Pharmacotherapy of Alzheimer's disease. Drugs of abuse 1.Drugs of abuse 2.
Seminar: Pharmacology of the cardiovascular drugs. Antiepileptics and sedatohypnotics.

3rd week:
Lecture: Centrally and peripherally acting skeletal muscle relaxants. Local anesthetics. General anesthetics. Opioid analgesics and antagonists-I. Opioid analgesics and antagonists-II.
Seminar: Pharmacology of the gastrointestinal drugs. Antidepressants. Antiparkinsonian agents.

4th week:
Lecture: Serotonin, agonits and antagonists, the ergot alkaloids and the therapy of migraine. Histamine and antihistaminic drugs.N on-steroidal anti inflammatory drugs 1.Non-steroidal anti inflammatory drugs 2.Pharmacotherapy of rheumatoid arthritis.
Seminar: Muscle relaxants and the pharmacology of anesthesia.

5th week:
Lecture: Pharmacotherapy of gout. Uterotonics, tocolytics, smooth muscle relaxants. Pharmacology of vasoactive peptides. Principles of antimicrobial drug action. Beta-lactam antibiotics.
Seminar: Serotonin, histamine, NSAIDs and RA.

6th week:
Lecture: Chloramphenicol, tetracyclines, aminoglycosides. Macrolides. (Fluor)quinolones. Antifungal agents. Antiviral chemotherapy and prophylaxis 1.
Seminar: Gout. Uterotonics, tocolytics, smooth muscle relaxants. Pharmacology of vasoactive peptides.

7th week:
Lecture: Antiviral chemotherapy and prophylaxis 2.Antiparasitic chemotherapy: Basic principles. Antiprotozoal drugs. Antiparasitic chemotherpay: Antihelmintic drugs. Introduction to endocrine pharmacology. Thyroid and antithyroid drugs. Parathyroid hormone.
Seminar: Antibacterial chemotherapy.

8th week:
Lecture: Adrenocorticosteroids and adrenocortical antagonists 1.Adrenocorticosteroids and adrenocortical antagonists 2.Pancreatic hormones and antidiabetic drugs 1.Pancreatic hormones and antidiabetic drugs 2.Pancreatic hormones and antidiabetic drugs 3.
Seminar: Antibacterial chemotherapy. Antihelmintic and antiprotozoal agents.

9th week:
Lecture: The gonadal hormones and inhibitors 1.The gonadal hormones and inhibitors 2. Agents that affect bone mineral homeostasis. Cancer chemotherapy 1.Cancer chemotherapy 2.
Seminar: Antifungal and antiviral agents. Pharmacotherapeutic approach to diabetes mellitus.

10th week:
Lecture: Cancer chemotherapy 3.Immunopharmacology 1.Immunopharmacology 2.Toxicology 1.Toxicology 2.
Seminar: Cancer chemotherapy. Immunopharmacology. Toxicology.

Requirements

Prerequisites: Pharmacology I Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. Attendance register will be performed regularly. Attendance at seminars is compulsory. The Department will refuse to sign the student's Lecture Book if he/she is absent from more than 2 seminars/semester. Please, ensure that your lecture book has been submitted to the Department for signing within 1 week after finishing the semester. Control tests during the semester will help the students to prepare for the exam. At the end of the 2nd semester the students are required to take the Final Examination (written and oral), based on the material taught in the two semesters. Three titles in the question set should be answered in detail. To know the groups of drugs with examples in all of the chapters in pharmacology is compulsory. If one question is remained properly unanswered from the three titles the student is not allowed to pass. If lethal dose, not proper or ineffective treatment is discussed the student have to be failed. For details visit our website: pharmacology.med.unideb.hu

Department of Preventive Medicine, Faculty of Public Health

Subject: **PREVENTIVE MEDICINE AND PUBLIC HEALTH II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **30**
Seminar: **20**
Practical: **15**

1st week:
Lecture: 1. Introduction to the epidemiology and surveillance of communicable diseases2. Characteristics of infectious diseases, steps of outbreak investigation 3. Epidemiology of sexually transmitted diseases
Seminar: 1. Dynamics of infection 2. Using Epiinfo in outbreak investigation

2nd week:
Lecture: 4. Epidemiology and control of zoonoses 5. Epidemiology of gastrointestinal infections 6. Epidemiology of hepatitis
Seminar: 3. Outbreak investigation of hepatitis B virus infection in clinical setting 4. Community emergency care

3rd week:
Lecture: 7. Epidemiology of nosocomial infections 8. Vaccines and immunization9. Re-emerging infections
Seminar: 5. Concept and methods of health monitoring 6. Control of nosocomial infections (visit)

4th week:
Lecture: 10. Epidemiology of HIV/AIDS 11. Prion diseases: facts and theories in preventive medicine 12. Epidemiology and control of airborne infections.
Seminar: 7. Vaccine preventable diseases 8. Public health databases

5th week:
Lecture: 13. Epidemiology of chronic respiratory diseases 14. Introduction to the epidemiology of non-communicable diseases 15. Epidemiology and control of metabolic, gastrointestinal and liver diseases Dr. János Sándor
Seminar: 9. Priority setting in health care10. Public health databases 2

6th week:
Lecture: 16. Epidemiology of mental disorders and behavioral problems 17. Epidemiology and control of cardiovascular diseases 18. Epidemiology of cancers
Seminar: 11. Health education in primary care12. Health education techniques

7th week:
Lecture: 19. Health status in developing and developed countries 20. Lifestyle and health: the effects of personal factors on health 21. Lifestyle and health: the effects of alcohol and drug use on health
Seminar: 13. Concept and practice of health promotion14. Prioritizing using public health database

8th week:
Lecture: 22. Environment and health: the effects of socio-economical factors on health 23. Domestic violence 24. Health policy principles in developed countries
Seminar: 15. Introduction to health policy16. Health systems financing

9th week:
Lecture: 25. Needs, demand and use of health service, Methods of financing health services26. Methods of financing health services27. Organization of public health services
Seminar: 17. Assessing and improving quality of health services 18. Interpretation of public health databases (exam) all seminar teachers are preparig the exam sheets

10th week:
Lecture: 28. Quality assurance in health systems. Quality measurement and development in health care 29. Improvement of clinical effectiveness 30. Major challenges of preventive medicine and public health

Requirements

Requirements for signing the Lecture book:
Attendance of *Lecture*s is highly recommended. The slides of lectures can be downloaded from our website () Attendance of group seminars, visits and laboratory practices is obligatory. The head of the department may refuse to sign the Lecture Book if a student is absent more than two times from practices or seminars in a semester even if he/she has an acceptable excuse. The absences at seminars should be made up for with another group, at another time.

Requirements for the final exam:
The final exam (at the end of the second semester) consists of a written part and an oral exam (practical exam). The oral exam will cover the topics of all laboratory practices and seminars of the full academic year. The final mark of the practical exam is the average of the mark given for the interpretation of public health databases (week 9) and the mark obtained for the oral exam.
The written exam will be accomplished by computer based test that covers the topics of all *Lecture*s and group seminars of the full academic year.It is composed of three parts: environmental health, epidemiology and health policy (the three parts will be evaluated separately). The mark of the final exam will be calculated on the basis of the average of the mark given for the practical exam and for the written exam.
The final exam will be failed if either the practical or any part of the written exam is graded unsatisfactory. The student is obliged to repeat only the failed part of the final exam. The mark of the final exam will be calculated on the basis of the average of the repeated part and the previous parts of the exam.

Department of Pulmonology

Subject: **PULMONOLOGY**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: Respiratory symptoms and signs. Commonly used therapy in pulmonology.
Practical: History taking of pulmonary patients. Physical examination. The cardinal respiratory symptoms, signs and complaints.

2nd week:
Lecture: Lung function tests, blood gas analysis. Laboratory examinations in pulmonary disease.
Practical: Bronchoscopy.

3rd week:
Lecture: Chest X-ray, CT scan, tomography, CT.
Practical: Lung function test, blood gas analysis.

4th week:
Lecture: COPD I.
Practical: Allergology, skin test. Asthma bronchiale.

5th week:
Lecture: COPD II.
Practical: Chronic obstructive lung disease, emphyseama, chronic bronchitis.

6th week:
Lecture: Pleural disorders
Practical: Pneumonia.

7th week:
Lecture: Lung cancer, symptoms, signs, diagnosis
Practical: Demonstration of patients with lung cancer. Differential diagnosis, treatment, prevention.

8th week:
Lecture: Tuberculosis
Practical: Tuberculosis/Control test.

9th week:
Lecture: Pleural disorders
Practical: Respiratory failure.

10th week:
Lecture: Lung cancer therapy
Practical: Collection of chest X-ray for the exam.

11th week:
Lecture: Occupational lung disease and immunpathogenetic based pulmonary disease. Interstitional lung disease, sarcoidosis
Practical: Collection of chest X-ray for the exam.

12th week:
Lecture: Pulmonary embolism, cor pulmonale, pulmonary hypertension

13th week:
Lecture: Asthma bronchiale.

14th week:
Lecture: Chronic respiratory failure.

15th week:
Lecture: Collection of chest X-ray for the exam.

Requirements

The rules written in the statue of the Organization and Operation of Medical University of Debrecen will be applied. The student is obliged to attend the practices.

In case of absence the student must compensate on the same week with another student's group or should ask the tutor. The Head of the Department may refuse to sign the Lecture Book

if a student is absent more than twice from practices in a semester.

The final examination will consist of a practical (X-ray examination) and az oral part, two questions from the topics. The topics will be given in the first lecture of the semester.

Lectures are the guidelines for the examination.

Department of Radiology

Subject: **RADIOLOGY AND NUCLEAR MEDICINE II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **20**
Practical: **30**

1st week:
Lecture: Principles of radionuclide imaging, devices, types of radiopharmaceuticals. Basics of radiation protection and radiobiology.
Practical: Nuclear Medical investigations (example: bone scintigraphy).Visit to Nuclear Medicine Department. Tools for radiation protection.

2nd week:
Lecture: Nuclear endocrinology. Radioiodine therapy of benign diseases. Radionuclide imaging of the heart and lung
Practical: Thyroid and other endocrine studies. Nuclear Cardiology.

3rd week:
Lecture: Radionuclide imaging of the kidney and the gastrointestinal tract
Practical: Dynamic radionuclide studies: renal, hepatobiliary, esophageal, gastric.

4th week:
Lecture: Nuclear oncology; cell labeling. Radioisotope therapy.
Practical: Oncology. Inflammation & infection.

5th week:
Lecture: Basics of radiation therapy.
Practical: Brain SPECT and PET. Lung function.

9th week:
Lecture: The spine and the spinal cord
Practical: The diseases of the spine and the spinal cord

Requirements

The A chance is a written exam, the B and the C chance is oral.

Department of Surgery

Subject: **SURGERY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **10**

1st week:
Lecture: Inflammatory Bowel Diseases
Practical: Vascular surgery practice week

2nd week:
Lecture: Acute abdomen, surgical emergencies
Practical: Breast-endocrine surgery practice week

3rd week:
Lecture: Surgery for morbid obesity
Practical: General surgery, TRP practice week

4th week:
Lecture: Bowel obstruction. Proctology
Practical: Thoracic surgery practice week

5th week:
Lecture: Surgical treatment of colorectal cancer
Practical: Gastroenterologic surgery practice week

6th week:
Lecture: Endocrine surgery

7th week:
Lecture: Benign breast lesions. Breast cancer

8th week:
Lecture: Vascular surgery (arterial and venous diseases)

9th week:
Lecture: Thoracic surgery

10th week:
Lecture: Transplantation surgery

Requirements

During the second semester the second half of the year has to complete 5x2 hours of practice. If missing a practice, you have to make it up with another group during the same week. The Head of the Department may refuse to sign the Lecture Book if a student was absent from more than one practice during the semester without an acceptable reason. Examination: written test covering the topics of both semesters.

Department of Urology

Subject: **UROLOGY**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **16**

1st week:
Lecture: Tumors of the urinary bladder.
Practical: Introduction to urological clinical practice, describing the place of urology among all fields of medicine. Visiting the wards and operating theaters.

2nd week:
Lecture: Disorders of the testis, scrotum and spermatic cord. Penile cancer.
Practical: Clinical investigation of genitourinary tract, urological laboratory and imaging examinations. Uro-radiological case presentations.

3rd week:
Lecture: Tumors of the prostate.
Practical: Differential diagnosis and treatment of the obstruction of the urine collecting system: transurethral and suprepubic bladder catheter, uretercatheter, DJ stent, nephrostomy tube. Video demonstration of catheter insertion.

4th week:
Lecture: Female urology. Urodynamic study.
Practical: Endoscopy and laparoscopy in urology: indications, methods, benefits, disadvantages, complications. Demonstration of the special instruments.

5th week:
Lecture: Injuries to the genitourinary tract, emergency diagnosis. Male infertility. Male sexual problems.
Practical: BPH and prostate cancer: diagnosis, treatment and follow up. Defining differences between the two diseases. Touching prostate on probe.

6th week:
Lecture: Tumors of the kidney.
Practical: Differential diagnosis of scrotal disorders: varicocele, hydrocele, retention of the testicle, tescticular atrophy, epididymitis, orchitis, trauma, torsion, testicular cancer, inguinal hernia, oedema. Case presentations at the ward.

7th week:
Lecture: Tumors of the testis.
Practical: Urological infections, prevention. When to treat bacteruria. Nosocomical infections. Urine analysis at our laboratory.

8th week:
Lecture: BPH. Retention urine. Clinical assessment and

treatment.
Practical: Urinary stone disease: etiology, diagnosis, treatment. Discussing the problematic titles of urology.

9th week:
Lecture: Nonspecific infections. Specific infection. Pediatric urology. Congential anomalies.

10th week:
Lecture: Urinary tract stones. Surgical and non surgical treatment. Radiomorphologic investigation in urology.

Requirements

Exam: oral type, the student has to pull 2 topics (1 cancer and 1 general). Berfore the oral exam at the end of 10th week written test exam will take place. Students have to answer 20 simple questions, 16 correct answer is necessary to get passed to the oral exam. The list of questions along with the correct answers is available at the website of the Department (www.urology.med.unideb.hu)
Students have to attend all (8) urological practices during the semester. In case of absence the student must compensate for the missing practice (either with joining another group or asking the supervisor about his duty).
Visiting the lectures is strongly advisable. 80% attendance on the lectures will privilege the student form the test exam. The list of participants is registered on every lecture.
The official textbook is Nyirády/Romics: Textbook of Urology. The list of topics is based on this book. It is recommended to know the following reading material Paragh/Hajnal: Tessék mondani, since during practice students have to have the ability to communicate with patients.
According to the statement of the University no pre-final is allowed in urology.

Division of Clinical Genetics

Subject: **CLINICAL GENETICS**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **20**

1st week:
Lecture: The fundamentals of classical genetics. History and elements of genetics, classification of congenital disorders. Genetic tests in clinical laboratory practices.

2nd week:
Lecture: Clinical cytogenetics I. Clinical cytogenetics II.

3rd week:
Lecture: Sindromology. Genetic counselling I.

4th week:
Lecture: Cytogenetic testing methods. Genetic counselling II.

5th week:
Lecture: Prenatal diagnostics. Molecular genetics of serious heritable disorders I.

6th week:
Lecture: Molecular genetics of serious heritable disorders II. Genetics of multifactorial disorders.

7th week:
Lecture: Neonatal screening. Cancer genetics I.

8th week:
Lecture: Cancer genetics II. Fundamentals of genomic medicine.

9th week:
Lecture: Personalized medicine. Quality management in genetic testing, risk assessment in monogenic diseases.

10th week:
Lecture: Mental retardation in clinical genetics. Practice in clinical genetics: case reports, interpretation of medical/laboratory reports.

Requirements

Attendance on the 30% of lectures is mandatory for getting signature at the end of semester.
Evaluation: Students take the oral examination (two titles) during the examination period.

CHAPTER 17
ACADEMIC PROGRAM FOR THE 5TH YEAR

Department of Anesthesiology and Intensive Care

Subject: **ANESTHESIOLOGY AND INTENSIVE CARE**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **10**
Practical: **20**

1st week:
Lecture: General guidelines of anesthesiology and intensive care. Severity scoring systems.
Practical: Securing airways.

2nd week:
Lecture: Respiratory insufficiencies: definition, causes, types and basic guidelines of treatment
Practical: Monitoring ventilation

3rd week:
Lecture: Oxygen therapy and artificial ventilation
Practical: Practical demonstration of oxygen therapy and mechanical ventilation. Practical conduct of mechanical ventilation

4th week:
Lecture: Intensive treatment of the hemodynamically unstable critically ill
Practical: Possibilities of hemodynamic monitoring: CVP, pulmonary artery catheter, PiCCO, NICO, central venous oxygen saturation etc.

5th week:
Lecture: Life-threatening disturbances of fluid-electrolite balance. Guidelines of volume therapy
Practical: Indications and practice guidelines of clinical nutrition

6th week:
Lecture: The treatment of the acid-base disturbances
Practical: The diagnostic steps and treatment of acid-base disturbances

7th week:
Lecture: Sepsis and multiple organ failure
Practical: Intrahospital transport of the critically ill

8th week:
Lecture: Brain death and donor conditioning
Practical: The daily anesthesiological and intensive care work at the place of your practicals

9th week:
Lecture: General (intravenous and inhalational) anesthesia
Practical: Anesthesiological risk. Premedication

10th week:
Lecture: Regional anesthesia
Practical: The anesthesia working place

Requirements

Conditions of signing the Lecture book: The student is required to attend the practicals, two absences are allowed in a semester. Any further absences are accepted if the student attends the practical of another group and certifies his/her absence. Exam: The exam consists of two parts. MCQ-s have to be filled first as minimal requirements. In order to continue the exam at least 60% of the answers must be correct. The oral part contains questions related to the lectures and practicals. Every student has to answer two oral questions. In case of uncertainty, the examiner might ask other questions related to other topics in order to make sure his decision on the mark given.

Department of Dermatology

Subject: **DERMATOLOGY**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **15**
Seminar: **10**
Practical: **20**

1st week:
Lecture: Anatomy, physiology and pathology of the skin. Introduction to dermatology
Seminar: Cutaneous autoimmune disorders
Practical: Introduction to dermatology: dermatological anamnesis. Primary and secondary lesions, dermatological status, moulages

2nd week:
Lecture: Primary and secondary lesions
Seminar: Urticaria, cutaneous vasculitis
Practical: Practicing primary and secondary lesions, dermatological status, patient examination

3rd week:
Lecture: Hair and nail diseases
Seminar: Thermal injuries (Burn and frostbite)
Practical: Oral test: primary and secondary lesions, patient examination

4th week:
Lecture: Papulosquamous disorders
Seminar: Dermatosurgery, histology
Practical: Patient examination, allergological skin tests, phototherapy

5th week:
Lecture: Drug allergy
Seminar: Bacterial infections
Practical: Patient examination. Local treatments I, dermatological prescriptions

6th week:
Lecture: Mycotic infectionsSystmic therapy in dermatology
Seminar: Seborrhoea, acne, rosacea, perioral dermatitis
Practical: Patient examination, burn

7th week:
Lecture: Syphilis, gonorrhoea, other sexually transmitted diseases Topical therapy in dermatology
Seminar: Chronic vein insufficiency
Practical: Patient examination (oral test), cosmetology, dermatoscopy

8th week:
Lecture: Common benign tumors, Kaposi-sarcoma, cutaneous lymphomas Skin tumors originating from non-pigment cells
Seminar: Ekzema
Practical: Patient examination. Local treatments II (written test)

9th week:
Lecture: Photo(chemo) therapy Viral and parasitic dermatoses
Seminar: The skin and internal diseases
Practical: Patient examination (written test). Mycological examination. STD laboratory testing

10th week:
Lecture: PhotodermatosesAIDS
Seminar: Naevuses. Malignant melanoma.
Practical: Consultation. Test - compensations

11th week:
Practical: Blok of parctice I. (practice at the inpatient clinic and block of practice):visit at the inpatient clinic (general dermatology department, burn department outpatient clinic (in a rotational system: general dermatology, mycology-STD, allergology-immunology, psoriasis, cosmetology, naevus-melanoma) practice at the inpatient clinic

12th week:
Practical: Block of Parctice I. (practice at the inpatient clinic and block of practice)visit at the inpatient clinic (general dermatology department, burn department outpatient clinic (in a rotational system: general dermatology, mycology-STD, allergology-immunology, psoriasis, cosmetology, naevus-melanoma)practice at the inpatient clinic

13th week:
Practical: Block of practice II. (practice at the inpatient clinic and block of practice) visit at the inpatient clinic (general dermatology department, burn department)outpatient clinic (in a rotational system: general dermatology, mycology-STD, allergology-immunology, psoriasis, cosmetology, naevus-melanoma)practice at the inpatient clinic

14th week:
Practical: Block of practice II. (practice at the inpatient clinic and block of practice)visit at the inpatient clinic (general dermatology department, burn department outpatient clinic (in a rotational system: general dermatology, mycology-STD, allergology-immunology, psoriasis, cosmetology, naevus-melanoma)practice at the inpatient clinic

15th week:
Lecture: Examination week
Seminar: Examination week
Practical: Examination week

Requirements

Requirements for signing the lecture book:
Presence of the students is recorded at all practices and compulsory lectures assigned.
Attendance is obligatory at all practicals and compulsory lectures. Presence can be checked up during as well as at the end of the occasions. If the student is not present at the control, it is considered as an absence.

The number of missed practicals can not exceed 1 occasions (2 practical hours). Absences superior to this number are subjects to compensation. A maximum of 2 practicals (4 practical hours) can be compensated during one semester. Compensations performed beyond the semester will be charged for each occasion.
No signature will be given in lecture book with more than 1 uncompensated practice and 2 unattended compulsory lectures..
The written tests (prescription test, patient admission test) have to be completed, otherwise no signature will be given in lecture book.
Lectures are very important sources of information. No regard will be taken to anyone's absence, with other words: at any test during the semester, including the final exam, questions concerning topics that were discussed only at a lecture, where the student was absent, may and will be asked from any student.

Department of Family and Occupational Medicine, Faculty of Public Health

Subject: **FAMILY MEDICINE**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Seminar: **10**

1st week:
Seminar: 1. Primary health care. General practice/family medicine.

2nd week:
Seminar: 2. Doctor-patient consultation in general practice/family medicine. Diagnosis and treatment in primary care.

3rd week:
Seminar: 3. Working with families in primary health care.

4th week:
Seminar: 4. Prevention in primary care.

5th week:
Seminar: 5. Quality in general practice: Medical audit, practice guidelines in general practice.

Requirements

Requirements for signing the lecture book: The grade is calculated according to the result of the written exam and activity during the seminars.

Department of Forensic Medicine

Subject: **FORENSIC MEDICINE I.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **10**
Practical: **10**

1st week:
Lecture: Introduction to Forensic Medicine.
Practical: Getting to know the Department of Forensic Medicine.
Practices between 1st - 11th week: Usual and special autopsy techiques, external examination of dead person autopsy cases and case studies on the above mentioned topics.

2nd week:
Lecture: Forensic autopsies.

3rd week:
Lecture: Time of death. Postmortem changes after death I.

4th week:
Lecture: Postmortem changes after death II.

5th week:
Lecture: Types of injuries and wounds I.

6th week:
Lecture: Types of injuries and wounds II. Vital injuries.

7th week:
Lecture: Traffic accident victims.

8th week:
Lecture: Craniocerebral trauma. Electrical injuries.

9th week:
Lecture: Firearm injuries. Effects of heat and cold. Fire deaths.

10th week:
Lecture: Death due to asphyxia I-II.

11th week:
Lecture: Physical and biological trace evidences.

Department of Infectious Diseases and Pediatric Immunology

Subject: **INFECTOLOGY**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **20**

1st week:
Lecture: 1. Infection and immunity; antimicrobial host defense mechanisms.
Practical: Infections diseases practice. (Department of Infectology and Pediatric Immunology)

2nd week:
Lecture: 2. Infection control in hospital settings. Influenza.
Practical: Nosocomial infections in hematology/oncology units.

3rd week:
Lecture: 3. Tropical infections
Practical: Infectious diseases practice. (Department of Infectology and Pediatric Immunology)

4th week:
Lecture: 4. Infection by herpesviruses and enteroviruses.
Practical: Infectious diseases practice. (Department of Infectology and Pediatric Immunology)

5th week:
Lecture: 5. Zoonoses.
Practical: Infectious diseases practice. (Department of Infectology and Pediatric Immunology)

6th week:
Lecture: 6. Upper respiratory tract infections. 7. Lower respiratory tract infections.
Practical: Infectious diseases practice. (Department of Infectology and Pediatric Immunology)

7th week:
Lecture: 8. Differential diagnosis of exanthematous diseases. Immunization.9. Infections in immunocompromised patients.
Practical: Infectious diseases practice. (Kenézy Hospital, Adult Infectology)

8th week:
Lecture: 10. HIV infection and AIDS. 11. Anaerob infections.
Practical: Catheter-related and invasive infections in intensive care units. (Internal Medicine).

9th week:
Lecture: 12. Gastrointestinal infections I.13. Gastrointestinal infections II.
Practical: Infectious diseases practice. (Kenézy Hospital, Adult Infectology)

10th week:
Lecture: 14. Infections by pyogenic bacteria I. 15. Infections by pyogenic bacteria II.
Practical: Infectious diseases practice. (Kenézy Hospital, Adult Infectology)

Requirements

Attendance of seminars and practices are obligatory for students. In case of more than one absence the Lecture Book will not be signed except in case of documented disease or other reasonable cause. Absences may be compensated on the basis of agreement with the tutor. Students must take examination at the end of the semester. The type of examination can be written or oral.
Homepage: http:// www.infekt.gyermekimmun.deoec.hu

Department of Internal Medicine

Subject: **INTERNAL MEDICINE BLOCK PRACTICE I. - 5TH YEAR**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Practical: **60**

Subject: **INTERNAL MEDICINE V. (GASTROENTEROLOGY)**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **20**
Practical: **10**

1st week:
Lecture: 1. Gastrooesophageal reflux disease 2. Gastritis, H. pylori infection, Peptic ulcer disease

2nd week:
Lecture: 3. Neoplasms of the esophagus, stomach and small intestine. 4. Malabsorption, Celiac disease, Lactose intolerance.

3rd week:
Lecture: 5. Inflammatory bowel disease (Crohn's disease. Ulcerative colitis) 6. Irritable bowel syndrome. Diverticulosis

4th week:
Lecture: 7. Colorectal cancer. (etiology, premalignant lesions, diagnosis, screening, treatment) 8. Diseases of the biliary tract

5th week:
Lecture: 9. Alcoholic liver disease, Non-alcoholic fatty liver disease. 10. Autoimmune liver diseases

6th week:
Lecture: 11. Virus hepatitis 12. Hepatic cirrhosis. Liver neoplasms. Liver transplantation
Practical: Diagnosis and treatment of gastrointestinal bleeding

7th week:
Lecture: 13. Acute pancreatitis. 14. Chronic pancreatitis. Pancreatic cancer
Practical: Treatment of inflammatory bowel disease

8th week:
Lecture: 15. Diabetes mellitus: patomechanism, types, clinical symptoms and complications 16. Management of type 2 diabetes mellitus
Practical: Gastrointestinal endoscopy

9th week:
Lecture: 17. Type 1 diabetes mellitus, insulin therapy 18. Obesity: causes, diagnosis and treatment. Gout
Practical: Functional gastrointestinal disorders

10th week:
Lecture: 19. Primary and secondary hyperlipoproteinemias: types, symptoms and treatment. Porphyrias 20. Electrolite disorders. Metabolic bone disorders
Practical: Treatment of diabetes mellitus

Requirements

Requirements:
Presence at practical lessons and seminars is compulsory!
Theoretical exam: 1st part is written (minimum test, >80%)
2nd part is oral
Minimum test questions: www.3belklinika.deoec.hu
Login name: deoec
Password: 3belklinika
Titles for Gastroenterology and Medabolic Disorders

1. Important examination methods of diseases of the gastrointestinal tract
2. Reflux oesophagitis, corrosive disorders of the esophagus.
3. Motor disorders of the oesophagus: achalasia and oesophageal spasm.
4. Oesophageal tumors, Barrett oesophagus
5. Diagnosis and treatment of GI bleeding.
6. Gastritis: classification. Special categories of gastritis.

7. Peptic ulcer: aetiology, symptoms, diagnosis.
8. Peptic ulcer: therapy, complications and their treatment.
9. Zollinger-Ellison syndrome.
10. Significance and treatment of Helicobacter pylory infection.
11. Motility disorders of the stomach, dyspepsia.
12. Aetiopathogenesis, epidemiology and classification of gastric carcinoma.
13. Diagnosis and treatment of gastric carcinoma.
14. Function, hormones and neoplasms of the small intestine.
15. Malabsorption syndromes: classification and clinical signs.
16. Malabsorption syndromes: diagnosis, therapy; gluten sensitive enteropathy.
17. Disturbances of visceral circulation.
18. Irritable bowel syndrome. Diverticulosis.
19. Diagnosis and treatment of ulcerative colitis.
20. Diagnosis and treatment of Crohn's disease.
21. Colorectal polyposis.
22. Clinical symptoms and diagnosis of colorectal cancer.
23. Therapy and prevention and screening of colorectal cancer.
24. Diagnosis of acute pancreatitis.
25. Treatment and complications of acute pancreatitis.
26. Chronic pancreatitis.
27. Pancreatic carcinoma.
28. Acute viral hepatitis: aetiology, symptoms, diagnosis
29. Acute viral hepatitis: treatment, immuneprofilaxis.
30. Classification and diagnosis of chronic viral hepatitis.
31. Treatment of chronic viral hepatitis.
32. Characteristics and treatment of autoimmune hepatitis.
33. Primary biliary cirrhosis, Primary Sclerosing Cholangitis.
34. Alcoholic liver disease.
35. Clinics and diagnosis of liver cirrhosis.
36. Treatment and complications of liver cirrhosis.
37. Wilson disease and haemochromatosis.
38. Liver tumors
39. Liver transplantation.
40. Drug induced and toxic liver diseases, causes and clinics of acute liver failure.
41. Acute and chronic cholecystitis.
42. Gallstones.
43. Neoplasms of bile ducts.
44. Obesity.
45. Porphyria, haem biosynthesis.
46. Porphyria, neurovisceral symptoms.
47. Porphyria, skin symptoms.
48. Role of vitamin D.
49. Metabolic bone disorders.
50. Hyper- and hypocalcaemia.
51. Trace elements (deficiency and toxicity).
52. Iron deficiency.
53. Haemosiderosis, haemochromatosis.
54. Acidosis (metabolic, respiratory).
55. Alkalosis (metabolic, respiratory).
56. Hyper- and hyponatraemia.
57. Hyper- and hypokalaemia.
58. Magnesium metabolism
59. Diabetes mellitus: diagnosis, criteria.
60. Diabetes mellitus: aetiopathogenesis, classification
61. Diabetes mellitus, type 1.
62. Diabetes mellitus, type 2.
63. Insulin therapy
64. Dietary, oral antidiabetics in diabetes mellitus.
65. Acute and long-term complications of diabetes mellitus.
66. Hypoglycaemia.

67. Hyperlipoproteinaemias: aethiopathogenesis, symptoms, clasification.
68. Hyperlipoproteinaemias: treatment
69. Metabolic syndrome.
70. Gout.

Department of Neurology

Subject: **NEUROLOGY BLOCK PRACTICE - 5TH YEAR**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Practical: **60**

Requirements

The block practice lasts 1 week. Participation at all the theoretical lectures and the practical parts of the block practice is mandatory.
Lecture books for signatures can be brought to Secretary of Department of Neurology only in Student time. Signed lecture books can be taken at the Secretary only in Student time; the earliest possibility is on Wednesday of the following week after the week of block practice.
Absence from the block practice is not possible. In case of one day absence written medical or other official certificate is necessary. In case of one day absence with written certificate participation on a round visit with the Head of the department is mandatory. In case of more than one day absence, the block practice must be repeated.

Subject: **NEUROLOGY I.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: 1. Epidemiology and characteristics of neurological disorders
2. Neurological examination, neurodiagnostic procedures I.

2nd week:
Lecture: 3. Headache4. Headache

3rd week:
Lecture: 5. Neurological examinations, neurodiagnostic procedures6. Diff. diagnosis of consciousness

4th week:
Lecture: 7. Stroke 8. Stroke

5th week:
Lecture: 9. Vertigo 10. Vertigo

6th week:
Lecture: 11. Epilepsy I

7th week:
Lecture: 12. Epilepsy II.

8th week:
Lecture: 13. Multiple sclerosis

9th week:
Lecture: 14. Movement disorders I.

10th week:
Lecture: 15. Movement disorders II.

Requirements

Consulting hours for Manager of educational matters: Monday 11:00 - 14:00 and Friday 11:00 - 14:00. If it is necessary, Managers of educational matters for hungarian and english speaking students are substitutes for each other.
Student time at Secretary: Monday 11:00 - 12:00, Wednesday 11:00 - 12:00 and Friday 11:00 - 12:00
Material for students: neurologia.deoec.hu 'Education' menu. ID: neurostudent; password: student1112
1. Neurology I. may be admitted only with successfully finished Internal Medicine III. and Neurobiology.
2. There are 15 lectures in the 1st semester (2 hours lectures/week 5 times , 1 hour lectures/week 5 times). Attending lectures is highly recommended.
3. There are five one and a half hour long practices in the first semester (1 practice/week/group). The purpuse of these practices are to learn the neurological examination. Please arrive at the practices on time. Participation at the practices is

obligatory. Only one excused absence out of the 5 occasions is accepted. The students must provide a written medical (in case of any illness) or official certificate (in case of an unexpected serious event) about the reason of the absence. If no written certificate is available the student must participate at the practice of an other class at the same week to make up the material. At the same time maximum 3 foreign students are allowed to participate at the practice of an other group. The student needs to provide a written form about this supplement. All the students must attend the practice of their own group, making up at a different group is allowed only once, if a certified absence is present. If a student has more than one excused practice in a semester, his or her lecture book will not be signed, he or she must repeat the semester regardless of the reason. Participation in the practice is verified by the group tutor. It is not possible to change group for the practices.

4. 1st semester will end with a written exam (test exam, four possible answers, one correct). Places for exam are opened every week during exam period. Students have to register on Neptun for the exam. Without registration the exam cannot be taken. The first exam is the 'A' chance, the second exam is the 'B' chance, both are written (test) exams. If somebody failed 'A' and 'B' chance the third possibility is the 'C' chance, which is oral exam at the respective group tutor. In this case the student has to agree an appointment with the group tutor. Material covered in the lectures are asked at exams. Grade improvement is possible once, in this case registration in the Neptun is necessary for an unoccupied exam place. Grade improvement will not be considered as 'B' chance.

Students spending any block practice are not allowed to take exam during block practice period.

6. Those students who are allowed to complete the block practice abroad after the end of the semester can start their exams earlier, including even block practice period (depending on decision of Registrars Department).

7. Lecture book will be signed after successful written exam by the head of the department or by the group tutor. In the 5th academic year the 'Neurology II' may not be started without passing the I. semester ('Neurology I') exam and getting signature for first semester.

8. Lecture books must be brought to the Secretary and they can be taken from the Secretary only in Student time (Monday, Wednesday, Friday 11:00-12:00). Please ensure that your lecture book has been submitted to the department for signing within 3 weeks after finishing each semester. If you fail to comply with this requirement, special personal written permission from your tutor must be obtained then the lecture book may be signed only by the head of the department.

9. The 6th academic year may not be started without signatures for both the first and second semesters of the 5th year.

10. Please be considerate of the dignity of the patients when visiting the wards, laboratories and outpatient units. Inappropriate behavior (laughing, expressing boredom, etc.) during patient demonstration or examination is embarrassing for the patients and should be avoided. All patient data must be treated confidentially. The patient's chart is a legal document. It may be used only on the ward. The patient's chart may not be photographed, copied or removed. If you make notes for yourself, please use only the patients' initials.

Department of Pediatrics

Subject: **PEDIATRICS BLOCK PRACTICE - 5TH YEAR**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Practical: **60**

Subject: **PEDIATRICS I.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **20**
Practical: **10**

1st week:
Lecture: 1. The field of pediatrics. Pediatric epidemiology. The healthy newborn infant. Anatomical and physiological features. 2. Cardiopulmonary adaptation. Pediatric emergencies in the delivery room. Lecturer: György Balla M.D., Ph.D., D.Sc.

2nd week:
Lecture: 3. Principles and practice of mechanical ventilation. Birth injuries, intracranial bleeding. Lecturer: Tamás Kovács M.D. 4. Respiratory distress syndrome (IRDS, BPD). Lecturer: Andrea Nagy M.D.

3rd week:
Lecture: 5. Special problems of perinaturity (ROP, NEC,

DAP). Lecturer: György Balla M.D., Ph.D., D.Sc. 6. Techniques of natural and artificial feeding. Special formulas. Vomiting in Neonates and infants. Lecturer: Judit Kovács M.A.

4th week:
Lecture: 7. Hemolytic disease of the newborn. Jaundice in the neonatal and infant period. Lecturer: Éva Oláh M.D., Ph.D., D.Sc. 8. The Hemorrhagic Disease of the Newborn. Lecturer: Csongor Kiss M.D., Ph.D., D.Sc.

5th week:
Lecture: 9. Central nervous system in newborns. Peri-intraventricularis bleeding. Lecturer: Andrea Nagy M.D.10. Seizures in infants and newborns. Hypoxic damage, Periventricular leukomalatia. Habilitation. Lecturer: Ilona György M.D., Ph.D.

6th week:
Lecture: 11. Birth injuries. Lecturer: Éva Oláh M.D., Ph.D., D.Sc.12. Neonatal characteristics of renal function, urinary tract disorders. Lecturer: Tamás Szabó M.D., Ph.D.

7th week:
Lecture: 13. National Holiday - No Lecture.14. Hypo- and hyperglycemina, metabolic diseases, screening. Lecturer: Enikő Felszeghy M.D., Ph.D.

8th week:
Lecture: 15. Fluid and electrolyte balance. Acid-bace balance disorders: acidosis, alkalosis. Lecturer: Tamás Kovács M.D.16. Neonatal immunological characteristics. Vaccinations. Lecturer: Rita Káposzta M.D., Ph.D.

9th week:
Lecture: 17. Intrauterine and neonatal infections. Lecturer: György Balla M.D., Ph.D., D.Sc.18.Cardiac emergencies in newborns and infants. Lecturer: Gábor Mogyorósy M.D., Ph.D.

10th week:
Lecture: 19. Congential and acquired diseases of the gastrointestinal tract requiring surgical intervention in neonates ans young infacts. Lecturer: István Csízy M.D., Ph.D.20. Disorders of the Ca metabolism. Rickets, tetany, hypercalcemia. Lecturer: István Ilyés M.D., M.Sc., Ph.D.

Requirements

Place: Lecture Hall of Institute of Pediatrics
Requirements for signing the lecture book: Attendance of practices is mandatory. In case of more than one absence, the signature of the lecture book will be refused except in case of documented serious disease or other reasonable cause to be discussed with the senior lecturer in charge for the 5th year English curriculum. Absences should be made up, compensation will be arranged individually by the senior tutors of the groups. Development of proper skills in pediatric patient's examination is expected as checked by the senior tutors on the last practice.
Requirements of examination: course evaluation through a 5 scale practical grade according to the last week test which is based on the practices and lectures.
The subject Pediatrics I. (AOGYE03T9) includes course material equivalent to 2 credits according to the electronic, Module-based teaching program entitled " Neonatology-Pediatrics module

Department of Psychiatry

Subject: **PSYCHIATRY I.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **20**
Practical: **20**

1st week:
Lecture: Historical background of psychiatry. T he psychiatric illness. The psychiatric interview, history. Signs and symptoms of mental disorders.
Practical: The doctor-patient relationship. Examination of the psychiatric patient.

2nd week:
Lecture: Liason psychiatry. Overlap between psychiatry and other medical fields. Psychological tests. Clinical rating scales in psychiatry.
Practical: Anamnesis. Mental state examination I.

3rd week:
Lecture: Organic mental syndromes and disorders I. Delirium. Organic mental syndromes and disorders II. Dementia.
Practical: Mental state examination II. Psychological and clinical rating tests.

4th week:
Lecture: Substance-Related Disorders. General

principles.Alcohol, Cannabis-, Caffeine-, Cocaine-, Opioid-Related Disorders. Impulse control disorders. Gambling.
Practical: Drug dependent states. Alcohol related disorders.

5th week:
Lecture: Mood disorders I. Major Depressive Disorders. Dysthymic Disorders. Mood disorders II. Bipolar and Cyclothymic Disorders.
Practical: Mood disorders.

6th week:
Lecture: Schizophrenia I. Schizophrenia II. Etiology. Treatment.
Practical: Examination of the schizophrenic patient.

7th week:
Lecture: Anxiety disorders. Generalised anxiety disorder. Posttraumatic stress disorder. Panic disorder and agoraphobia.
Practical: Examination of the anxious patient.

8th week:
Lecture: Neurochemical basis of normal and abnormal behavior. Laboratory tests in psychiatry. Delusional disorder and other psychotic disorders.
Practical: Examination of the anxious patient.

9th week:
Lecture: Normal and pathological sexual behavior. Sleep and disorders of sleeping. Eating disorders.
Practical: Examination of the neurotic patient.

10th week:
Lecture: Obsessive-compulsive disorder and phobias. Dissociative disorder. Somatoform disorders.
Practical: Psychiatric symptoms related to general medical conditions.

Requirements

Practical exam

Division of Emergency Medicine

Subject: **EMERGENCY MEDICINE**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **20**
Practical: **20**

1st week:
Lecture: General approach of emergency care, urgency levels, transportation trauma, etc.
Practical: Initial assessment and treatment with the airway, breathing, circulation, disability, exposure, (ABCDE) approach in emergency medicine. Practical approach of emergency medicine. Prehospital Management. Airway management. Symptoms of airway obstruction.

2nd week:
Lecture: Cardiac arrest, levels of cardiopulmonary resuscitation, basic life support, professional basic life support, advanced life support, post resuscitation care.
Practical: BLS.

3rd week:
Lecture: Cardiac rhythm disturbances. Hypertensive emergencies. Syncope, endocrine, metabolic and acid-base emergencies.
Practical: Delivery in the field. Gastric lavage. Safe defibrillation. AEDs, manual defibrillators.

4th week:
Lecture: Chest pain, acute coronary syndromes, pulmonary embolism, aortic dissection.
Practical: Indications and limitations of peripheral vein maintaining. The vein puncture. The intraosseous access. Central vein catheterization

5th week:
Lecture: Shock. Acute severe allergic manifestations, anaphylaxis. Respiratory failure.
Practical: CPR practice.

6th week:
Lecture: Stroke, headache, subarachnoid hemorrhage, convulsions, acute confusional state, coma.
Practical: The position of emergency care. Pre-hospital specialties. Diagnostic and therapeutic specialties.

7th week:
Lecture: Poisoning Psychiatric emergencies.
Practical: Wound care. Care of different bleedings. Techniques of fixation. Laying positions.

8th week:
Lecture: Abdominal pain. Gastrointestinal tract bleeding. Vomiting and diarrhea. Obstetric and gynecologic emergencies.

Practical: Indications and limitations of peripheral vein maintaining. The vein puncture. The intraosseous way. Central vein catheterization Rautek maneuvers. Rapid trauma survey.

9th week:
Lecture: Pediatric emergencies -cardiac arrest in childhood, acute circulatory and respiratory failure, seizures, etc.
Practical: Consultation.

10th week:
Lecture: Abdominal pain. Gastrointestinal tract bleeding. Vomiting and diarrhea. Obstetric and gynecologic emergencies. Pediatric emergencies -cardiac arrest in childhood, acute circulatory and respiratory failure, seizures, etc.
Practical: CPR practice. Consultation.

Requirements

Requirements for signing the lecture book:
For obtaining the signature at the end of the semester you are required to attend all practices. In case of absence you have to do the practice at a chosen time, written excuse is not accepted. Concerning the supplementary practice you have to contact your physician responsible for the practices. Facilities for maximum 2 (two) complementary practices are available at the Ambulance station in Debrecen. If somebody will have more than 2 missed practices will get no signature. Evaluation: The students write a test every week about previous week lectures topic. The final examination consists of an oral and a practical part. Students can only go for the oral exam in case they pass the practical exam. You can register for the exam before the beginning of the examination period. In case you fail to register for the exam we consider it as a failed A chance and a B chance is required.
The subject Emergency medicine (AOOXY03T9) includes course material equivalent to 0.5 credits according to the electronic, Moodle-based teaching program entitled "Basic Life Support module (BLS)" and course
material equivalent to 2.0 credits according to the electronic, Module-based teaching program entitled "Advanced Life Support module (ALS)"

Department of Behavioural Sciences, Faculty of Public Health

Subject: **BEHAVIOUR SCIENCE FINAL EXAM**
Year, Semester: 5th year/2nd semester
Number of teaching hours:

Subject: **BEHAVIOURAL SCIENCES FINAL EXAM**
Year, Semester: 5th year/2nd semester
Number of teaching hours:

Requirements

The final examination of behavioural sciences covers all the materials of medical psychology, bioethics, medical anthropology, medical sociology and behavioural medicine.
In the written „A" exam 100 test questions should be solved. All of the students must solve the medical psychological and bioethical tests but only **two subjects**' tests should be chosen from medical anthropology, medical sociology and behavioural medicine.
Evaluation of the final examination grade:
0-50% – fail,
51%-60% – pass,
61%-70% – satisfactory,
71%-80% – good,
81%-100% – excellent.
In the case of „B" and „C" oral exams the students have to answer an item on the list of questions in front of a teachers' board.

Readings for Final Exam on Medical Psychology and Behaviour Medicine

Csabai, M. and Molnar, P.(2000)*:*. Springer, Budapest.
www.peditop.com Communication chapter

Readings for Final Exam on Medical Anthropology
Helman, Cecil, G.(2007): *Culture, Health and Illness. Hodder Arnold, London.* (different editions are available)
The body: cultural definitions of anatomy and physiology
Doctor-patient interaction
Gender and reproduction
Pain and culture
Culture and pharmacology: drugs, alcohol and tobacco
Cross-cultural psychiatry (Titles of chapters can slightly difer in different editions.)
+ HANDOUTS - http://www.mti.deoec.hu

Readings for Final Exam on Biothics

Handouts: *in Microsoft word and Pdf. format* -http://www.mti.deoec.hu
Jay E. Kantor(1989): *Medical Ethics ofr Physicians-in-Training.*Plenum, NY and London.

Readings for Final Exam on Medical Sociology

Armstron, D.(1994): *Sociology as applied to medicine*. Butterworth-Heinemann, Oxford.
Seniro, M. and Viveash, **B**. (1997): *Health and illness. Skills-based sociology.* Macmillan, London.
Bowling, A. (1998): *Measuring Health. Measuring disease*. Ballmoor, University Press.

Department of Forensic Medicine

Subject: **FORENSIC MEDICINE II.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **10**

1st week:
Lecture: Sudden death I.
Practical: Practices between 1st - 11th week: Autopsy cases, case studies and consultation on the above mentioned topics.

2nd week:
Lecture: Sudden death II.

3rd week:
Lecture: Sudden infant death syndrome. Non-accidental injuries to children. Child abuse.

4th week:
Lecture: Abortion. Infanticide.

5th week:
Lecture: Sex crimes and problems.

6th week:
Lecture: Unidentified and missing persons. Forensic anthropology.

7th week:
Lecture: Legal aspects of medical practice.
Practical: Visiting the Toxicology lab.

8th week:
Lecture: Deaths due to medical treatment. Forensic toxicology.

9th week:
Lecture: Alcohol intoxication. Legal aspects. Forensic toxicology.

10th week:
Lecture: Drug related death. Forensic toxicology

11th week:
Lecture: Forensic psychiatry.

Department of Internal Medicine

Subject: **INTERNAL MEDICINE BLOCK PRACTICE II. - 5TH YEAR**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Practical: **60**

Subject: **INTERNAL MEDICINE VI. (HAEMATOLOGY, HAEMOSTASEOLOGY)**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: 1. Haemopoiesis. Basic principles, normal values, aplastic anaemia, agranulocytosis. 2. Differential diagnosticsof anaemia. Iron deficiency. Megaloblastic anaemia
Practical: Bone marrow failure: aplasia, agranulocytosis, neutropenia, deficiency anaemias

2nd week:
Lecture: 1. Hemolytic anaemias. 2. Chronic myeloproliferative disorders: PV, ET, MF
Practical: Leukocytosis. Benignant and malignant haematologic disorders with special focus on AML, ALL, CLL and CML.

3rd week:
Lecture: 1. Chronic myelogenous leukaemia. 2. Acute myelogenous leukaemia. Myelodysplastic syndrome.
Practical: Lymphoma patients. Hodgkin-, and Non-Hodgkin Lymphomas.

4th week:
Lecture: 1. Acute lymphocytic leukaemia2. Non-Hodgkin Lymphomas I - classification, diagnostics.
Practical: Thrombophilia, thromboembolism. Clinical signs, diagnosis, therapy.

5th week:
Lecture: 1. Non-Hodgkin lymphomas II- treatment. 2. Hodgkin's lymphoma
Practical: Bleeding tendency (ITP, TTP, DIC, HIT, haemophilia, Willebrand-disease). A practical approach.

6th week:
Lecture: Chronic lymphocytic leukaemia. Multiple myeloma. Waldenström macroglobulinaemia

7th week:
Lecture: Hemopoietic stem cell transplantation

8th week:
Lecture: Inherited and acquired thrombophilias. Antithrombotic therapy induced bleeding.

9th week:
Lecture: Thrombocytopenias (ITP, DIC, TTP, HIT).

10th week:
Lecture: Coagulopathies (haemophilia, von Willebrand disease). Platelet disorders.

Requirements

Leader of Block Practice: G. Pfliegler MD Deputy leader: P. Batár MD PROGRAM -Working hours: 7:45 am – 13:45 pm, from Monday to Friday -Each day 5 students from 4th year and 3 students from 5th year should attend Morning discussion at 8:15 am., Rak Library (2nd floor of the old wing of 2nd Dept. Med.) -Students participate in the everyday practice of their tutor's ward. Beside this they attend visits, outpatient services, laboratories (endoscopy, haemostasis, haematology). -They have to attend one shift (8 am – 2 pm – 8 pm) at the Emergency Outpatient Service (1st Department of Internal Medicine), as well as one afternoon duty at the 2nd Department of Internal Medicine (2-10 pm). -Names of Tutors see below! -Exact dates with the names for Emergency Ward see below, afternoon duties in the 2nd Department of Internal Medicine will be made ready by the students for the second day of block practice. -One day leave with good reasons is allowed but has to be replaced by an additional working shift. Detailed program Location: Rak Library (2nd floor) Working hours 7:45 am – 13:45 pm Consultations, case presentations: 12 o'clock 1st Day (Monday): opening discussion 9 o'clock. Hematology/hemostaseology/rare diseases consultations 3rd day, Wednesday: consultation (Dr. Pfliegler) 4th day, Thursday: consultation (Prof. Z. Boda) 9th day, Tuesday: consultation (Prof. A. Kiss.) 11th day, Thursday: consultation (Prof. M. Udvardy) Closing session: the last day of practice (Prof. Boda – Dr. Batár) THE PARTICIPATION ON CONSULTATIONS OF THE APPROPRIATE YEAR IS MANDATORY (i.e. HEMATOLOGY-HEMOSTASIS-RARE DISEASES FOR 5th YEAR, ENDOCRINOLOGY-NEPHROLOGY FOR 4th YEAR) but STUDENTS ARE ALSOENCOURAGED TO PARTICIPATE AT EACH CONSULTATION, i.e. 4th YEAR STUDENTS ON 5th YEAR CONSULTATIONS AND

VICE VERSA. Each day's attendance must be signed by the tutor! At the end of the block practice the tutors handle the signed sheets to the Block Leader, who is entitled to present them to the Education Office! It is mandatory for students to bring -Labcoat -Stethoscope -Pencil or pen, notepad

Department of Neurology

Subject: **NEUROLOGY II.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **10**

1st week:
Lecture: 1. Emergency in neurology I

2nd week:
Lecture: 2. Emergency in neurology II

3rd week:
Lecture: 3. CNS compl. of internal med. diseases

4th week:
Lecture: 4. Lobar syndromes

5th week:
Lecture: 5. Neuromuscular diseases

6th week:
Lecture: 6. Dementia

7th week:
Lecture: 7. Mono- and polyneuropathies

8th week:
Lecture: 8. CNS: infectious diseases

9th week:
Lecture: 9. Sleep disturbances

10th week:
Lecture: 10. Medical self-defence

Requirements

Consulting hours for Manager of educational matters: Monday 11:00 - 14:00 and Friday 11:00 - 14:00. If it is necessary, Managers of educational matters for hungarian and english speaking students are substitutes for each other.
Student time at Secretary: Monday 11:00 - 12:00, Wednesday 11:00 - 12:00 and Friday 11:00 - 12:00

1. Neurology I. may be admitted only with successfully finished
2. There are 10 lectures in the 2nd semester (1 hour lecture/week 10 times). Attending lectures is highly recommended.
3. There is a written competition before the beginning of exam period, if possible after the end of the lectures. Material covered in the lectures (both I. and II. semester) is asked at competition. The competition is not the 'A' exam.
The first three placed students get certificates, may request recommendation letter from the head of the Department, and if it is possible, prize will be given as well. If at least 50% of answers are correct grade for the end of the semester might be offered. Maximum 20% of participants receive offered grade, within this 20% students get 'excellent' (first half) and 'good' (second half) as an offered grade. Offered grades must be accepted in the Neptun until the end of the following week (after the date of competition). If it is not accepted the student will have to take the exam again.
Those students who got certificates, excellent grade will be offered for practical exam at final exam in the VI. year.

4. 2nd semester will end with a written exam (test exam, four possible answers, one correct). Places for exam are opened every week during exam period. Students have to register on Neptun for the exam. Without registration the exam cannot be taken. The first exam is the 'A' chance, the second exam is the 'B' chance, both are written (test) exams. If somebody failed 'A' and 'B' chance the third possibility is the 'C' chance, which is oral exam at the respective group tutor. In this case the student has to agree an appointment with the group tutor. Material covered in the lectures and practices (both I. and II. semester) are asked at exams.
Grade improvement is possible once, in this case registration in the Neptun is necessary for an unoccupied exam place. Grade improvement will not be considered as 'B' chance.
Students spending any block practice are not allowed to take exam during the block practice.

7. There are five one and a half hour long practices in the second semester (1 practice/week/group). The purpose of these practices are to learn the neurological examination. Please arrive at the practices on time. Participation at the practices is obligatory. Only one excused absence out of the 5 occasions is accepted. The students must provide a

written medical (in case of any illness) or official certificate (in case of an unexpected serious event) about the reason of the absence. If no written certificate is available the student must participate at the practice of an other class at the same week to make up the material. At the same time maximum 3 foreign students are allowed to participate at the practice of an other group. The student needs to provide a written form about this supplement. All the students must attend the practice of their own group, making up at a different group is allowed only once, if a certified absence is present. If a student has more than one excused practice in a semester, his or her lecture book will not be signed, he or she must repeat the semester regardless of the reason. Participation in the practice is verified by the group tutor.
8. After the second semester a written final exam must be taken (test exam, four possible answers, one correct). Lecture book will be signed after successful written exam.
9. Lecture books must be brought to the Secretary and they can be taken from the Secretary only in Student time (Monday, Wednesday, Friday 11:00-12:00). Please ensure that your lecture book has been submitted to the department for signing within 3 weeks after finishing each semester. If you fail to comply with this requirement, special personal written permission from your tutor must be obtained, then the lecture book may be signed only by the head of the department.
10. The 6th academic year may not be started without signatures for both the first and second semesters of the 5th year.
11. Please be considerate of the dignity of the patients when visiting the wards, laboratories and outpatient units. Inappropriate behavior (laughing, expressing boredom, etc.) during patient demonstration or examination is embarrassing for the patients and should be avoided. All patient data must be treated confidentially. The patient's chart is a legal document. It may be used only on the ward. The patient's chart may not be photographed, copied or removed. If you make notes for yourself, please use only the patients' initials.

Department of Ophthalmology

Subject: **OPHTHALMOLOGY**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **20**

1st week:
Lecture: 1. Diseases of the conjunctiva and the cornea.2. Diseases of the lacrimal apparatus.
Practical: Addmission. Anamnesis. External examination. Eyelid eversion.

2nd week:
Lecture: 3. Lens, Cataract.4. Diseases of the retina
Practical: Visual acuity (definition, how to check). Refractive errors, trial lenses. Eyeglass prescription.

3rd week:
Lecture: 5. Tumors6. Strabismus
Practical: Keratometry, topography, contact lenses. Low vision aids.

4th week:
Lecture: 7. Glaucoma8. Diseases of the uvea and the vitreous
Practical: Visual field, perimetry. Color vision.

5th week:
Lecture: 9. Orbit and the Lids10. Trauma
Practical: Examination of the anterior segment of the eye.

6th week:
Practical: Fundoscopy

7th week:
Practical: FLAG, LASER, OCT, UH

8th week:
Practical: Tonometry. Lacrimal system probing and irrigation. Wound care, Bandages. Irrigation of the conjunctival sac.

9th week:
Practical: Drugs in ophthalmology, surgical videos

10th week:
Practical: Pictures of the practical exam.

Requirements

Conditions of signing the Lecture book
Participation at the practicals is compulsory. Missed practicals can be replaced by attending practical with another group in the same week. If this is not possible, replacement is also possible by spending two hours at the Clinic, when

the student's practical teacher is on duty. The head of the Department may refuse signing of the Lecture book in cases of one or more missed practicals until replacement is done. Three out of the ten lectures are seminars (compulsory lectures). These are Retina, Glaucoma and Trauma. The list of lectures (subject, date, lecturer) is given in written form to the students at the first lecture. Those who miss one or more of the three seminars will get extra questions at the exam from the most important parts of the missed seminar(s). Attendance of lectures is recommended as pictures of the most important eye diseases are shown during lectures. To see these pictures not only helps to prepare for the exam, but have to be learned even if the student missed one or more of the lectures.

At the end of the semester the student is required to take the oral final examination (FE), which consists of a practical and a theoretical part. In the practical examination the student is required to make the diagnosis of 5 ophthalmological diseases shown in pictures. To help this there is a set of pictures shown on the Department's website www.szemklinika.deoec.hu. Five out of these pictures have to be recognized at the exam (practical exam) before the student gets theoretical titles. Both the pictures and the extra questions taken from seminars aim parts of Ophthalmology that are considered to be important for the medical practice of a non-ophthalmologist general practitioner. List of titles are also accessible on the website. The student has to register for the FE before the exam, choosing the requested date shown to be available on the Neptun system.

Department of Otolaryngology and Head and Neck Surgery

Subject: **OTOLARYNGOLOGY**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **20**

1st week:
Lecture: 1. Anatomy and Physiology of the ear. Disorders of the Pinna, ExternaL Auditory Canal and Acut Otitis2. Tests of the Auditory Apparatus
Practical: Exposition of general methods in otorhinolaryngology. Demonstration of instrumentes required at basic examinations: practising of their use. (Use of the head mirror, otological examination with aural-speculum, examination with Otoscopy, rhinoscopy anterior, rhinoscopy posterior, laryngeal examination with mirror, pharyngeal examination). Physiology of hearing-practice in audiometry (whispering speech, conversational speech, examination s with tuning-fork, treshold audiometry, objective audiometry and special tests). Audiometrical methods in practice.

2nd week:
Lecture: 1. Chronic Otitis Media 2. Complications of Otitis Media
Practical: Symptomatology of ear diseases, Investigation of functioning of auditory tube (Valsalva's experiment, Polizter's test, tympanometry). Vestibular examinations. Evaluation of spontaneus vestibular symptoms. Incuded examinations. (Rotatorical examination of electrical rotatory chair, electrony stagmography, analysis of optokinetic and positional nystagmus). Demonstration ofexamination methods.

3rd week:
Lecture: 1. Disorders of the Cochlea Rehabilitation of the sensorineural hearing loss.2. Anatomy, Physiology and Disorders of the nose.
Practical: Exposition and demonstration of ear operations,Tympanoplastical operations. Antrotomy, mastoidectomy, the essence of radic, ear operation. (Operating theatre, videoprogram). Nose and paranasal sinus operations, nasal endoscopy videoprogram). Demonstration of maxillary sinus punction Indications of tonsillectomy and adenotomy. Sight of the operation. Control method of epistaxis. Anterior nasal packing and Belloque-tamponade.

4th week:
Lecture: 1. Malignant tumor of the nose & paranasal sinuses.2. The Pharynx (Anatomy, Physiology, Inflammatory Disorders, Neoplasm)
Practical: Diff. diagnosis of cervical masses. Cervical nodes, cervical trigones. Importance of cryosurgery in otorhinolaryngological practise. Examination of patients. Malignant diseases of larynx. Presentation of larynx operations/video or Operating teather/. Examination of patients. Examinations with the endoscope in otorhynolaryngological practice.

5th week:
Lecture: 1. The Larynx (Anatomy, Physiology, Inflammatory diseases)2. Benign and malignant tumor of hypopharynx and larynx.
Practical: Demonstration of microlaryngoscopy and oesophagoscopy. Laryngological connections of Laser surgery/video or operating theater. Use of laryngoscope. Examinations of patientes. Practice otorhinolaryngological examination methods. Demonstration of microlaryngoscopy and oesophagoscopy.Laryngological connections of Laser surgery/video or operating theater. Use of laryngoscope. Examinations of patients. Practice otorhinolaryngological examination methods.

Requirements

Attendance at seminars is compulsory. Missed seminars should be made up for by the student at the later date to be discussed their tutor. Lecture book will be signed if every missed seminars substituted.

Department of Pediatrics

Subject: **PEDIATRICS II.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: Allergic respiratory diseases in childhood. Differential diagnosis in respiratory diseases in childhood.
Practical: Practices, related to the topics of lectures, are being held in the Lecture Room of the Department and at the Wards.

2nd week:
Lecture: Childhood leukemia in modern diagnosis and therapy. Bone marrow transplantation. Haemorrhagic diathesis (coagulopathy, platelet disorder).Differential diagnosis of anemia, deficiency and hemolytic anemia.

3rd week:
Lecture: Malignant solid tumors in childhood. Fainting states and epilepsy.

4th week:
Lecture: Pediatric gastroenterology diseases. Inflammatory bowel disease, gastroesophageal reflux. Endocrine problems in children.

5th week:
Lecture: Glomerulonephritis. Nephrotic syndrome.Acute and chronic renal failure. Of the kidney and urinary tract malformations and diagnostics.

6th week:
Lecture: Congenital heart diseases. Cyanotic and acyanotic heart lesions.

7th week:
Lecture: Exanthema in pediatric diseases.

8th week:
Lecture: Treatment for children with type 1 (insulin-dependent) diabetes mellitus.

9th week:
Lecture: Primary and secondary immune deficiencies in children. Autoimmune syndromes.

10th week:
Lecture: Emergency childcare poisoning.

11th week:
Lecture: Differential diagnosis and treatment of infants and children with dyspnea (upper and lower respiratory stenosis, pneumonia).

12th week:
Lecture: Contemporary evaluation of pediatric gastrointestinal diseases. Chronic non specific inflammatory bowel diseases.

13th week:
Lecture: Frequent cardiac symptomes in childhood. Pediatric cardiac arrhythmias.

14th week:
Lecture: Glomerular diseases. The nephrotic syndrome. Acute renal failure.

Requirements

Requirements for signing the lecture book: Attendance of practices is mandatory. In case of more than one absence the signature of the lecture book will be refused except in case of documented serious disease or other reasonable cause to be discussed with the senior lecturer in charge for the 5th year English curriculum. Absences should be made up, compensation will be arranged individually by the senior tutors of the groups.
Exam: Obtaining signature of the lecture book. Prearranged exam appointment strictly within the exam period as given by the Department of Education (to be obtained from the secretary of the Department, students are kindly requested to come to do the exam in a group of 5-15 students in an exam day; changes in the exam schedule should be made at least 24 hours -1 working day - prior to the scheduled exam). Type of examination: AW5 - oral exam, two titles.

Department of Psychiatry

Subject: **PSYCHIATRY II.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **20**

1st week:
Lecture: Psychosomatic disorders
Practical: Psychosomatic diseases

2nd week:
Lecture: Theories of Personality and Psychopathology. Psychoanalysis.
Practical: Examination of personality, personality tests

3rd week:
Lecture: Normal and pathological development of personality
Practical: Examination of personality, personality tests

4th week:
Lecture: Personality disorders
Practical: Examination of personality disorders

5th week:
Lecture: Psychoteherapies I.
Practical: Indication of psychotherapy

6th week:
Lecture: Psychoteherapies II.
Practical: Types of psychotherapies

7th week:
Lecture: Child psychiatry
Practical: Child psychiatry

8th week:
Lecture: Emergency cases in psychiatry(Crisis, suicide)
Practical: Crisis intervention

9th week:
Lecture: Emergency cases in psychiatry(Aggressivity and restraining measure)Legal regulations in psychiatry
Practical: Management and treatment of the aggressive patient

10th week:
Lecture: Rehabilitation of psychiatric patients
Practical: Rehabilitation in psychiatry

Requirements

Practical exam

Division of Clinical Oncology

Subject: **CLINICAL ONCOLOGY**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **20**
Seminar: **7**

Requirements

The student is required to attend the lectures and seminars. Two absences are allowed regarding seminars. Visiting the lectures is strongly advisable. The final exam will be a written test, covering the topics of oncology.

CHAPTER 18
ACADEMIC PROGRAM FOR THE 6TH YEAR

Internal Medicine	10 weeks
Pediatrics	7 weeks
Surgery	5 weeks
Neurology	4 weeks
Psychiatry	4 weeks
Obstetrics and Gynecology	5 weeks

Subject: **INTERNAL MEDICINE**
Requirements of the internship in Internal Medicine
Duration:**10 weeks**
Working hours**: 8 a.m. to 2 p.m.**
Working regulations: Students are entitled to work under the supervision of their tutors. The time schedule enables them to spend app. - 2 weeks in each special ward (e.g. hematology, outpatient service, gastroenterology, general medical, etc.) where they have to participate in the everyday clinical work - similarly to the residents. They will also get opportunities to become familiar with the laboratories (hematology, gastroenterology, hemostasis, clinical chemistry).
Duties: each week one duty (2 p.m. - 10 p.m.) is required.
Organized consultations: on special topics are also available.
Examination: consists of a practical, and an oral (two titles) part.
Notice: only those with a successful written and practical examination have the right to enter the oral part. In case of a failed exam the student must spend an additional practical period (5 weeks) plus 1 week preparation period according to the rules.

Subject: **NEUROLOGY**
REQUIREMENTS OF THE NEUROLOGY INTERNSHIP
Duration of the rotation is **4 weeks**.
Working hours are from**8 a.m. to 2 p.m.**
The students must work under the supervision of their tutor. They spend one week in each department including the outpatient department. They make daily rounds with the staff of the ward and take part in new patient work-ups.
The student must visit the laboratories: ultrasound laboratory, electrophysiology laboratories (EEG, EP, EMG), chemistry laboratory and neuropathology. A selected topic should be presented at a morning meeting. Consultation is available.
The final examination consists of three parts: minimum questions (computer-based test), practical and oral. If the student fails the written or practical exam, he or she may not proceed to the oral exam.
If the student fails the exam, he or she must spend an extra two weeks of practice at the department.
The minimum questions can be found at: http://www.neuropath.dote.hu/ideg/minimum.htm

Subject: **PSYCHIATRY**
REQUIREMENTS OF THE PSYCHIATRY INTERNSHIP

Duration: **4 weeks**
Working hours:**8 a.m. to 2 p.m**.
The students must work under the supervision of their tutor. They spend 2 weeks in the man's ward and 2 weeks in the woman's ward. During this period they must spend 2 days in the outpatient's department. They make daily rounds with the staff of the ward, take part in the investigation of the new patients.
Students must visit the psychological laboratory, they must take part in group therapy and music therapy (weekly). Consultation is available.
The final examination consists of two parts:
Practical: They have to demonstrate how to make a case history, how to check the attention, etc.
Oral: three titles
If the student could not pass the examination, he/she must spend one more week with practice in our department.

Subject: **OBSTETRICS & GYNECOLOGY**
Requirements of the internship in OB&GYNE

Requirements for signing the lecture book: Participation in the clerkship program (Duration 5 weeks, to be accomplished in the Dept. of OB&GYNE or in one of the accredited Hungarian teaching Hospitals, or - based on the permission of the Educational Subcommittee - in the OB&GYN department of an acknowledged hospital. 2 weeks are requested to be accomplished in the Dept. of OB&GYN of University of Debrecen. Completion of 4th year block practice here also fulfills this requirement. Students should work under the supervision of the assigned tutors, from 8 am to 2 pm on every working day, following their daily rotation. In case of absence for more than two days the head of the Department may refuse the signature. One day-off is allowed except in case of documented serious disease or other reasonable cause to be discussed with the academic advisor in charge for the 6th year English curriculum. Absences should be made up, compensation will be arranged individually by the tutors. Participation in 1 night-shift per week duties is also requested: from 2 pm to 8 am. Consultation is available on demand.
Requirements of final examination: Obtaining signature of sections of individual practical skills in the practice book by the tutors, confirmed by the academic advisor of 6th year. Based on this, signature of the lecture book.
Registration for the final exam is exclusively through the Neptun system.
Final exam is oral (4 exam titles, in accordance with the current official textbooks, listed in separate chapter).
Repeating of an unsuccessful final exam is possible after 3 additional weeks of practice, completed exclusively in the Department of OB&GYN of University of Debrecen.

Subject: **PEDIATRICS**
Requirements of the internship in Pediatrics
Requirements for signing the lecture book: Participation in the clerkship program (Duration 7 weeks, to be accomplished in the Department of Pediatrics or in one of the accredited Hungarian teaching Hospitals, or - based on the permission of the Educational Subcommittee - in the pediatric department of an acknowledged hospital - maximum 5 weeks - 2 weeks are requested to be accomplished in the Department of Pediatrics of the Medical and Health Science Center of the University of Debrecen. Students should work as resident clerks under the supervision of the assigned tutor from 8 am to 2 pm on every working day. One day-off is allowed except in case of documented serious disease or other reasonable cause to be discussed with the senior lecturer in charge for the 6th year English curriculum. Absences should be made up, compensation will be arranged individually by the tutors. Participation in night-shift duties is also requested according to the pre-set schedule: 2 pm to 10 pm on workdays, 8 am to 10 pm on holidays. Consultation is available on demand.)
Requirements of examination: Obtaining signature of the lecture book.
Prearranged exam appointment strictly within the exam period as given by the Department of Education (to be obtained from the secretary of the Department, students are kindly requested to come to do the exam in a group of 3-8 students in an exam day; changes in the exam schedule should be made at least 24 hours - 1 working day - prior to the scheduled exam).
Type of examination: Final exam, consisting of three parts:
test (credits can be obtained by successful self-check tests to be filled out in the 5th years lectures)
practical exam (history taking, physical examination, building up diagnostic and therapeutical plans for the individual patient, evaluation of the results of the diagnostic procedures, bed-side laboratory skills)
theoretical exam (4 exam titles)
The student is requested to pass each three part of the exam for a successful final mark.
Repeating of the final exam is possible after 3 additional weeks of clerkship to be absolved exclusively in the Department of Pediatrics of the Medical School of the University of Debrecen.

Subject: **SURGERY**
Duration of the rotation is **5 weeks**. Students may spend 3 weeks in another (foreign) acknowledged institute; in this case a minimum of 2 weeks' practice must be spent in our Institute.
Practice hours are between **7.30AM and 1.30PM**(weekdays only).
Each student will be assigned to a tutor and a ward. Students should participate in the operational and ward activities, and also in the outpatient care. Students must work under the supervision of their tutor.

Every student should register for duty service (24-hour in-house call) once per week (weekend days included).
By the end of the rotation, students are expected to be familiar with the basics of surgical wound care, patient examination and history taking, the most common surgical interventions, postoperative management of the surgical patients and the basics of anesthesiology. Students will participate in the surgeries as second assistants.
Final examination consists of two parts: practical (physical examination and case presentation) and theoretical. Those who fail the final exam, should complete an additional 3 weeks of practice.

CHAPTER 19
REQUIRED ELECTIVE COURSES

Department of Biochemistry and Molecular Biology

Subject: **MOLECULAR MECHANISM OF DISEASES CONCERNING GREAT POPULATIONS**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **25**

1st week:
Lecture: Introduction to molecular medicine

2nd week:
Lecture: Genomic medicine

3rd week:
Lecture: Diabetes

4th week:
Lecture: Obesity

5th week:
Lecture: Vitamin D and immundefects

6th week:
Lecture: Cancer I.

7th week:
Lecture: Cancer II.

8th week:
Lecture: Cancer II.

9th week:
Lecture: Osteoporosis

10th week:
Lecture: Immunedeficiencies

Requirements

Attendance on the lectures is compulsory.

Department of Biophysics and Cell Biology

Subject: **COMPUTER SCIENCE**
Year, Semester: 1st year/1st semester**,** 1st year/2nd semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: Exemption Tests.

2nd week:
Practical: Exemption Tests.

3rd week:
Practical: Word processor programs, MS Word I.1. File: save, save as, print, new document, open2. Editing text 1: input letters, cursor, copy, paste, paste special, cut, move, clipboard, undo, redo3. Editing text 2: selecting text, mouse, keyboard, shift, control, home, end, pgup, pgdown4. Home 1: formatting font, font size, font color, typeface, bold, italic, underline, highlighting, super/subscript, customize menu5. Home 2: formatting paragraph, line spacing, indentation (left, right, first line, hanging), alignment (Tabs: left, center)6. Home 3: bulleted, numbered list, searching text, find, replace, select all7. Insert: tables, inserting pictures, shapes, page numbers, header, footer, page break, symbols, (text box)8. Page layout: margins, orientation, size, manual setting of margins , columns, line numbers, watermark, page color, page borders

4th week:
Practical: Word processor programs, MS Word II.

5th week:
Practical: Spreadsheets programs, MS Excel I.1. Entering data (difference b/w text & numbers), autofill series (numbers, days, months, etc.), adjusting column width2. Editing: copy, paste, move, inserting/deleting lines/rows, selecting non-adjacent rows/columns (Ctrl)3. Entering formulas (=), symbols for mathematical operations (+-*/^EXP()), copying cells with formulas, relative/absolute reference4. Using functions,

statistical functions: average, stdev, count, sqrt, countif, if, calculating SEM, etc.5. Creating charts: bar chart, scatter plot, error bars, labels6. Formatting charts: colors, symbols, axis scaling, chart title, axis title7. Data sorting by one or more criteria, filters8. (Statistical tests (F-test (equal variance test), t-test assuming equal/unequal variances))

6th week:
Practical: Spreadsheets programs, MS Excel II.

7th week:
Practical: Spreadsheets programs, MS Excel III.

8th week:
Practical: Spreadsheets programs, MS Excel IV.

9th week:
Practical: Computerised presentation, MS PowerPoint.1. Entering text, inserting figures / drawing objects2. Editing: selecting multiple objects, resizing, rotating, copy, paste, move, undo, redo3. Colors: background (templates), line, fill4. Alignment, grouping, order (front/back), arranging objects (distribute horiz. / vert.)5. Slide sorter, slide show6. Slide transitions, animations

10th week:
Practical: Fundamentals and basic concepts of informatics.

11th week:
Practical: Logical and physical realization of networks.

12th week:
Practical: Internet.

13th week:
Practical: Summary.

14th week:
Practical: Test I.

15th week:
Practical: Test II.

Requirements

The acquisition of fundamental theoretical and practical knowledge from the function of the modern personal computers.Course description: PC architecture, operating systems, file management, network knowledge,internet and its opportunities of application, word processor, spreadsheet, the usage of presentational programs, the achievement of scientific databases and its use. Without registration, there is no way to do the course! First year students who missed/skipped the exemption test, but signed up for the course in the Neptun must attend the course and do the final test at the end. For students attending the informatics course a maximum of 4 absences are allowed during the semester to receive a signature (we recommend to use as few as possible, in case an emergency comes up). This is taken very seriously! Missing more than 4 classes automatically means losing the chance to pass the course. There will be a final test at the end of the semester. For students attending the informatics course a maximum of 4 absences are allowed during the semester (we recommend to use as few as possible, in case an emergency comes up). This is taken very seriously! Missing more than 4 classes automatically means refused signature therefore losing the chance to pass the course. Every student allowed to make up the missed practicals with another group but only on the given week, if there are enough free seats in the room. For students attending the informatics course a maximum of 4 absences are allowed during the semester to receive a signature (we recommend to use as few as possible, in case an emergency comes up). This is taken very seriously! Missing more than 4 classes automatically means losing the chance to pass the course. There will be a final test at the end of the semester. Every student is allowed to make up the missed practicals with another group but only on the given week, if there are enough free seats in the room. The course start with an exemption test. Only first year students allowed to write the exemption test at the first week of the given semester with their group (appointment should be checked in the given timetable). In any other cases (students older than first year/repeaters/students who are not exempted) has a final test at week 14 of the given semester. There is no other self control test during the semester. At the end of the course students will write a final test. The exemption and the final tests covers topics and skills in connection with Microsoft office Word, Excel, and PowerPoint (versions:2007/2010) programs, as written in the curriculum. Both of the tests (exemption and the final test) are written tests. The tests are practical tests, conducted in the computer room. Students passing the exemption test will automatically receive 5 (excellent) grade at the end of the semester. Final grades based on the final test score will be given according to the following table: 61% = grade 1 (fail) 61%-70% = grade 2 (pass) 71% - 80% = grade 3 (satisfactory) 81% - 90% = grade 4 (good) 91% = grade 5 (excellent) Students should download free Office guide books from the following link. (Email registration is required for downloading files). Students who did not get exemption/did not show up at the exemption test/repeaters/students older than first year MUST ATTEND on the course. They should join to one of the groups mentioned in the timetable. The number of the seats is limited in the classroom. Students who has informatics course in the given appointment (according to the timetable) have priority to attend the lesson. Others are allowed to join to the given group if there are more free seats. Older students have to do the whole course as well. Students passing the exemption test will automatically receive 5 (excellent) grade at the end of the semester. Students who failed the exemption test must attend the course and do the final test at the end. Students having ECDL (European Computer

Driving Licence) are not required to write the exemption test, instead, they can submit exemption request to the Education Office. Until You are waiting for the decisions, You should also come to the course!!!

Subject: **MODERN BIOPHYSICAL METHODS IN BIOLOGY AND MEDICINE**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **24**

3rd week:
Lecture: 1-3. Luminescence spectroscopy. Theoretical background and principles of application of fluorescence spectroscopy to study the structure of proteins, nucleic acids and that of the cell membrane. Fluorescence conjugation of biomolecules, techniques based on fluorescence polarization and fluorescence resonance energy transfer.

4th week:
Lecture: 4-6. Modern microscopic methods for structural and functional characterization of cells. Theoretical background of fluorescence microscopy and image processing. Generation of scanning and wide-field images. Detectors, analog/digital conversion and digital storage of images. Digital image analysis: principles and biological applications. Principles of confocal microscopy. High resolution non-linear optical microscopy.

5th week:
Lecture: 7-9. LSC - Laser-Scanning Cytometry (imaging cytometry, slide-based imaging cytometry). Limitations of the flow cytometry and microscopy. Comparing flow cytometry, confocal microscopy and laser-scanning cytometry. How does laser-scanning cytometry work? Strength and limitations of the laser-scanning cytometry. Laser scanning-cytometry in cell biology and clinical research.

6th week:
Lecture: 10-12. Structure of the cell membrane, functional consequences of the mobility (lateral and rotational movement) of proteins in the membrane. Novel models for the structure of the cell membrane, lipid domains. Time-dependent fluorescence and phosphorescence spectroscopy, fluorescence recovery after photobleaching (FRAP), fluorescence correlation spectroscopy.

7th week:
Lecture: 13-15. Principles and applications of flow cytometry. Structure of a flow cytometer and its application fields: immunogenetics, receptor and antigen research and diagnostics, DNA and cell cycle analysis, measurement of membrane potential, membrane permeability and determination of cytosolic pH and ion concentrations, application of fluorescence resonance energy transfer to determine protein associations. (FCET).

8th week:
Lecture: 16-18. Modern electrophysiological techniques. Passive and active electrical properties of the cell membrane, structure and function of ion channels. Principles and application of the patch clamp technique: recording ionic currents and membrane potential.

9th week:
Lecture: 19-21. Medical applications of NMR and MRI.

10th week:
Lecture: Test

Requirements

Conditions for signing the lecture book: Attending 5 lectures out of 7. Attention! Lecture books are handled exclusively by the study advisor during the dedicated office hours (see on the website of the Department of Biophysics and Cell Biology)!
Type of examination: practical grade, 5 levels
Scoring:
below 50%: fail
51%-59%: pass
60-69 % : satisfactory
70-85 %: good
above 85% excellent

Examination: Written test. The exam is during the 8th lecture.

Repeated/improved exam: during the examination period.

Subject: **SELECTED TOPICS IN CELL BIOLOGY**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **24**

3rd week:
Lecture: Something only your mother can give you: the mitochondrium

4th week:
Lecture: Receptor tyrosine kinases: regulation by interactions and compartmentation of signaling components (2 lectures)

5th week:
Lecture: Lecture: From cell biology to preclinical models: CDKs as drug targets

6th week:
Lecture: Targeting tumors with reprogrammed "designer" T cells

7th week:
Lecture: What goes up, must come down: Degrading proteins and lipids - and the consequences of aberrant pathways

8th week:
Lecture: Something only your mother can give you: the mitochondrium

9th week:
Lecture: Recombination: Break the genome to save it!

10th week:
Lecture: A strict rule in multicellular development: cells must behave, otherwise their fate is apoptosis or …

11th week:
Lecture: Ion channels: cellular physiology and disease

12th week:
Lecture: Newly discovered mechanisms in the regulation of cell division.

13th week:
Lecture: Lecture: Recycling and molecular interactions of ErbB2 – implications for cancer therapy

14th week:
Lecture: Lecture: GFP and friends. The colorful molecule that drew the Nobel Prize.

Requirements

Please check for details on the course at:
http://biophys.med.unideb.hu/en/node/1886
Requirement for signature:
- maximum 3 recorded absences total
- signing up for the electronic course at http://tavoktatas2.med.unideb.hu by the end of week 5
Exam type: Electronic test
Grading: > 50% = pass, >60% = satisfactory, >70% = good, >80% = excellent
Those failing or not taking the test at the end of the course can take regular A, B and C exam in the exam period.

Department of Foreign Languages

Subject: **LATIN LANGUAGE**
Year, Semester: 1st year/1st semester**,** 1st year/2nd semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: Organization of the course. The Latin alphabet and pronounciation. Introduction into medical terminology; Greek and Latin origins of nomenclature.

2nd week:
Practical: Planes and directions. Latin adjectives.

3rd week:
Practical: Parts of the human body.

4th week:
Practical: Nominative and Genitive suffixes. Plural forms and adjectives in Latin

5th week:
Practical: The skeleton

6th week:
Practical: Plural forms. Genitive phrases.

7th week:
Practical: Revision, practice. Mid-term test

8th week:
Practical: Regions. Adjective formation.

9th week:
Practical: The joints. Complex adjectives.

10th week:
Practical: Word formation: nouns from verbs.

11th week:
Practical: Muscles.

12th week:
Practical: Latin prefixes.

13th week:
Practical: Latin and Greek numerals.

14th week:
Practical: Revision. End-term test

15th week:
Practical: Evaluation

Requirements

Requirements of the Latin language courses Attendance

Language class attendance is compulsory. The maximum percentage of allowable absences is 10 % which is a total of 2 out of the 15 weekly classes. Students arriving late for the classes are not allowed to enter the class. Being late is counted as an absence. If the number of absences is more than two, the final signature is refused and the student must repeat the course. Students are required to bring the textbook or other study material given out for the course with them to each language class. Active participation is evaluated by the teacher in every class. If students' behaviour or conduct does not meet the requirements of active participation, the teacher may evaluate their participation with a "minus" (-). If a student has 5 minuses, the signature may be refused due to the lack of active participation in classes.

Testing, evaluation

In each Latin language course, students must sit for 2 written language tests.

A further minimum requirement is the knowledge of 300 words per semester announced on the first week. There is a (written or oral) word quiz in the first 5-10 minutes of the class, every week. If a student has 5 or more failed or missed word quizzes he/she has to take a vocabulary exam that includes all 300 words along with the oral exam. The results of word quizzes can modify the evaluation at the end of the semester.

Based on the final score the grades are given according to the following table:

Final score	Grade
0 - 59	fail (1)
60-69	pass (2)
70-79	satisfactory (3)
80-89	good (4)
90-100	excellent (5)

If the final score is below 60, the student once can take an oral remedial exam covering the whole semester's material.

Consultation classes

In each language course once a week students may attend a consultation class with one of the teachers of that subject in which they can ask their questions and ask for further explanations of the material covered in that week. These classes are optional.

Coursebook:Répás, László: Basics of Medical Terminology (Latin and Greek Origins)

Website: Minimum vocabulary lists and further details are available on the website of the Department of Foreign Languages: ilekt.med.unideb

Department of Human Genetics

Subject: **MEDICAL GENOMICS**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **16**
Practical: **4**

9th week:
Lecture: 1. Medical genome biology: relevance and history.
2. Application of genome biology for pharmaceutical and biotechnological research.
3. Introduction into bioinformatics. DNA sequence comparison, sequence data management and analysis.
Practical: 1. Sequence alignment practical.
2. Browsing databases for human disease genes.

10th week:
Practical: 3. Association of DNA polymorphisms with complex diseases.
4. Using the public gene expression databases.

12th week:
Lecture: 4. Gene expression pattern changes in disease. The use of DNA microarrays in medical diagnosis.
5. Practical and technical aspects of gene expression analysis.
6. Immuno-proteomics, methods and applications.

13th week:
Lecture: 7. Technologies for testing human genome sequence and proteome variability.
8. Systems biology and medical diagnostics. Biotechnology.
9. Bioinformatics II. Protein sequence comparison, motifs, prediction of 3D structure, multiple sequence alignments.

14th week:
Lecture: 10. Modern genetic maps.
11. Genome databases, gene ontology. Genome analysis, practical examples.
12. Evolutionary genome biology.

15th week:
Lecture: 13-14. Genomescan technology, global genetic association and its relevance to multigenic diseases.
15. Nanotechnology and medicine.

Requirements

Minimum requirements of the signature:

Electronic registration through Neptun.

Active participation on week 9 and 10 medical genomics seminars – proved with signed attendance-sheets.

Those, who do not meet these requirements, cannot take the examination.

It is very much recommended to attend the medical genomics lectures during week 9 and 12-15 and to take notes.To encourage the attendance of the lectures we give 1 bonus point for 1 attendance, which is proved by a signed attendance-sheet. Since there are 10 occasions (5 double and 5 single lectures), you may earn 10 bonus points altogether. These are percentage points that will be added to the result of the examination.

Only those students are eligible to sign the attendance-sheet and get bonus points, who registered for the subject Medical genomics electronically.

Those students, who want to receive bonus points have to take at least a one page handwritten lecture note of the lecture in question. The note may be checked by teachers any time.

The bonus points can be used only during the end-of-semester examination period, cannot be transferred to the next school-year.

Students, who manipulate the attendance sheets will be denied signature in this semester.

Second year students may also register for medical genomics, they can even take the examination with their valid signature in their lecture book, even if they did not pass last year. Students not having a signature in the lecture book and/or in the Neptun, have to attend classes to earn a signature.

Students, who got signature can register for an examination through the Neptun. Without registration it is not possible to take the examination. Evaluation of the exam (AW5, assessment of work): fail (1), pass (2), satisfactory (3), good (4), excellent (5). Repeated examinations are possible according to general university rules.

Lectures will be held at times and locations given for medical genetics lectures, during week 9 and 12-15.

Practical: week 9-10, in a basement computer room of the Educational Center, according to the advertised timetable. (When possible, the seminars will be held the same time as the medical genetics seminars/practicals.)

For further details see www.genetics.dote.hu, username: medical_genomics, password: neurofibromatosis. Click on "Oktatás", Downloads/Information, Medical genomics.

Department of Internal Medicine

Subject: **BASIC HOSPITALISATION TECHNIQUES FOR MEDICAL STUDENTS**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: **5**
Practical: **5**

1st week:
Lecture: History - needs - health and diseases. Marslow hierarchy of needs. Assistance, duties of nurses: recreation, mobilization, bedding.

2nd week:
Lecture: Assistance, duties of nurses: hygienic needs, defecation, catheters. Documentation.Inspection, observation, test results, public health laws concerning to nursing.

3rd week:
Lecture: Sterilisation, disinfection. Wound healing, decubitus, decubitus prevention. Medication.

4th week:
Lecture: Infusion techniques, transfusion. Diagnostic examinations, getting up the patient. Drainage, bleeding, punctions.

5th week:
Lecture: Examination methods. Education of patients, mental hygiene. Psychology of nursing, dying patient, attendance of the dead.

Requirements

Course description: Place of lectures: 3rd Department of Internal Medicine (Augusta). Educational responsible: Dr. Katalin Dankó Number of practicals: 5 and summer practice.

Subject: **RARE DISEASES**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **10**

1st week:
Lecture: Rare disorders: introduction. (G. Pfliegler)Rare diseases: organizations Hungarian and international approach (J. Sándor)

2nd week:
Lecture: Molecular genetics in rare diseases (I. Balogh)Rare bleeding disorders - genotype, phenotype, laboratory and molecular genetics (Zs. Bereczki)

3rd week:
Lecture: Genetic disorders (É. Oláh) Manifestations of rare diseases in the eye (V. Nagy)

4th week:
Lecture: The role of biochemical laboratory in the diagnosis of rare disorders. (J. Kappelmayer) Lysosomal diseases and immunodeficiency (L. Maródi)

5th week:
Lecture: Orphan drugs. (G. Blaskó)Case presentations (E.

Kovács, K. Urbán)Closing remarks
(G.Pfliegler)Conditions for acceptance: test

Subject: **TRAVEL MEDICINE FOR MEDICAL SCHOLARS**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **30**

Requirements

1. Positioning travel medicine among the medical disciplines. Travel medicine in Hungary - first in Europe
2. Health status of the traveler. Risk factors of the traveler. Definition and analysis of the travel types. Prevention possibilities.
3. Classification of the travel related medical problems. Travel induced diseases: deep vein thrombosis,jet-lag, motion sickness, travel psychosis
4. Travel related medical problems: environmental hazards, traffic accidents, safety measurements, crime prevention
5. Vaccination-preventable and non-preventable infectious diseases. Traveler's diarrhoea. Safe food and drink.
6. Technique of the vaccination, contraindications, side effects
7. Pretravel advices for the immunocompromised traveler. Treatment abroad
8. Sexually transmitted diseases, morbidity, prevention. Post exposure prorhylaxis of AIDS
9. Dermataological problems during the trip and after returning
10. Modalities and timing of the repatriation. Indication and contraindications of the repatriation. MEDIF. Fit-to-fly formula
11. Malariaprevention, different types of malaria, high risk areas, malaria as an emergency
12. Travelers with special needs: VFR. Migration problems
13. Diabetic traveler, patient with heart disease, preparing COPD patient for travel
14. Cabin environment, preparing patient for the air travel. Fear of flying.

Department of Laboratory Medicine

Subject: **EPIDEMIOLOGY, PATHOPHYSIOLOGY, DIAGNOSIS AND TREATMENT OF OSTEOPOROSIS.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **11**
Seminar: **2**
Practical: **2**

1st week:
Lecture: Definition and epidemiology of osteoporosis

2nd week:
Lecture: Pathophysiology of osteoporosis I

3rd week:
Lecture: Pathophysiology of osteoporosis II

4th week:
Lecture: Diagnosis of osteoporosis

5th week:
Lecture: Treatment of osteoporosis

6th week:
Lecture: Case-study and literature reviews

7th week:
Lecture: BMD measurement and Bone turnover marker measurement
Practical: BMD measurement and Bone turnover marker measurement

8th week:
Lecture: Summary and MCQ test
Self Control Test

Requirements

To get the latest and updated information on the complex condition of osteoporosis

Subject: **PROBLEM BASED LEARNING IN COMPLEX PATHOLOGY**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **30**

1st week:
Lecture: Introduction

2nd week:
Lecture: Problem based evaluation of myeloproliferative disorders.

3rd week:
Lecture: Problem based evaluation of anemias.

4th week:
Lecture: Clinical case

5th week:
Lecture: Problem based evaluation of malignancy and tumor immunology.

6th week:
Lecture: Problem based evaluation of kidney diseases.

7th week:
Lecture: Problem based evaluation of diabetes mellitus.

8th week:
Lecture: Problem based evaluation of acute coronary syndrome.

9th week:
Lecture: Problem based evaluation in gastrointestinal disorders

10th week:
Lecture: Problem based evaluation in autoimmunity and hypersensitivity reactions.

Requirements

Entrance conditions: at least 10 students.
Only in 2nd semester.

Subject: **PROBLEM BASED LEARNING IN ONCOHEMATOLOGY**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **30**

1st week:
Seminar: Problem based evaluation of anemias

2nd week:
Seminar: Problem based evaluation of myeloproliferative disorders

3rd week:
Seminar: Problem based evaluation of lymphoproliferative disorders I.

4th week:
Seminar: Problem based evaluation of lymphoproliferative disorders II.

5th week:
Seminar: Problem based evaluation of myelodysplastic syndromes

6th week:
Seminar: Problem based evaluation of myeloma multiplex

7th week:
Seminar: Problem based evaluation of tumors of the lung I.

8th week:
Seminar: Problem based evaluation of tumors of the lung II.

9th week:
Seminar: Problem based evaluation of tumors of the urinary tract

10th week:
Seminar: Problem based evaluation of prostate cancer

11th week:
Seminar: Problem based evaluation of gynecological tumors

12th week:
Seminar: Problem based evaluation of endocrine tumors

13th week:
Seminar: Problem based evaluation of tumors of the gastrointestinal tract

14th week:
Seminar: Problem based evaluation of complications of cancer

15th week:
Seminar: Test.

Requirements

Entrance conditions: min. 10 students
Only in 2nd semester

Department of Medical Chemistry

Subject: **ADVANCED STUDENTS' SCIENTIFIC ACTIVITY**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:

Requirements

Introduction to students' scientific activities, formerly presented lecture(s) at the students' scientific conference(s) and/or accepted thesis.

Subject: **STUDENTS' SCIENTIFIC ACTIVITY FOR BEGINNERS**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:

Subject: **UNDERSTANDING MEDICAL PROBLEMS THROUGH EXPERIMENTS: A PROBLEM-BASED ELECTIVE PRACTICAL COURSE**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: How to make fat and how to get rid of it? (Adipocyte differentiation. Lipid and energy metabolism.)

2nd week:
Practical: What cells "inhale" and "exhale"? What a seahorse can teach us about mitochondrial function and dysfunction?(Measuring the effects of metabolic drugs on oxygen consumption and glycolytic rate.)

3rd week:
Practical: Let's make bones!(Phosphate-induced mineralization in osteoblast cultures. Role of Vitamin C.)

4th week:
Practical: How to kill tumor cells?(Cellular effects of different classes of anticancer drugs on cancer cell lines.)

5th week:
Practical: A smoking gun.(How cigarette smoking causes lung injury?)

6th week:
Practical: Beware of the Sun!(Effects of UV radiation on skin cells.)

7th week:
Practical: A radical idea.(Generating and eliminating free radicals by the cells.)

8th week:
Practical: About fruits and vegetables.(Testing the antioxidant effects of various fruits and vegetables.)

9th week:
Practical: Can the exhaust fumes of your car lower your blood pressure?(Cell biology of nitric oxide and peroxynitrite.)

10th week:
Practical: Show me your breath, I tell you who you are! (Measurements from exhaled breath concentrate.)

11th week:
Practical: Will your pain killer kill your liver?(Liver toxicity of acetaminophen.)

12th week:
Practical: Immunosuppression in action.(How does cyclosporine work?)

13th week:
Practical: You are what you eat!(Evaluation of the effects of lipid-rich diet by histology and biochemical essays.)

14th week:
Practical: Filling and emptying glycogen stores. (Determination of the glycogen stores in various alimentary conditions.)

15th week:
Practical: Watch your DNA!(Mutations/DNA damage and their detection.)

16th week:
Practical: Do your blood vessels leak?(Transendothelial permeability measurements by ECIS.)

17th week:
Practical: Interact with me!(How and why proteins "touch" each other? Methods used to study protein-protein interactions.)

18th week:
Practical: How to create green cells?(Transfection with GFP.)

19th week:
Practical: Heat shock(Induction of heat shock in cell lines: expression of Hsp-s. Protection from cytotoxic insults.)

20th week:
Practical: Where is my protein?(Subcellular localization of proteins by immunostaining+compartment-specific markers. Cell fractionation and Western blotting.)

21st week:
Practical: Inhibitors of protein phosphatases - dangerous biological weapons?(Phosphatase inhibitory and cytotoxic effects of microcystin and other biotoxins.)

22nd week:
Practical: Green tea - enemy of cancer cells?(Effect of polyphenolic compounds on proliferation of cancer cell.)

Requirements

Min. 1, max. 10 students (Preference will be given to students who obtained good marks in Medical Chemistry.) Aim of the course: The course provides a unique opportunity to investigate important medical problems at the cellular and the molecular level or in animal experiments. Enrolled students choose a topic from the list. Students will work in small groups (2-3 students/group) and will be assigned a tutor who will supervise their activities and labwork. First, students make a thorough literature search to understand the medical problems in question, it's possible experimental approach and then discuss it in detail with their tutor. During the laboratory sessions, the students perform experiments related to the chosen problem and will learn how to collect data, interpret and evaluate results, how to analyze data statistically and how to draw conclusions. The students prepare essays (5 pages) on their achievements. In a closing session, the group and the tutor discuss the results and evaluate the project.

Department of Medical Microbiology

Subject: **ANTIMICROBIAL CHEMOTHERAPY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **20**
Seminar: **10**

1st week:
Lecture: History of antimicrobial chemotherapy. Principles.

2nd week:
Lecture: Pharmacokinetics and pharmacodynamics.

3rd week:
Lecture: Antibacterial agents: β-lactam antibiotics.

4th week:
Lecture: Non-β-lactam antibiotics.

5th week:
Seminar: Measurement of antimicrobial activity.

6th week:
Lecture: History, mechanisms and spread of antibiotic resistance.

7th week:
Lecture: Antibiotic usage, antibiotic stewardship.

8th week:
Lecture: Risks caused by antibiotic use.

9th week:
Lecture: Antiviral agents.

10th week:
Lecture: Antifungal agents, antifungal resistance.

11th week:
Lecture: Chemotherapy against protozoal pathogens and helminths.

12th week:
Seminar: Presentation of project works

13th week:
Seminar: Presentation of project works.

14th week:
Seminar: Interactive case studies.

15th week:
Seminar: Consultation.

Requirements

To enhance the competence of students in chemotherapy of infectious diseases.

Department of Neurosurgery

Subject: **NEUROSURGERY**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **6**
Practical: **8**

1st week:
Lecture: 1. Neurosurgery in general, the topic of the neurosurgery. Main symptoms of different localisations, diagnostic possibilities. Developmental anomalies of the central nervous system requiring neurosurgical intervention.

2nd week:
Lecture: 2. Intracranial tumours I. General review. Neuroepithelial tumors, meningioma, schwannoma, neurofibroma, haemangio-blastoma.

3rd week:
Lecture: 3. Intracranial tumors II. Pituitary adenoma, craniopharyngioma, epidermoid/dermoid cysts, colloid cyst, germinoma, teratoma, lipoma, primary malignant lymphoma, metastatic tumours. Causes and management of hydrocephalus (obstructive, communicating, congenital, acquired).

4th week:
Lecture: 4. Spinal space-occupying lesions (tumors, disc prolapse and spondylosis). Tumours of peripheral nervous system.

5th week:
Lecture: 5. Neurotraumatology. Head, spinal and peripheral nerve injuries.

6th week:
Lecture: 6. Cerebrovascular diseases requiring neurosurgical treatment. Inflammatory processes, brain abscess.

7th week:
Practical: 1. Diagnosis and treatment of intracranial space occupying lesions (except hematomas). Neurosurgical aspects of hydrocephalus and intracranial developmental anomalies. Shunt operations.

8th week:
Practical: 2. Neurosurgical aspects of vascular diseases. Causes and outcome of subarachnoid haemorrhage. Cerebral aneurysm, angioma and fistula, their surgical management.

9th week:
Practical: 3. Craniocerebral and spinal trauma, diagnosis and neurosurgical treatment. Management of unconscious neurosurgical patients. Brain herniations.

10th week:
Practical: 4. Degenerative and space occupying spinal lesions. Their diagnosis and surgical treatment. Operability of spinal developmental anomalies.

Requirements

The fundamentals of neurological surgery can be found in the textbook. The convincing knowledge of this material and the active participation of each practical lesson are the condition of a successful examination. The six lectures will complete the textbook with new data and stress the importance of the symptomatology and diagnostic possibilities of

the more frequent neurosurgical diseases, mainly from practical points of view. These will facilitate the understanding of the textbook and the theses of the examination as well. The task of the practicum is the collection of personal practical experience of the neurosurgical diseases at bedside.
The active participation in all practicum is obligatory. No more than two misses of lectures and one miss of seminars and accepted written test exam are needed to get the credit.

Department of Obstetrics and Gynecology

Subject: **RECENT ADVANCES OF INFERTILITY MANAGEMENT AND GYNAECOLOGICAL ONCOLOGY**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **20**

Requirements

Aim: To provide supplemental knowledge of modern human reproductive technology in five lectures. Lectures 6-16 are devoted to transmitting structured knowledge of gynaecological cancer management in sequence of their localisation and public health importance. The course is primarily aimed at providing graduate level audiovisual information that could not be fitted into the restricted schedule of regular lectures of semester II. in year IV. curriculum.
Topics:
Pathophysiology of reproductive failure
Infertility work-up, practical approach
Assisted reproduction. Homologous and heterologous insemination
In vitro fertilisation. Embryo transferr Legal and ethical issues of in vitro fertilisation
Ovarian cancer epidemiology and diagnostics
Ovarian cancer chemotherapy
Ovarian cancer surgical treatment
Endometrial cancer epidemiology and diagnostics
Endometrial cancer therapy
Cervical cancer prevention and screening
Cervical cancer diagnostics and therapy
Vaginal and vulval cancer epidemiology and diagnostics
Vaginal and vulval cancer treatment
Trophoblast tumours
Lecturer: Prof. Póka, Róbert, M.D., Dr. habil., Ph.D.

Subject: **REPRODUCTIVE ENDOCRINOLOGY AND INFERTILITY**
Year, Semester: 4th year/2nd semester**,** 5th year/2nd semester
Number of teaching hours:
Lecture: **15**

1st week:
Lecture: 1. Introduction (Jakab, Attila M.D., Ph.D.) Reproductive Physiology (Lecturer: Deli, Tamás M.D., Ph.D.): Molecular Biology and Biochemistry for Reproductive Endocrinology. Ovarian and Uterine Embryology, Development and Reproductive Function. Neuroendocrinology. Regulation of the Menstrual Cycle. Sperm and Egg Transport, Fertilization, and Implantation.

2nd week:
Lecture: 2. Clinical Reproductive Endocrinology (Lecturer: Gődény, Sándor M.D., Ph.D.): Normal and abnormal sexual development, abnormal puberty. Normal and abnormal sexual developement, normal and abnormal growth and pubertal developement. Intersexuality. Pubertal obesity and hyperandrogenism.

3rd week:
Lecture: 3. Clinical Reproductive Endocrinology (Lecurer: Deli, Tamás M.D., Ph.D): Amenorrhoea, Galactorrhoea. Hyperprolactinemia. Premature Ovarian Failure (POF).

4th week:
Lecture: 4. Clinical Reproductive Endocrinology (Lecturer: Jakab, Attila M.D., Ph.D.): Chronic anovulation. Polycystic Ovarian Syndrome (PCOS). Menstrual disorders in reproductive age. Hirsutism.

5th week:
Lecture: 5. Clinical Reproductive Endocrinology (Lecurer: Deli, Tamás M.D., Ph.D): Endocrinology of the pregnancy. Ectopic pregnancy. Repeated pregnancy loss (RPL). Pregnancy and endocrine disorders. Human parturition, onset of labor. Hormonal therapy in obstetrics.

6th week:
Lecture: 6. Contraception (Lecturer: Jakab, Attila M.D., Ph.D.) : Family planing. Oral contraception. Transdermal and vaginal contraception. Long acting methods. Intrauterine contraception (medicated and non-medicated intrauterine systems, IUD, IUS).

7th week:
Lecture: 7. Infertility: (Lecturer: Jakab, Attila M.D., Ph.D.) The infertile couple. Diagnostics test of female and male infertility. Anovulatory infertility. Infertility genetics. Reproduction and thyroid. Fertility preservation in cancer patients.

8th week:
Lecture: 8. Infertility: (Lecturer: Sápy, Tamás M.D., Ph.D.) Uterine and tubal infertility. Endometriosis. Minimally invasive procedures. Ovulation induction. Assisted reproductive techniques (ART).

9th week:
Lecture: 9. Menopause (Lecturer: Jakab, Attila M.D., Ph.D): Epidemiological issues of the menopuase. Physiology of the menopausal transition. Postmenopausal Hormone Replacement Therapy (HRT). Postmenpausal abnormal bleeding. Cardiovascular changes and osteoporosis in the menopause. HRT in reproductive cancer patients.

10th week:
Lecture: 10. Reproductive Andrology (Lecturer: Benyó, Mátyás M.D.): Regulation of testicular function. Aging male. Male infertility. Semen analysis. Sperm function tests. Sperm preparation methods for assisted reproduction. Surgical treatment for male infertility. Sperm cryopereservation. Closing test (Jakab, Attila M.D., Ph.D.)

Requirements

Reproductive Endocrinology covers the physiology and pathophysiology of the female reproductive system, from puberty through the reproductive ages, until and beyond the menopause. Over the decades, advances of genetics, molecular biology and clinical epidemiology resulted in rapidly growing information and threapeutical possibilities in the fields of gynecologic endocrinology, infertility and menopause. Along with the increasing expectation of the patients, these led to the recognition, that professional prevention and restoration of the female reproductive health requires wide knowledge, which goes beyond the basics of Obstetrics and Gynecology. Reproductive Sciences are among the most intensively developing field of Ob/Gyn. The aim of the course is to gain detailed knowledge on the physiological basics and clinical practice of wide spectrum of disorders in the field of gynecologic endocrinology, infertility and menopause. Throughout ten weeks, on each occasion, lectures are followed with interactive seminars, case presentations.

Department of Ophthalmology

Subject: **OPHTHALMOLOGICAL ASPECTS OF WOUND HEALING PROCESSES**
Year, Semester: 4th year/2nd semester**,** 5th year/2nd semester**,** 6th year/2nd semester
Number of teaching hours:
Lecture: **7**
Seminar: **4**
Practical: **4**

1st week:
Lecture: Basic ophthalmological anatomy. Basics of wound healing processes. (Dr. Csutak)
Seminar: Overview and application of instruments used for practical trainings, learning appropriate techniques.
Practical: Learning appropriate techniques of instruments used for practical trainings.

2nd week:
Lecture: Corneal lesions and refractive surgeries. What does the tear film affect in wound healing processes? (Dr. Csutak)
Seminar: Types and treatments of corneal lesions.
Practical: Creating corneal lesions and practicing their treatment on biomodels.

3rd week:
Lecture: Significance of mediators in tears in the wound healing processes following keratoplasty. (Dr. Fodor)
Seminar: Types and treatments of scleral lesions.
Practical: Creating Scleral lesions and practicing their treatment on biomodels.

4th week:
Lecture: Scleral surgeons. Significance of scleral wound healing processes in respect of glaucoma surgery treatments. (Dr. Csutak)
Seminar: Treatment of lesions on face/eyelids, how to gain "extra skin".
Practical: Treating lesions made on face/eyelids; how to gain "extra skin" on biomodels.

5th week:
Lecture: Fundamentals in Ophthalmological Operations (Dr. Ujhelyi)

6th week:
Lecture: Practices in Ophthalmological Operations (Dr. Ujhelyi)

7th week:
Lecture: Wound healing processes on eyelids and in the eye area. How developed is ophthalmological plastic surgeon?

Requirements

In-depth knowledge of the mechanisms of wound healing processes on different tissues. Acquisition of basic operative techniques. Ensuring practice opportunities for the basics of operative professions.
Our long-term goal is to facilitate the specialization of students interested in operative professions.

Subject: **REFRACTION, REFRACTIVE ERRORS, CORRECTIONS, REFRACTIVE SURGERY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **5**

1st week:
Seminar: Refraction, refractive errors, corrections, refractive surgery.

2nd week:
Seminar: Refraction errors, keratometry, aberrometry, corneal topography

3rd week:
Seminar: Prescription of Eyeglasses.

4th week:
Seminar: Contact lenses.

5th week:
Seminar: Refractive Surgery

Requirements

The attendance on all the 5 seminars is compulsory. Missed seminars should be repeated by attending seminars on the next semester. The knowledge of students is assessed on a five-grade scale (test). Registration to the course should be done on the Neptun system.

Department of Pathology

Subject: **FUNDAMENTAL CLINICAL NEUROSCIENCE**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **10**
Seminar: **10**
Practical: **10**

Requirements

Requirements: Attendance of lectures, seminars, practical sessions is compulsory - absences and their 'make-up' are regulated by the Educational office of the Medical Faculty. The exam questions are primarily based on the material presented at the Lectures. The Seminars and Practical sessions are supporting the learning and understanding of the topics.

Aims of the course: To teach the molecular and morphological aspects of clinical neurosciences and to provide a solid basis for the clinical studies and medical practice. To refresh the relevant knowledge acquired at the pre-clinical studies (Anatomy, Physiology, Biochemistry) in a clinico-pathological context.

Curriculum: During the 6 weeks the topics will be covered in altogether 30 hours. Lectures will be supported by seminars & practicals with clinico-pathological discussions and demonstrations of neuropathological methods & techniques (including brain cut, microscopy).
week 1: Basic reactions in the nervous system; week 2: cerebrovascular diseases; Trauma; Infectious and inflammatory diseases; week 3: Dementias and movement disorders; week 4: Brain tumours; week 5: Metabolic and toxic disorders; Developmental disorders; week 6: Demyelinating diseases; Neuromuscular diseases; Other neuro-psychiatric diseases.

Textbook: Robbins: Basic pathology (9th edition); selected research papers (to be specified)
Suggested reading: selected research papers (to be specified)

Exam: Written (Multiple Choice Questions test paper)

Department of Pharmacology and Pharmacotherapy

Subject: **PHARMACOTHERAPY**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **30**

1st week:
Lecture: Metabolic diseases I: Diabetes mellitus

2nd week:
Lecture: Metabolic diseases II: Hyperlipidaemias

3rd week:
Lecture: Diseases of the biliary truct and the pancreas

4th week:
Lecture: Pharmacotherapy of cardiac arrhythmias

5th week:
Lecture: Pharmacotherapy of hypertension

6th week:
Lecture: Myocardial infarction and unstable angina

7th week:
Lecture: Pharmacotherapy of ischaemic heart diseaseAngina pectoris, AMI

8th week:
Lecture: Pharmacotherapy of rheumatic diseases

9th week:
Lecture: Chronic obstructive airway disease

10th week:
Lecture: Cancer therapy

11th week:
Lecture: Test writing

Department of Physical Medicine and Rehabilitation

Subject: **PRINCIPLES OF PHYSICAL MEDICINE AND REHABILITATION**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **16**

1st week:
Lecture: 1. Theory of medical rehabilitation. Functional assessments of people with disabilities. - Zsuzsanna Vekerdy-Nagy M.D, Ph.D2. Service delivery in rehabilitation (inpatient, outpatient and community-based services) - Zsuzsanna Vekerdy-Nagy M.D, Ph.D

2nd week:
Lecture: 3. The role of physical therapy in medical rehabilitation - Ilona Balajti Mrs. Veres, PT

3rd week:
Lecture: 4. Basic principles of therapy approaches in medical rehabilitation. - Zsuzsanna Vekerdy-Nagy M.D, Ph.D5. Measuring the effects of rehabilitation. Quality of Life - Zsuzsanna Vekerdy-Nagy M.D, Ph.D

4th week:
Lecture: 6. Orthetics and posthetics in rehabilitation - Lajos Ágoston C.P.O.7. Medical assistive devices - Lajos Ágoston C.P.O.

5th week:
Lecture: 8. Autonomy and complience - János Kollár Ph.D9. Principles of psychodiagnostics and therapy in psychiatric rehabilitation - János Kollár Ph.D

6th week:
Lecture: 10. Caracteristics of motor rehabilitation in rheumatic diseases - Zoltán Szekanecz M.D. Ph.D, D.Sc.11. Cardiac rehabilitation - István Czuriga M.D.Ph.D

7th week:
Lecture: 12. Characteristics of neuro-rehabilitation - Zsuzsanna Vekerdy-Nagy M.D, Ph.D13. Special features of pediatric rehabilitation - Zsuzsanna Vekerdy-Nagy M.D, Ph.D

8th week:
Lecture: 14. Pulmonary rehabilitation - Mária Szilasi M.D. PhD15. Social service system in rehabilitation. Educational rehabilitation. Vocational rehabilitation. - János Kollár Ph.D

9th week:
Lecture: 16. Consultation - Zsuzsanna Vekerdy-Nagy M.D, Ph.D

Requirements

Course description: The aims of the course are understanding the basic principles of the rehabilitation medicine and a special approach to acute medicine with acknowledging the importance of rehabilitation. The main fields of medical rehabilitation. Methods of assessment and therapy.
Announced for 5th year students, Semester: 2nd, no. of lessons: 16 x 45 min.
Credit points: 2 points
Exam: AW5

Subject: **SOCIAL ACCEPTANCE OF PEOPLE WITH DISABILITIES**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **20**
Practical: **2**

1st week:
Lecture: Problems of people with disabilities during their life Subtopics: a) Definitions (normality, abnormality, handicap, deficiency, disability, participation – the health concept in different cultures and societies). b) Different types of impairments, their characteristic features, possible treatments and rehabilitation (visual, auditive, movement, learning impairments, mental deficiencies, behavioural and communicational disturbances).

2nd week:
Lecture: Social inclusion and its legal environment Subtopics: a) Politics of equal rights, equal treatment and antidiscrimination. b) Legal problems of limitations the rights of people with disabilities The world of people with disabilities from the point of view of parents and relatives

Subtopics: a) Experiences and personal messages, advices to the experts. b) Short and long term life goals. c) Changes in life quality.

3rd week:
Lecture: Communicational problems, basic issues of communication with people with disabilities, psychological approaches

4th week:
Lecture: The world of people with disabilities from "inside" – own experiences (lecturers: persons with disabilities)- Subtopics: a) Expectations towards ourselves and towards the environment. b) Successes and/or failures of adaptation. c) Attitudes. d) Short and long term life goals. e) Expectations in communication. Dietary problem of people with disabilities

5th week:
Lecture: Care nursing being with disabilities from the point of view of volunteers, therapist, caregivers and nurses Subtopics: a) The most frequent problems arising during care and nursing, the "art of being there", avoiding burnout. b) Communicational problems. c) Characteristics of rehabilitation care.

6th week:
Lecture: Computer Assisted Rehabilitation Project (CARP)

7th week:
Lecture: Social aspects of disabilities, characteristic features of groups of people with disabilities, homes of people with disabilities, segregated institutes, stigmatization, discrimination, employment, psychology. Pedagogical aspects of disabilities, concepts of special needs, special educational requirements, deficiencies of partial abilities, questions of integration - inclusion.

8th week:
Lecture: Written Exam

9th week:
Lecture: Block Practice

10th week:
Lecture: Block Practice

11th week:
Lecture: Block Practice

12th week:
Lecture: Block Practice

13th week:
Lecture: Block Practice

14th week:
Lecture: Block Practice

15th week:
Lecture: Block Practice

Requirements

Intended learning outcomes:
To promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities and to promote respect for their inherent dignity. Multidimensional introduction into the world of people with disabilities.
Target group: foreign and Hungarian students of medicine, students of psychology, pedagogy, social workers, physiotherapists, student of Faculty of Public Health.
Announced for students in year: from 3th year students semester: 1st semester, to 5th year semester: 2nd
Coordinator: Janos Kollar, PhD.
no. of lessons: 20 x 45 min no. of practices: 2 x 45 min
Credit points: 2
Time schedule:
Theory: Friday afternoon (1.00-4.00 p.m.)
Practice: in small groups (min. 3, max. 6 students) during the academic year (summer included)

Department of Physiology

Subject: **MODERN TECHNIQUES ALLOWING THE INVESTIGATION OF PHYSIOLOGICAL PHENOMENA**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **24**

1st week:
Lecture: The lectures are listed at the web site of the Department of Physiology (http://phys.dote.hu)

Requirements

1. Signature of Lecture Book Lecture attendance may be followed up by the Department. The lecture will not be delivered if 5 or fewer students show up. Nevertheless, the lecture material is going to be asked in the final assessment. For continuous updates on all education-related maters, please check the departmental web-site (http://phys.dote.hu) 2. Evaluation during the semester None. 3. Examination At the end of the course a written final assessment will be organised in the form of multiple choice questions. The result of this assessment will determine the verification mark of the credit course using the following conversion table: 0-39.9% - Failed 40-54.9 - Pass 55-69.9% - Satisfactory 70-84.9% - Good 85-100% - Excellent

Subject: **PROBLEM BASED LEARNING IN PHYSIOLOGY**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Practical: **30**

Practical: The practices are listed at the web site of the Department of Physiology (http://phys.dote.hu)

Requirements

Two students works in team on one project, and prepare one mutual report, thus they get the same score at the end of the program regardless their contribution. The Journal Club and Lab Visit programs are carried out individually. 7.Evaluation of the students is based on the written report or the oral presentation using five grade score system (1-5). Grades are final, no make-up is allowed. 8.The list of offered programs are available at the practical lab of the Department or on the Department's homepage (http://phys.dote.hu/files/oktatas/kredit/PMO/PBL_topics.pdf). 9.The deadline for the program is the end of the 11th academic week. Reports should be submitted to the tutor. Missing the deadline automatically results grade 1 (fail). Guidelines for the format of Problem Based Learning Report Students should review carefully this guide and Problem Based Learning Reports (PBLR) must be prepared accordingly. PBLR should be submitted via E-mail in PDF format; no other format is accepted. The length of PBLR should be between 10-30 pages including all sessions listed below. Appendix or supplementary material, all together no longer than 20 pages, containing data or methodological information can be attached to the manuscript if it is necessary. Easy reading of the text should be considered as primary importance when choosing typeface and font size. Instead of pursuing artistic view, the format of the text should serve the content. Page numbering starts on front page (can be hidden); footnotes and page headings should be used sparingly. The text should be written in good English/American, but prevent using the mixtures of these. Use your text editor to eliminate possible grammatical or spelling errors. Use standard abbreviations where possible, and always give definition at first use. Using nomenclature and units follow internationally accepted rules and conventions; prefer units used in medical practice where possible and the international system of units (SI). Ensure that each table and figure is numbered and has a caption. A caption should have a brief title and short description of the illustration with a compact conclusion. Select different type face for captions. Required elements of the PBLR: Front Page Table of contents Abstract Introduction Methods Results Discussion References Further elements like preface, list of abbreviations, acknowledgments, and conclusions are optional. All sections should begin on new page, headings typographically separated from the text, centered between left and right margins. Requirements for the sessions: -Front page should contain the followings (template is available at the course coordinator). O the full name of the department on the top of the page o the full title of the manuscript o a subtitle: 'PBL Project' o name of the author(s) with class and group numbers o name of the tutor o date when project was closed -Table of contents should be accurate and detailed referring to sub sessions if used in the manuscript. -Abstract should be no longer than one page including headings summarizing the aim(s), chosen methods, the most important data and conclusions. Short summary of motivation is welcomed but not required. References, not common abbreviations should be avoided. -Introduction cannot be longer than the half of the text. State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results. -Methods should be detailed to the extent to allow the work to be reproduced. Flow-charts, diagrams or photographs to demonstrate critical methodological steps or simplify long descriptions are welcomed. -Results should be clear and concise. Raw data can be used only as representative recordings or examples if necessary, appropriate use of statistical methods is critical when presenting results. -Discussion is not recapitulation of results but exploration of the significance of the work. All conclusions should be drawn from the presented results. Supporting data from literature can be used but extensive citations or discussion of the literature should be avoided. Attempts to resolve contradiction between your own data or your data and the literature is greeted. -References should be numbered and listed

alphabetically by the name of the first author, or the title of the website when using web reference. When using web reference the full URL should be provided. Cite references in the manuscript by numbers. Evaluation of PBLR PBLRs are sent for evaluation to reviewers (professors of Dept. of Physiology) selected by the course coordinator. The reviewers evaluate the manuscripts on a five grade scale according to the following criteria. -Excellent: well-conducted and well-presented study. All deficiencies are counterbalanced by positive qualities. Minimal stylistic errors or conflict with the format requirements. Original idea, concept or design can compensate weakness in format. -Good: PBLR meets format requirements, but has some weakness either in introduction or discussion but results session is solid, or displays stylistic or typographical errors. - Satisfactory: PBLR meets format requirements, but both introduction and discussion carries weakness (results must be solid). Numerous stylistic or typographical errors without influencing the readability of the text. Satisfactory is given if illustrations are not clear, graphically not well presented or hard to understand the message. Any mismatch between text and illustration results also satisfactory. -Pass: PBLR meets format requirements and the concept of the study is clear. Selected method is appropriate but the manuscript has several substantial flaws in the analysis or the write-up. Inappropriate statistical method, insufficient data or numerous stylistic, typographical errors in text or graphical errors in illustrations results pass too. -Fail: conflict with format requirements, major flaws in execution or presentation. A fail should also be given if the manuscript reveals a fundamental lack of understanding of the concept presented or the stylistic/grammatical/graphical errors have severe impact on the readability of the text. Missing the deadline result fail with no regard to the content or format of the manuscript.

Subject: **THE REGULATORY ROLE OF THE CELL MEMBRANE IN PHYSIOLOGICAL AND PATHOLOGICAL CONDITIONS**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **20**

Lecture: The lectures are listed at the web site of the Department of Physiology (http://phys.dote.hu)

Requirements

1. Signature of Lecture Book Lecture attendance may be followed up by the Department. The lecture will not be delivered if 5 or fewer students show up. Nevertheless, the lecture material is going to be asked in the final assessment. For continuous updates on all education-related maters, please check the departmental web-site (http://phys.dote.hu) 2. Evaluation during the semester None. 3. Examination At the end of the course a written final assessment will be organised in the form of multiple choice questions. The result of this assessment will determine the verification mark of the credit course using the following conversion table: 0-39.9% - Failed 40-54.9 - Pass 55-69.9% - Satisfactory 70-84.9% - Good 85-100% - Excellent

Department of Radiology

Subject: **MEDICAL IMAGING**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **16**

1st week:
Lecture: Digital X-ray imaging

2nd week:
Lecture: Ultrasound imaging

3rd week:
Lecture: CT imaging

4th week:
Lecture: Magnetic resonance imaging I.

5th week:
Lecture: Magnetic resonance imaging II.

6th week:
Lecture: Radionuclide imaging

7th week:
Lecture: Molecular imaging

8th week:
Lecture: Multimodal imaging

Requirements

The fundamentals of the operation of medical imaging devices with regards to clinical application.

Department of Surgery

Subject: **THE BASICS OF ORGAN-, AND TISSUE TRANSPLANTATION**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **30**

1st week:
Lecture: Introduction (Dr. B Nemes); Rules and regulations of organ donation. Eurotransplant (S Mihály)

2nd week:
Lecture: Intensive care of organ donor (Dr. Cs. Molnár), Principles of multiorgan donation (Dr D. Kovács)

3rd week:
Lecture: Transplant nephrology (Dr Zsom L.) . History of kidney transplantation. Surgical aspects. (Dr. R. Fedor)

4th week:
Lecture: Visualizing diagnostic approaches in transplantation (Dr. J.Tóth). Interventional radiology in transplantation (Dr. A. Doros)

5th week:
Lecture: Clinical immunology in transplantation. Physicians aspects (Prof. Dr. Á Illés.-Dr L. Váróczy,) Principles of transplant immunology (Dr. A. Szilvási)

6th week:
Lecture: Principles of transplant anaesthesia (Dr. J .Fazakas) Intensive care of transplant patients (Dr. M.Berhés)

7th week:
Lecture: Principles of Lung transplantation (Dr. F.Rényi Vámos)

8th week:
Lecture: Principles of heart transplantation (ifj.Dr. Hartyánszky I.)

9th week:
Lecture: Liver transplantation internalist considerations (Dr I. Tornai) Surgical technique, management, prognosis of liver transplantation (Dr. B. Nemes)

10th week:
Lecture: Pancreas and islet cell transplantation (Dr. L. Piros,)

11th week:
Lecture: Cornea transplantation (Prof. Dr. L. Módis)

12th week:
Lecture: Bone marrow transplantation (Prof. Dr. Á Illés-Dr. L. Váróczy)

13th week:
Lecture: Pediatric kidney transplantation (Dr. T. Szabó). Complications and long term results of organ transplantation (Dr. G Zádori)

14th week:
Lecture: Transplantation pathology (Dr. Bidiga L.)

15th week:
Lecture: Experimental models in the service of successful organ transplantation. (Dr.Németh N.)

Requirements

The goal is to transfer general medical knowledge about the Hungarian and international history, development, protocol, and results of organ-, and tissue transplantation. Further to present the possibilities, technique, results of the transplantation of certain organs, and tissues, as well as to present the possible increase in life-quality in relation to these procedures. The course is optimal for medical students who are candidates to be a general practitioner, and also for those tend to become specialists in anaesthesiology & intensive care, cardiology, gastroenterology, hematology, hepatology, immunology, nephrology ophthalmology, and surgery Nowadays organ, and tissue transplantation become a routine procedure worldwide, representing the highest level of healthcare. Therefore we think this is mandatory to transfer this knowledge to all medical students. Also for this reason the lecturers of this course are invited from all over the country represent the top quality of the different fields of transplantation. Students attending the course have the opportunity to take the relevant messages from the authentic persons.

Department of Traumatology and Hand Surgery

Subject: **TRAUMATOLOGY II.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **10**

6th week:
Lecture: 1.Classification of pelvic fractures, conservative and surgical treatment. Fractures of the acetabulum. Traumatic hip dislocations. 2. Treatment of fractures of the distal femur. Treatment of patella fractures.

7th week:
Lecture: 1.Injuries of the shoulder, humerus fractures. 2. Fractures of the talus and calcaneous. Subtalar dislocation. Fractures of tarsal bones and toes.

8th week:
Lecture: 1. Classification and treatment of tibia condyle fractures. Basic treatment principles of closed and open fractures of the tibia diaphysis.2. Indication of limb replantation, techniques and expected results. Revascularization syndrome. Skin defects, skin replacement procedures.

9th week:
Lecture: 1. Role of arthroscopy in the diagnosis and surgical treatment of joint injuries. Meniscus injuries, diagnosis and treatment injuries to knee ligaments. Haemarthrosis. Osteochrondritis dissecans. 2.Methods of ligament, bone and joint replacement. Use of metals and plastics in traumatology. Biological osteosynthesis.

10th week:
Lecture: 1.Fractures of the neck and head of radius. Olecranon fractures. Fractures of the forearm diaphysis. Monteggia and Galeazzi fractures. 2.Carpal instability, treatment of ractures of carpal bones. Dislocations and ractures of metacarpal bones and phalanges. Treatment of severely injured hand.

Requirements

The lectures will take place in the Auguszta big lecture hall. We strongly advise to participate on the lectures, because the official textbook doesn't include all the diagnostic and therapeutic knowledge.
Sign of the lecture book will take place the week before the exam period, at the secretariat of the Department of Trauma and Hand Surgery.
Type of the exam: oral exam (AW5).
In case of the unsatisfactory mark, the student can repeat the exam with the certification of the Education Department.
The Bulletin and Schedule can be found at the website of the Department of Trauma and Hand Surgery (www.traumatologia.deoec.hu).

Division of Clinical Laboratory Science

Subject: **CLINICAL BIOCHEMISTRY AND LABORATORY EVALUATION OF THROMBOPHILIA**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **12**

1st week:
Lecture: Control mechanisms of blood coagulation Biochemistry of antithrombin III. Laboratory diagnosis of antithrombin III deficiencies.

2nd week:
Lecture: Biochemistry of protein C and protein S. Laboratory diagnostics of protein C and protein S deficiencies

3rd week:
Lecture: Thrombophilias caused by APC resistance and prothrombin 20210 polimorphism and their laboratory diagnostics. Rare thrombophilias.

4th week:
Lecture: Hereditary thrombophilias in the clinical practice. Obstetric and gynecologic aspects of hereditary thrombophilias.

5th week:
Lecture: Laboratory diagnostics of antiphospholipid syndrom. Anti-phospholipid syndrome in the clinical practice

6th week:
Lecture: Factors influencing anticoagulation therapy. Novel anticoagulants.
Self Control Test

Requirements

Min. 5, max. 50 students.
Clinical biochemistry II is a prerequisite
Only 1 missed seminar is acceptable.
At the end of the course there will be a written test.

Subject: **PBL IN HAEMOSTASIS**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Seminar: **20**

1st week:
Seminar: Studying of actual hemostasis cases by problem based learning methods.

2nd week:
Seminar: Studying of actual haemostasis cases by problem based learning methods

3rd week:
Seminar: Studying of actual haemostasis cases by problem based learning methods

4th week:
Seminar: Studying of actual haemostasis cases by problem based learning methods

5th week:
Seminar: Studying of actual haemostasis cases by problem based learning methods

6th week:
Seminar: Studying of actual haemostasis cases by problem based learning methods

Requirements

Entrance conditions: min. 5 - max. 20 students.
Clinical biochemistry I is a prerequisite.
Only 1 missed seminar is acceptable.
Students will have to work on and present hemostasis cases during the course.
Examination: Oral case evaluation.

Division of Clinical Physiology

Subject: **INTRODUCTION TO STUDENTS' SCIENTIFIC ACTIVITIES**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **10**

1st week:
Lecture: The position of the students' scientific activities within the medical education (Dr. Zoltán Papp)

2nd week:
Lecture: Truthfulness in scientific research, the system of laboratory notes, ethical considerations (Dr. László Virág)

3rd week:
Lecture: Managing experimental and clinical data (Dr. László Mátyus)

4th week:
Lecture: Practical aspects of students' scientific lectures and theses (Dr. Miklós Fagyas)

5th week:
Lecture: How can one become a successful student researcher? (the student chairman and secretary of the Students' Scientific Society, currently Veronika Sebestyén and Bálint Rehó)

Requirements

AIM of the course: students learn the routine of students' scientific work, the rules and ethics of scientific data collection and publication and get acquainted with the system of medical research.

Topics: personal learning sessions are supported with e-learning lessons (http:\\www.tdk.dote.hu

Division of Operative Techniques and Surgical Research

Subject: **ADVANCED SURGICAL OPERATIVE TECHNIQUES**
Year, Semester: 5th year/1st semester**,** 5th year/2nd semester
Number of teaching hours:
Lecture: **30**
Practical: **12**

1st week:
Lecture: Scrubbing and behaviourial rules in the Operating Theatre. Main principles of surgical hemostasis. Basic surgical techniques of laparotomies, intestinal anastomoses, management of splenic injury and resection of the spleen. Operative techniques of preparation and cannulation of the external jugular vein, arteriotomy and closure of arteries, conicotomy and tracheostomy.

2nd week:
Practical: Overviewing basic surgical techniques on models prior to the living operations.

3rd week:
Practical: Paramedian laparotomy, one layer end-to-end jejuno-jejunostomy. Preparation and cannulation of the external jugular vein. Conicotomy and tracheostomy.

4th week:
Practical: Paramedian laparotomy, spleen stitches, resection of the spleen. Preparation and cannulation of the external jugular vein. Preparation, arteriotomy and suturing of the common carotid artery and femoral artery. Conicotomy and tracheostomy.

5th week:
Practical: Paramedian laparotomy, spleen stitches, resection of the spleen. Preparation and cannulation of the external jugular vein. Preparation, arteriotomy and suturing of the common carotid artery and femoral artery. Conicotomy and tracheostomy.

Requirements

Prerequisite: Basic Microsurgical Training. Introduction to Microsurgery, Basic Laparoscopic Training. Introduction to Laparoscopic Surgery, Surgery II
Aim of the course:
To provide an opportunity for those students, who are interested in specialties which require manual skills before they finish their university studies and start their clinical practice. The course will be based on the knowledge obtained during the “Basic Surgical Technique”, “Surgical Operative Technique”, “Basic Microsurgical Training. Introduction to Microsurgery” and “Basic Laparoscopic Training. Introducion to Laparoscopic Surgery“ compulsory and compulsory elective courses.
Course description: During the course, student will have the opportunity to practice surgical haemostasis, to secure a venous access, to make a venous cutdown, conicotmy, tracheostomy, to perform a laparatomy and to implement the basic surgical techniques in the abdominal cavity in a living tissue (anaesthetized pig). Student will work in teams (3 students/team) in a rotational system.

Subject: **BASIC LAPAROSCOPIC SURGICAL TRAINING**
Year, Semester: 5th year/1st semester**,** 5th year/2nd semester
Number of teaching hours:
Lecture: **5**
Practical: **15**

1st week:
Lecture: History of laparoscopic surgery. Basic principles of laparoscopic surgery. Laparoscopic equipments: insufflator, optics, monitor, laparoscopic instrumentation. (3 hours)Laparoscopic surgical interventions (clinical lecturer). (2 hours)

2nd week:
Practical: Practising the use of laparoscopic instruments in open pelvi-box. Operating in three-dimensional field viewing two-dimensional structure by video-imaging. (3 hours)

3rd week:
Practical: Intracorporal knotting technique on surgical training model in open and closed pelvi-boxes. (4 hours)

4th week:
Practical: Preparation on chicken thigh and practicing intracorporal knotting technique in open and closed pelvi-boxes and MATT (Minimal Access Therapy Technique) trainer. (4 hours)

5th week:
Practical: Cholecystectomy on isolated liver-gallbladder biopreparate model and/or phantom model in closed pelvi-box and MATT (Minimal Access Therapy Technique) trainer. (4 hours)
Self Control Test

Requirements

Prerequisite: Basic Surgical Techniques, Surgical Operative Techniques, Surgery II.
Aim of the course: Students have to learn the laparoscopic equipment and instruments and to perform basic laparoscopic interventions working in open and closed pelvi-box, MATT (Minimal Access Therapy Technique) trainer on surgical training models, phantom models and biopreparate model.
Course description: History and basic principles of endoscopic surgery. The use laparoscopic equipment and instruments. Intracorporeal knotting technique in open and closed pelvi-box on phantom models and biopreparate models.
Cholecystectomy in closed pelvi-box and MATT-trainer on liver-gallbladder phantom model and biopreparate model.

Subject: **BASIC MICROSURGICAL TRAINING. INTRODUCTION TO MICROSURGERY**
Year, Semester: 4th year/1st semester**,** 4th year/2nd semester
Number of teaching hours:
Lecture: **2**
Practical: **10**

1st week:
Lecture: General principles of microsurgery. Operating microscopes. Microsurgical instruments (scissors, forceps, needle-holders, approximating vessel clamps). Microsurgical suture materials and needles. Clinical and experimental application of microsurgery.

2nd week:
Practical: Adaptation to the operating microscope by different magnifications. Harmony between eyes and hands. Scraping letter by letter with needle and microsurgical forceps.

3rd week:
Practical: Preparation and pulling of textil fibers with microsurgical forceps (dry and wet method) by different magnifications. Microsurgical knotting technique with needle-holders and forceps under the microscope.

4th week:
Practical: Various suturing and knotting techniques on pieces of rubber glove.

5th week:
Practical: Arterial anastomosis: end-to-end vascular anastomosis on femoral artery biopreparate model.
Self Control Test

Requirements

Prerequisite: Basic Surgical Techniques, Surgical Operative Techniques
Aim of the course: To learn how to use microscope and microsurgical instruments and to perform different microsurgical interventions.
Course description: Students learn how to use microscope and microsurgical instruments, suture materials and needles. Basic interventions under the microscope by different magnifications to make harmony between eyes and hands.

Knotting technique on training pads and performing end-to-end vascular anastomosis on femoral artery biopreparate model (chicken thigh).

Subject: **SURGICAL BIOMATERIALS**
Year, Semester: 5th year/2nd semester**,** 5th year/1st semester
Number of teaching hours:
Lecture: **12**

1st week:
Lecture: Definition of surgical biomaterials. Different types and their clinical application.

2nd week:
Lecture: Surgical suture materials, classification of them and the main aspects in selection of the appropriate suture material related to different organs.

3rd week:
Lecture: Surgical clips, surgical staplers (clip applying machines) and their application fields.

4th week:
Lecture: Surgical meshes and their application fields.

5th week:
Lecture: Bioplasts - method of action, types, application fields.

6th week:
Lecture: Tissue adhesives - mode of action, types, application fields.
Self Control Test

Requirements

Prerequisite: Surgical Operative Techniques, Basic Microsurgical Training - Introduction to Microsurgery, Surgery II
Aim of the course:
Evoking, deepening, extending the knowledge of surgical biomaterials acquired during the "Basic Surgical Techniques" subject including their clinical application possibilities.
Course description:
Review of the different surgical biomaterials: extending the knowledge of suture materials, surgical clips, surgical staplers, surgical meshes, bioplasts and surgical tissue adhesives showing a lot of slides and video recordings demonstrating the experimental and veterinarian clinical use on different organs.

Subject: **SURGICAL OPERATIVE TECHNIQUES**
Year, Semester: 3rd year/2nd semester**,** 4th year/1st semester
Number of teaching hours:
Lecture: **4**
Practical: **8**

1st week:
Lecture: Overviewing of basic surgical knowledge: handling surgical instruments, basic surgical techniques, pitfalls in suturing techniques. Surgical suture materials. Advanced knotting and suturing techniques.
Practical: Practicing knotting techniques on knotting pads and different suturing techniques on gauze model and on surgical training model (simple interrupted suture line, special interrupted suture line - Donati sutures, simple continuous suture line, suture removal). Evaluation of the suture lines, discussion of pitfalls.

2nd week:
Lecture: Scrubbing. Possible mistakes. Vein preparation, cannulation, preparation of infusion set. Blood sampling and injection techniques.
Practical: Practicing vein preparation and cannulation, preparation of infusion set, blood sampling and injection techniques. Scrubbing. Practising different suturing and knotting techniques on skin biopreparate model in team work.

3rd week:
Lecture: Suturing techniques in vascular surgery.
Practical: Urinary bladder catheterization on phantom model. Vascular sutures on aorta biopreparate model.

4th week:
Lecture: Anastomosis techniques in the surgery of the gastrointestinal tract.
Practical: End-to-end one-layer intestinal anastomosis on small bowel biopreparate model.
Self Control Test

Requirements

Prerequisite: Basic Surgical Techniques
Aij of the course: Evoking, deepening, extending and training of basic surgical knowledge acquired during the "Basic Surgical Techniques" subject, working on different surgical training models, phantom models and biopreparate models in "dry" circumstances.

Course description: Revision of basic surgical techniques. Repeating and practicing basic life saving methods - hemostasis, venous cutdown technique, conicotomy - and basic interventions: wound closure with different suturing techniques, blood sampling and injection (i.m., i.v.) techniques on phantom models and biopreparate models.

Division of Radiotherapy

Subject: **DEALING WITH IRRADIATION INDUCED SIDE EFFECTS**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **5**
Practical: **10**

Requirements

Min. 5, max. 12 students
Aim of the course: Evoking, deepening and extending the oncology knowledge acquired during the internal- and preventive medicine practices and physiology from the view of radiotherapy. Introduce the treatment modalities for irradiation induced various side effects.

Subject: **RADIOTHERAPY IN THE CLINICAL PRACTICE**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Seminar: **15**

1st week:
Seminar: Indication, contraindication of radiotherapy neoadjuvant, adjuvant, palliative treatment

2nd week:
Seminar: Equipment in radiotherapy

3rd week:
Seminar: Teletherapy

4th week:
Seminar: Special teletherapy techniques

5th week:
Seminar: Brachytherapy

6th week:
Seminar: Isotope therapy, eye plaque brachytherapy

7th week:
Seminar: The role of localization of tumor spreeding, lymphnode regions and risk organs

Requirements

The goal is to get to know the process and clinical considerations of radiotherapy (indications, contraindications, equipments).

Kenézy Life Sciences Library, University of Debrecen

Subject: **LIBRARY SYSTEM**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Practical: **10**

1st week:
Practical: Introduction to the Library and library use:
- Traditional services (registration, rules of library usage, loans, reading room, computer lab).
- Electronic services (the Library's home page, online catalogs, anatomy databases and links).

2nd week:
Practical: Electronic Information Resources:
- Electronic journals (EBSCO A-to-Z, Science Direct).
- EBSCOhost Research Data-bases.
- Link collections.

3rd week:
Practical: Databases:
- Medline.
- Impact Factors.

4th week:
Practical: Evidence Based Medicine Synopsis of information retrieval

5th week:
Practical: Test

Requirements

Class attendance!

CHAPTER 20
TITLES OF THESES

Department of Anatomy, Histology and Embryology

1. Title: Inhibition mediated by GABAA and GABAB receptors in the superficial spinal dorsal horn in health and disease
2. Title: Molecular organization of the endogenous cannabinoid signaling apparatus in the superficial spinal dorsal horn in health and disease
Tutor: Miklós Antal M.D., Ph.D., D.Sc.

3. Title: Role of the extracellular matrix in the plasticity of the vestibular system.
4. Title: Termination of the vestibulospinal tract in the rat
Tutor: Klára Matesz M.D.,Ph.D.,D.Sc.

5. Title: Dendritic impulse propagation in mice showing symptoms of Alzheimer's disease – computer modelling
Tutor: Ervin Wolf M.Sc., Ph.D.

6. Title: Basic mechanisms of visual contour integration in the primary visual cortex using voltage sensitive dye imaging.
7. Title: Dendritic integration of inhibitory and excitatoty cortico-cortical inputsin the primary visual cortex
8. Title: Functional mapping of callosal inputs on the dendritic arbour of neurons in the visual cortex
9. Title: Mapping horizontal connections in the human brain.
10. Title: Synaptic mapping of identified excitatory and inhibitory neurons in the primary visual cortex. Immun-electron microscopic study.
Tutor: Zoltán Kisvárday M.Sc., Ph.D., D.Sc.

11. Title: Investigation of signaling mechanisms that regulate cartilage maturation
Tutor: Róza Zákány M.D., Ph.D.

12. Title: Investigation of neuronal network development in the spinal cord
Tutor: Zoltán Mészár M.Sc., Ph.D.

13. Title: Identification of genes and proteins which play important role in the induction and maintenance of chronic inflammatory pain. Supervisior: Krisztina Hollo MSc, PhD
Tutor: Krisztina Holló M.Sc., Ph.D.

14. Title: Correlative physiological and morphological investigation of propriospinal connections in the spinal dorsal horn
Tutor: Zsófia Antal M.D.

Department of Anesthesiology and Intensive Care

1. Title: Experimental testing of the neuromuscular junction
Tutor: Ákos Fábián M.D., Ph.D.

2. Title: Preemptive and preventive analgesia
3. Title: Ultrasound use in anesthesia and critical care
Tutor: Béla Fülesdi M.D., Ph.D., D.Sc.

4. Title: Tako-tsubo cardiomyopathy in neurocritical care conditions
Tutor: Csilla Molnár M.D., Ph.D.

5. Title: Clinical studies in the field of neuromuscular block and its reversal
Tutor: Adrienn Pongrácz M.D.

Department of Behavioural Sciences, Faculty of Public Health

1. Title: Medicalization and its social context
2. Title: Sandor Ferenczi: Clinical Diary and the philosophy of doctor-patient relationship
3. Title: The changing attitudes towards human phenomena in Western medicine
4. Title: The importance of the point of view of psychoanalysis for a humanistic medicine.
Tutor: Attila Bánfalvi M.A., Ph.D., C.Sc.

5. Title: Biological roots of behaviour: the horizon of evolutionary psychology.
6. Title: Culture, health illness: an interdisciplinary analysis.
7. Title: Differential analyses of patient education media and communicational strategies in sociocultural groups and disease groups. (Interdisciplinary research)
8. Title: Emotions and their relation to health.
9. Title: How does the body shape the mind? An interdisciplinary approach to the concept of embodiment
10. Title: Inborn sociality-socialized individuality: the theory and its roots.
11. Title: Non-verbal behaviour: comparative analysis of biological and social aspects.
12. Title: Theory and praxis of junior Bálint groups.
Tutor: Péter Molnár M.D., D.Sc.

13. Title: Ethical and legal issues of genetic research
14. Title: Ethical issues of research in the medical and health sciences
15. Title: Professional ethics and the system of gratitude money in Hungary
16. Title: The ethics of end-of-life decisions
Tutor: Péter Kakuk M.A., Ph.D.

17. Title: Evolutionary Psychopathology

18. Title: Humor and Mental Health
19. Title: Life History Strategy elements in mate choice, attachment, and mental health
Tutor: Roland Tisljár M.A., Ph.D.

Department of Biochemistry and Molecular Biology

1. Title: Apoptosis of differentiating adipocytes
2. Title: Development of effective recombinant tissue transglutaminase production systems. Development of assays to test transglutaminase activity. Studying superGTPase tissue transglutaminases.
Tutor: László Fésüs M.D., Ph.D., D.Sc., M.H.A.Sc.

3. Title: Genetic modification of mesenchymal stem cells and differentiation into macrophages.
4. Title: Investigation of the phagocytosis of apoptotic cells
5. Title: The anti-inflammatory role of adenosine A2A receptor.
6. Title: The anti-inflammatory role of membrane-bound TNFalpha
7. Title: The potential role of LXR receptor in the dexamethasone-induced phagocytosis of apoptotic cells.
8. Title: The role of adenosine A3 receptor in mediating anti-inflammatory action of apoptotic cells.
9. Title: The role of transglutaminase 2 in calcium homeostasis.
Tutor: Zsuzsa Szondy M.D., Ph.D., D.Sc.

10. Title: The role of retroviral proteases in the retroviral life cycle.
Tutor: József Tőzsér M.Sc., Ph.D., D.Sc.

11. Title: The role of tissue transglutaminase in rolling and adhesion of neutrophil granulocytes
Tutor: Zoltán Balajthy M.Sc., Ph.D.

12. Title: Saliva biomarkers of oral cancer.
Tutor: Beáta Scholtz M.Sc., Ph.D.

13. Title: Production of dendritic cells and macrophages from embryonic stem cells.
14. Title: Transcriptional reprogramming of murine embryonic stem cell progenitors.
Tutor: István Szatmári M.Sc., Ph.D.

15. Title: The epigenetic components of transcriptional regulation.
Tutor: Bálint Bálint L. M.D., Ph.D.

16. Title: Identification and regulation of the endogenous RXR ligand.
Tutor: Ralph Rühl M.Sc., Ph.D.

17. Title: Modification of the enzymatic activity of transglutaminase 2 by site-directed mutagenesis. Therapeutic utilization of modified transglutaminase 2.
Tutor: Róbert Király M.Sc., Ph.D.

18. Title: Characterization of primary cells from patients with high risk for coeliac disease: immunofluorescent staining, migration assays, mobility assays.
19. Title: The effect of auto-antibodies from coeliac disease patients on the activity of tissue transglutaminase. Epitope mapping of auto-antibodies, development of a specific diagnostic test for coeliac disease, therapeutic applications.
Tutor: Ilma Korponay-Szabó M.D., Ph.D.

20. Title: Quantitative proteomic analysis of the tear proteins of diabetic patients.
Tutor: Éva Csősz M.Sc., Ph.D.

21. Title: Identification of regulatory SNPs in promoter regions of different species by bioinformatic analyses.
Tutor: Endre Barta M.Sc., Ph.D.

22. Title: The role of aim2 protein and native immune response in inhibiting cell proliferation
Tutor: Máté Demény M.D.,Ph.D.

23. Title: Alterations in structural properties of the transcription machinery in relation to disease development
24. Title: Molecular factors in cell differentiation
25. Title: Studying the re-programming mechanisms of viral proteins.
26. Title: The role of signaling pathway perturbations in cancer development
Tutor: Mónika Fuxreiter M.Sc., Ph.D., D.Sc.

Department of Cardiology

1. Title: Ablation of atrial fibrillation
Tutor: Zoltán Csanádi M.D., Ph.D.

2. Title: 3-dimensional reconstruction of coronary angiography
Tutor: Zsolt Kőszegi M.D., Ph.D.

3. Title: Echocardiographic aspects of left atrial appendage closure
4. Title: Fabry-disease
Tutor: Attila Kertész M.D., Ph.D.

5. Title: Device-therapy of heart failure
Tutor: Orsolya Bene M.D.

Division of Cardiac Surgery

1. Title: Evaluation of the antibacterial effect of different skin preparation techniques in cardiac surgery
2. Title: The effect of carbon dioxide deairing during valve surgery - review of the literature
Tutor: Tamás Szerafin M.D., Ph.D.

3. Title: Short-term results of operations accomplished in A-type aortic dissections
Tutor: Tamás Maros M.D.

4. Title: Mitral valve repair-review of the literature
Tutor: István Szentkirályi M.D.

5. Title: Mid-term results of aortic valve sparing operations
Tutor: Ambrus Horváth M.D.

6. Title: Comparison of the effects of different anticoagulation therapies after aortic bioprothesis implantation.
Tutor: Lehel Palotás M.D.

Department of Family and Occupational Medicine, Faculty of Public Health

1. Title: Evaluation of the primary health care system of.....(the country of origin of student). Recommendations for changes
2. Title: Nutritional factors in prevention and development of diseases
3. Title: The roles of physical activity in disease prevention
Tutor: Imre Rurik M.D., M.Sc., Ph.D., D.Sc.

4. Title: Advantages of computer-aided diagnosis in primary care
5. Title: Evaluation of the primary health care system of .....(the country of origin of student). Recommendations for changes
6. Title: Health impairment related to occupational hazard
7. Title: Work related stress and burnout amongst healthcare workers
Tutor: László Róbert Kolozsvári M.D., Ph.D.

8. Title: Effects of burnout on work efficiency
9. Title: Psychosocial etiological factors in the workplace
10. Title: Stress as a risk factor in the working environment
Tutor: Tímea Ungvári M.Sc.

Department of Biophysics and Cell Biology

1. Title: Investigation of cell surface distribution of erbB-2 oncoprotein in breast tumor cell lines.
2. Title: Role of tumor stem cells in trastazumab resistant breast tumors
Tutor: János Szöllősi M.Sc., Ph.D., D.Sc.

3. Title: Studying the inactivation of voltage gated potassium ion channels in heterologous expression systems.
Tutor: György Panyi M.D., Ph.D., D.Sc.

4. Title: Epigenetic regulation of nucleosome-DNA cohesion
5. Title: Interactions between ABC transporters and their membrane environment
Tutor: Gábor Szabó M.D., Ph.D., D.Sc.

6. Title: Mathematical analysis and computer modelling of the topology of cell surface proteins.
7. Title: Role of MHC in the organization of cell surface proteins
Tutor: László Mátyus M.D., Ph.D., D.Sc.

8. Title: Examination of the channel function properties of the P170 multidrug pump by patch-clamp.
Tutor: Zoltán Krasznai M.Sc., Ph.D.

9. Title: Cytometry of cytotoxic lymphocytes
10. Title: Physiological roles of the multidrug resistance transporter P-glycoprotein.
Tutor: Zsolt Bacsó M.D., Ph.D.

11. Title: Elucidation of the catalytic mechanism of ABC transporters
Tutor: Katalin Goda M.Sc., Ph.D.

12. Title: 3-dimensional reconstruction of chromosome conformations based on whole-genome contact probability data
13. Title: Histone point mutations affecting epigenetic modifications: impact on chromosome architecture
Tutor: Lóránt Székvölgyi M.Sc., Ph.D.

14. Title: Biophysical analysis and functional significance of cell surface protein patterns in T cell-mediated immune responses
Tutor: Andrea Dóczy-Bodnár M.Sc., Ph.D.

15. Title: Studying nuclear receptor function by modern microsocpy techniques
Tutor: György Vámosi M.Sc., Ph.D.

16. Title: Quantitative investigation of the associations of ErbB proteins using biophysical and molecular biological methods
17. Title: The correlation between the metastatic potential and chemoresistance of breast tumors with the expression level and association state of ErbB proteins
Tutor: Péter Nagy M.D., Ph.D.

18. Title: Molecular mechanisms of anticancer immune therapy.
19. Title: Role of molecular interactions between receptor tyrosine kinases and integrins in the therapy resistance of tumors.
Tutor: György Vereb M.D., Ph.D., D.Sc.

20. Title: Comparative study on Kv1.3 channels conjugated with fluorescent proteins
Tutor: Péter Hajdu M.Sc., Ph.D.

Division of Cardiology

1. Title: Ablation in atrial fibrillation
2. Title: Novel treatment modalities in atrial fibrillation (catheter ablation, surgery and pacemakers)
Tutor: Zoltán Csanádi M.D., Ph.D.

3. Title: 3-D reconstruction of coronarography
Tutor: Zsolt Kőszegi M.D., Ph.D.

4. Title: Cardiovascular aspects of diabets mellitus
5. Title: Left ventricular function of obese patients.
Tutor: Tibor Fülöp M.D., Ph.D.

6. Title: Antithrombotic therapy in patients with ischaemic heart disease.
Tutor: Tibor Szűk M.D., Ph.D.

7. Title: Supraventicular arrhythmias.
Tutor: Csaba Kun M.D.

8. Title: The role of echocardiography in staving off complication of myocardial infarction.
Tutor: Ildikó Farkas-Rácz M.Sc.

9. Title: Stem cell therapy after myocardial infarction.
Tutor: László Balogh M.D.

10. Title: Aspirin - resistency
Tutor: Nóra Homoródi M.D.

11. Title: Cardiovascular complications of dermatomyositis.
Tutor: Andrea Péter M.D.

12. Title: Electrical treatment modalities in heart failure
Tutor: Orsolya Bene M.D.

13. Title: Secondary prevention after primary PCI.
Tutor: László Fülöp M.D., Ph.D.

Division of Clinical Physiology

1. Title: Improvement of myocardial inotropy under physiological and pathological conditions
Tutor: Zoltán Papp M.D.

2. Title: The role of posttranslational modifications in the contractile regulation of the heart.
3. Title: The role of vanilloid receptors in cardiovascular regulatory mechanisms
Tutor: Attila Tóth M.Sc., Ph.D., D.Sc.

Department of Human Genetics

1. Title: Characterization of factor-C protein family using sequence databases.
2. Title: Expression of WT1 and its splice variants in different diseases studied by real time PCR.
3. Title: Study of a gene regulating differentiation in bacteria.
4. Title: Study of the WT1 gene in urogenital malformations.
Tutor: Sándor Biró M.Sc., Ph.D., D.Sc.

5. Title: Human disease models in animals and lower eukaryotes (review).
Tutor: Zsigmond Fehér M.D., Ph.D.

6. Title: Ca++-binding proteins in Streptomyces

7. Title: Isolation of mono-ADP-ribosylated proteins from pro- and eukaryotic cells.
Tutor: András Penyige M.Sc., Ph.D.

8. Title: Chromosome-tracking studies in complex diseases.
Tutor: György Vargha M.D., Ph.D.

9. Title: Factor-C: a protein regulating differentiation in Streptomycetes.
Tutor: Judit Keserű M.Sc., Ph.D.

10. Title: Functional analysis of the Streptomyces facC gene in Aspergillus
Tutor: Melinda Paholcsek M.Sc.

11. Title: Global analysis of the human blood plasma epitome and interactome in health and disease.
12. Title: Use of comparative monoclonal antibody proteomics to detect three dimensional conservation relevant to protein function.
Tutor: László Takács M.D., Ph.D., D.Sc., M.H.A.Sc.

13. Title: Copy number variation of WT-1 gene in hematological conditions
Tutor: Dániel Ernő Beyer M.Sc., Ph.D.

14. Title: Factor-A mediated regulation of differentiation in Streptomyces griseus
Tutor: Melinda Szilágyi-Bónizs M.Sc., Ph.D.

Department of Immunology

1. Title: Phenotypic and functional properties of dendritic cells
Tutor: Éva Rajnavölgyi M.Sc., Ph.D., D.Sc.

2. Title: Functional properties of proteins of SLAM receptor family in dendritic cells
3. Title: Identification and functional analysis of adaptor proteins in dendritic cells
Tutor: Árpád Lányi M.Sc., Ph.D.

4. Title: Investigation of effects of adjuvant factors released by allergenic materials on epithelial cells
5. Title: Role of reactive oxygen species generated by pollen grains in the pathomechanisms of allergic reactions
Tutor: Attila Bácsi M.Sc., Ph.D.

6. Title: Cellular interactions between dendritic cells and CD1 specific T-lymphocytes
Tutor: Péter Gogolák M.Sc., Ph.D.

7. Title: Study of non-apoptotic cytotoxic processes during immune response, new way of killing apoptosis resistant tumor cells
Tutor: Gábor Koncz M.Sc., Ph.D.

Division of Clinical Oncology

1. Title: New therapic targets in breast cancer treatment

2. Title: Prognostic and predictive factors of breast cancer
Tutor: Zsolt Horváth M.D., Ph.D.

3. Title: Endocrine therapy of breast cancer
Tutor: Judit Kocsis M.D., Ph.D.

Department of Laboratory Medicine

1. Title: Investigation of thrombosis and inflammation in PSGL-1 deficiency.
2. Title: The effect of thrombotic and inflammatoric stimuli on platelet activation
Tutor: János Kappelmayer M.D., Ph.D., D.Sc.

3. Title: Functional analysis of antimicrobial fusion proteins
4. Title: Molecular genetic diagnostics of hematological and other malignant diseases
Tutor: Péter Antal-Szalmás M.D., Ph.D.

5. Title: Molecular genetic diagnosis of cystic fibrosis
6. Title: Molecular genetic diagnosis of severe inherited disease
Tutor: István Balogh M.Sc., Ph.D.

7. Title: Analysis of stem cell mobility during pheripherial stem cell transplantation
8. Title: Application of FXIII-A in the detection of minimal residual disease in acute lymphoblastic leukemia
Tutor: Zsuzsa Hevessy M.D., Ph.D.

9. Title: Laboratory diagnostic of osteoporosis
Tutor: Harjit Pal Bhattoa M.D., Ph.D.

10. Title: Applications of calculated GFR
Tutor: Anna Oláh M.Sc., Ph.D.

11. Title: The significance of the laboratory investigation of HE4 in cystic fibrosis
Tutor: Béla Nagy Jr. M.D., Ph.D.

Division of Radiotherapy

1. Title: Dealing with irradiation induced side effects
2. Title: Neoadjuvant radio-chemotherapy of rectal cancer
3. Title: Palliative and supportive care in radiooncology
4. Title: Radiotherapy of breast cancer
Tutor: Andrea Furka M.D., Ph.D.

Division of Clinical Laboratory Science

1. Title: Correlation of FXIII levels and FXIII-B subunits polymorphisms with the risk of deep vein thrombosis
2. Title: New chromogenic assay to detect APC resistance
Tutor: László Muszbek M.D., Ph.D., D.Sc., M.H.A.Sc.

3. Title: Effect of alfa2-plasmin inhibitor polymorphisms on the risk of thrombosis
4. Title: Effect of FXIII on smooth muscle cell functions
5. Title: Investigation of alfa2-plasmin inhibitor and fibrinogen interaction
6. Title: Method development for the detection of various alpha2 plasmin inhibitor isoforms
Tutor: Éva Katona M.D., Ph.D.

7. Title: Inherited hemostasis disorders; laboratory and molecular genetic aspects
8. Title: Laboratory monitoring of the new generation oral anticoagulants
9. Title: New diagnostic methods in Protein S deficiency.
Tutor: Zsuzsanna Bereczky M.D., Ph.D.

10. Title: Characterization oh the heparin-antithrombin interaction with surface plasmon resonance
11. Title: Coagulation factor and inhibitor levels in end-stage renal disease
12. Title: The interactions of blood coagulation factor XIII B subunit with different proteins
Tutor: Krisztina Pénzes-Daku M.Sc., Ph.D.

13. Title: Hybrid quantum mechanics - molecular mechanics (QM/MM) calculations on biological systems
Tutor: István Komáromi M.Sc., Ph.D.

14. Title: Fibrinolytic marker levels and polymorphisms in ischemic stroke patients
15. Title: Local hemostasis alterations in the left atrium of patients with atrial fibrillation
Tutor: Zsuzsa Bagoly M.D., Ph.D.

Department of Dermatology

1. Title: Ablative laser treatment in Hailey-Hailey disease
2. Title: Genetic susceptibility in psoriasis
3. Title: Laser therapy of vascular skin lesions
4. Title: Lipid metabolism in psoriasis
Tutor: Éva Remenyik M.D., Ph.D., D.Sc.

5. Title: Importance of sentinel node dissection in the complex therapy of melanoma
6. Title: Modern moist wound dressings with simultaneous effective antibacterial properties in the treatment of difficult to heal wounds
7. Title: Possibilities of biotechnological skin substitution in the treatment of burns
8. Title: Possibilities of cell therapy in the treatment of burns
9. Title: Possibilities of scar correction
Tutor: István Juhász M.D., Ph.D., C.Sc.

10. Title: Pathogenesis and treatment of diabetic-foot
Tutor: Éva Szabó M.D., Ph.D.

11. Title: Significance of compression therapy in treating venouos leg ulcer
Tutor: Zoltán Péter M.D.

12. Title: Biological therapy in psoriasis - mechanism of action and reasons for secunder loss of response
13. Title: New approaches in the classification and therapy of chronic urticaria
Tutor: Krisztián Gáspár M.D., Ph.D.

14. Title: New therapies in severe psoriasis vulgaris
15. Title: Opalizumab therapy in chronic urticaria
Tutor: Andrea Szegedi M.D., Ph.D., D.Sc.

Department of Medical Chemistry

1. Title: Investigation of Ser/Thr protein phosphatase on pathogenic fungi
Tutor: Viktor Dombrádi M.Sc., Ph.D., D.Sc.

2. Title: Interaction of protein phosphatase 1 catalytic subunit with regulatory proteins
Tutor: Ferenc Erdődi M.Sc., Ph.D., D.Sc.

3. Title: Mechanism of oxidative stress-induced cell death
4. Title: Regulation of macrophage functions
Tutor: László Virág M.D., Ph.D., D.Sc.

5. Title: Scaffolding proteins in the endothelium
Tutor: Csilla Csortos M.Sc., Ph.D.

6. Title: Structural and functional investigation of a fungus specific protein phosphatase
Tutor: Ilona Farkas M.Sc., Ph.D.

7. Title: Study of metabolic processes with special regard to the involvement of mitochondrial activity.
Tutor: Péter Bay M.Sc., Ph.D.

8. Title: Identification of adenosine receptor 2A interacting proteins in macrophages
Tutor: Endre Kókai M.Sc., Ph.D.

9. Title: Study of the role of protein phosphatase in wound healing
Tutor: Beáta Lontay M.Sc., Ph.D.

10. Title: Interaction of protein phosphatases with inhibitory molecules
Tutor: Andrea Kiss M.Sc., Ph.D.

11. Title: High-Throughput Screening
Tutor: Csaba Hegedűs M.Sc., Ph.D.

Department of Infectious Diseases and Pediatric Immunology

1. Title: Antimicrobial host defense mechanisms in mature newborns
2. Title: Conjugated vaccines in the pediatric practice
3. Title: DNA vaccines
4. Title: Nosocomial infections in pediatric care units
5. Title: Passive immunization with immunoglobulins
Tutor: László Maródi M.D.,Ph.D.,D.Sc.

6. Title: Complicated varicella infections
7. Title: EBV infection in children
8. Title: Enzyme replacement therapy in Gaucher disease
9. Title: Etiopathology of infections in hyper-IgM syndrome
10. Title: Expression and function of mutated proteins in Shwachman-Diamond syndrome
11. Title: Intravenous immunoglobulin therapy in autoimmune disorders
12. Title: Invasive pneumococcal infections in primary immunodeficiency disorders
13. Title: Lyme-disease
14. Title: Pneumococcal polysaccharide vaccines
15. Title: Principle and practice of antimicrobial therapy
16. Title: Selective antipolysaccharide antibody deficiency
17. Title: The clinics, pathomechanism and molecular genetics of Shwachman-Diamond syndrome
18. Title: WHIM syndrome
Tutor: Melinda Erdős M.D., Ph.D.

19. Title: AIDS in pediatric population
Tutor: Mohamed Mahdi M.D.

20. Title: C.difficile infection in infectious pediatric cave units
21. Title: Antifungal chemotherapy
22. Title: Molecular genetic analysis of APECED syndrome
23. Title: Mucocutan candida infections
24. Title: Principle and practice in the treatment of the lower respiratory tract infections
Tutor: Adrien Katalin Sarkadi M.D., Ph.D.

25. Title: Clinical manifestations and molecular pathology of hyper-IgE syndrome
Tutor: Ágnes Mata-Hársfalvi M.D.

26. Title: Differencial diagnosis of neutropenia
27. Title: Enzyme replacement therapy in Fabry disease
Tutor: Éva Anna Kenéz M.D.

Department of Medical Microbiology

1. Title: Antimicrobial cell-mediated immunity measured by mRNA tests
Tutor: József Kónya M.D., Ph.D.

2. Title: Evaluation of in vitro efficacy of different new antibiotics against multiresistant bacteria
Tutor: Judit Szabó M.D., Ph.D.

3. Title: Role of HPV in head and neck cancers
Tutor: Krisztina Szarka M.Sc., Ph.D.

4. Title: Evaluation of fungicidal effect of antifungal agents using time-kill curves
5. Title: New and older agents in antifungal chemotherapy
Tutor: László Majoros M.D., Ph.D.

6. Title: Effects of human papillomavirus oncoproteins on the activity of cytoplasmic kinases in keratinocytes
Tutor: Anita Szalmás M.Sc., Ph.D.

7. Title: Molecular epidemiology of aminoglycoside resistance in nosocomial Gram negative bacteria
Tutor: Gábor Kardos M.D., Ph.D.

8. Title: Intratypical variation of human papilloma viruses
Tutor: György Veress M.Sc., Ph.D.

9. Title: Epidemiological characterisation of clinical MRSA isolates
Tutor: Zsuzsanna Dombrádi M.Sc., Ph.D.

10. Title: Prevalance of multidrug-resistant Acinetobacter baumanii in bloodstream infection
Tutor: Anita Kozák M.D.

Department of Internal Medicine

1. Title: Immunotherapy of B cell lymphomas.
2. Title: Safety profile of prolonged rituximab therapy in lymphomas.
3. Title: Targeted therapy in non-Hodgkin's lymphomas
Tutor: Lajos Gergely M.D., Ph.D., D.Sc.

4. Title: Clinical testing of sinus node function.
Tutor: Péter Kovács M.D., DLA, Ph.D., D.Sc.

5. Title: Lipid abnormalities in hypothyreoidism.
6. Title: The function of LDL in lipid metabolism
Tutor: György Paragh M.D., Ph.D., D.Sc.

7. Title: Diagnostic tests and imaging techniques in endocrinology.
Tutor: Endre Nagy M.D., Ph.D., D.Sc.

8. Title: Antiarrhythmic drug treatment.
9. Title: Cardiac arrhythmias in patients end-stage renal failure.
10. Title: Pacemaker treatment and myocardial infarction.
11. Title: Pathophysiology of neurocardiogenic syncope.
12. Title: Rhythm disturbances and the autonomic system of the heart.
13. Title: Ventricular repolarization and drugs.
Tutor: István Lőrincz M.D., Ph.D.

14. Title: Investigations of lipoproteins in normo- and hypercholesterinemic patients.
Tutor: Judit Boda M.D.

15. Title: Characteristics of rare systemic vasculitides
16. Title: Sjögren's syndrome associated with other autoimmune disease
Tutor: Margit Zeher M.D., Ph.D., D.Sc.

17. Title: Effect of physical activity on physiological parameters elderly people
18. Title: Incidence of thyroid diseases in elderly.
Tutor: Gyula Bakó M.D., Ph.D., D.Sc.

19. Title: Immunoregulatory abnormality in undifferentiated connective tissue disease
20. Title: Interstitial lung diseases in MCTD.
21. Title: The presence of antiphospholipide antibodies in the disease course of the MCTD
22. Title: Vascular involvement in mixed connective tissue disease.
23. Title: Vascular risk factors in undifferentiated connective tissue disease
Tutor: Edit Bodolay M.D., Ph.D., D.Sc.

24. Title: Dermato/polymyositis overlap with antiphospolipide syndrome.
25. Title: Genetical study in myositis
26. Title: Improvement of quality of life in polymyositis and dermatomyositis patients by physiotherapy
Tutor: Katalin Dankó M.D.,Ph.D.,D.Sc.

27. Title: Plasmapheresis treatment in intensive therapy
Tutor: Pál Soltész M.D., Ph.D., D.Sc.

28. Title: Autoimmune disorders and GI tract
Tutor: Zsolt Barta M.D., Ph.D.

29. Title: Ischemic colitis.
30. Title: Life quality of Raynaud syndrome
Tutor: Zoltán Csiki M.D., Ph.D.

31. Title: The disease course after stent inplantation in peripheral arterial disease
Tutor: György Kerekes M.D., Ph.D.

32. Title: Novel therapeutical approaches in multiple myeloma
33. Title: The impact of multi-drug resistance genes in the prognosis of lymphoproliferative disorders
Tutor: László Váróczy M.D., Ph.D.

34. Title: Inherited and acquired thrombophilia
35. Title: New direct oral anticoagulants
36. Title: Stem cell therapy in peripheral arterial disorders
Tutor: Zoltán Boda M.D.,Ph.D.,D.Sc.

37. Title: Gastric cancer: clinics and treatment
38. Title: Gastrointestinal bleeding
39. Title: Gluten sensitive enteropathy
40. Title: Inflammatory bowel diseases.
41. Title: Lymphomas in the gastrointestinal tract.
Tutor: István Altorjay M.D.,Ph.D.

42. Title: Langerhans histiocytosis
43. Title: Osteosclerotic myeloma
44. Title: Therapeutic challenges in rare haemostatic disorders
Tutor: György Pfliegler M.D., Ph.D.

45. Title: Epidemiology, diagnostics and therapy of chronic hepatitis C
46. Title: Pathomechanism of alcoholic hepatitis
47. Title: Signs, diagnostics and treatment of portal hypertension.
48. Title: Therapeutic options in primary sclerotizing cholangitis
49. Title: Treatment of autoimmune hepatitis
Tutor: István Tornai M.D., Ph.D.

50. Title: A case history of an interesting acute myeloid leukaemia patient in the 2nd Department of Medicine (connection with the literature data)
Tutor: Attila Kiss M.D., Ph.D.

51. Title: Chronic neutrophilic leukaemia
Tutor: Béla Telek M.D., Ph.D.

52. Title: Therapeutic options of CML
Tutor: László Rejtő M.D., Ph.D.

53. Title: Biological treatment of ulcerative colitis
Tutor: Károly Palatka M.D., Ph.D.

54. Title: The role of Willebrand factor in various internal diseases.
Tutor: Ágota Schlammadinger M.D., Ph.D.

55. Title: Bacterial infection in liver cirrhosis
56. Title: Current therapeutic options of acute pancreatitis
Tutor: Zsuzsa Vitális M.D., Ph.D.

57. Title: Diagnosis and treatment of chronic lymphocytic leukemia
58. Title: Novel therapeutic approaches in the treatment of multiple myeloma
59. Title: Philadelphia negative chronic myeloproliferative neoplasms - novel genetic and therapeutic improvements
60. Title: Recent advances in the management of chronic ITP
Tutor: Péter Batár M.D., Ph.D.

61. Title: Heparin-induced thrombocytopenia
Tutor: Zsolt Oláh M.D.

62. Title: Are the bacterial infections predictable in liver cirrhosis?
63. Title: Role of serological markers in prediction of disease course and response to therapy in inflammatory bowel diseases.
Tutor: Mária Papp M.D., Ph.D.

Department of Pathology

1. Title: Molecular classification of glial neoplasms
2. Title: Overview of non-adenohypophysaer neoplastic lesion within and around the sella
3. Title: Use of IDH-1 immunohistochemistry in surgical neuropathology
Tutor: Péter Molnár M.D., D.Sc.

4. Title: Chromosome copy number and mutant allele density in cancer
5. Title: Expression of Aurora-kinases in lymphoproliferative diseases
6. Title: Mitotic rate and histone phosphorylation in cancer
Tutor: Gábor Méhes M.D., Ph.D.

7. Title: Clinicopathological studies in haemorrhagic stroke
8. Title: Clinicopathological studies in ischaemic stroke
9. Title: Molecular pathology of glial brain tumours
10. Title: Pathomechanisms of cell death in neurodegenerative diseases
Tutor: Tibor Hortobágyi M.D.,Ph.D.

Department of Pharmacology and Pharmacotherapy

1. Title: Cardiovascular risk factors
2. Title: Metabolic link between obesity and insulin resistance
Tutor: Zoltán Szilvássy M.D., Ph.D., D.Sc.

3. Title: Optional title in pharmacology
4. Title: Pharmacological and clinical significance of adenosine receptor antagonists
Tutor: József Szentmiklósi M.D., Ph.D.

5. Title: New trends in the treatment of diabetes
6. Title: Optional title in pharmacology
7. Title: Pharmacology of herbal remedies
8. Title: Possible pharmacological exploitations of TRPV1 receptors
Tutor: Róbert Pórszász M.D.,Ph.D.,MBA

9. Title: Effect of colony stimulating factors or other drugs on bone marrow-derived cell lines
10. Title: How insulin resistance influences drug effects
11. Title: Selected topic in field experimental hemato-oncology
Tutor: Ilona Benkő M.D., Ph.D.

12. Title: Investigation of insulin resistance and its cardiovascular complications
13. Title: Pharmacology of neurogenic inflammation
Tutor: Barna Peitl M.D., Ph.D.

14. Title: Optional title on cancer chemotherapy
Tutor: Attila Megyeri M.D., Ph.D.

15. Title: Optional title in pharmacology
Tutor: Ágnes Cseppentő M.D.

16. Title: Optional title on antibacterial chemotherapy
Tutor: Zsuzsanna Gál M.Sc., Ph.D.

Department of Physiology

1. Title: Alterations of [Ca2x]; in pathological conditions
Tutor: László Csernoch M.Sc., Ph.D., D.Sc.

2. Title: Electrophysiological properties of mammalian cardiac tissues
3. Title: Regional differences in the electrophysiological properties of cardiomyocytes
Tutor: Péter Nánási M.D., Ph.D., D.Sc.

4. Title: Significance of the alterations of the intracellular ion concentrations in the functional properties of neurones.
Tutor: Géza Szűcs M.D., Ph.D., D.Sc.

5. Title: Role of afterdepolarization mechanisms in the arrhythmogenesis
Tutor: Tamás Bányász M.D., Ph.D.

6. Title: Differential roles of protein kinase C isozymes in different cellular functions
7. Title: Studies on the vanilloid (capsaicin) receptor
Tutor: Tamás Bíró M.D., Ph.D., D.Sc.

8. Title: Expression and significance of the TASK channels in physiological and pathological conditions
Tutor: János Magyar M.D.,Ph.D., D.Sc.

9. Title: Studies on ion channels incorporated into artificial membranes
Tutor: István Jóna M.Sc., Ph.D., D.Sc.

Division of Gastroenterology

1. Title: Gastric cancer: clinics and treatment
2. Title: Gastrointestinal bleeding
3. Title: Gluten sensitive enteropathy
4. Title: Inflammatory bowel diseases
5. Title: Lymphomas in the gastrointestinal tract
Tutor: István Altorjay M.D.,Ph.D.

6. Title: Epidemiology, diagnostics and therapy of chronic hepatitis C
7. Title: Pathomechanism of alcoholic hepatitis
8. Title: Signs, diagnostics and treatment of portal hypertension
9. Title: Therapeutic options in primary sclerotizing cholangitis
10. Title: Treatment of autoimmune hepatitis
Tutor: István Tornai M.D.,Ph.D.

11. Title: Biological treatment of ulcerative cholitis
Tutor: Károly Palatka M.D., Ph.D.

12. Title: Are the bacterial infections predictable in liver cirrhosis?
13. Title: Role of the serological markers in prediction of disease course and response to therapy in inflammatory bowel diseases
Tutor: Mária Papp M.D., Ph.D.

14. Title: Bacterial infection in liver cirrhosis
15. Title: Current therapeutic options of acute pancreatitis
Tutor: Zsuzsanna Vitális M.D., Ph.D.

Division of Haematology

1. Title: Immuno-chemotherapy in B-cell non-Hodgkin lymphomas
2. Title: Infections during aggressive therapies in lymphoma patients
3. Title: New monoclonal antibody based therapeutic approaches in the treatment of hematologic malignancies.
4. Title: Next generation sequencing and identification of mutations in lymphomas. New targets in therapy.
5. Title: The role of miRNA in the pathogenesis of lymphomas, possible targets for therapy
6. Title: Vaccination based therapies in lymphomas
Tutor: Lajos Gergely M.D., Ph.D., D.Sc.

7. Title: Examination of polyneuropathy in multiple myeloma patients treated with bortezomib
8. Title: New treatment approaches in multiple myeloma
9. Title: The role of autologous stem cell transplantation in the treatment of autoimmune disorders
10. Title: Treatment results in our multiple myeloma patients
Tutor: László Váróczy M.D., Ph.D.

11. Title: Therapeutic options of CML
Tutor: László Rejtő M.D., Ph.D.

12. Title: Diagnosis and treatment of chronic lymphocytic leukemia
13. Title: Novel therapeutic approaches in the treatment of multiple myeloma
14. Title: Philadelphia negative myeloproliferative meoplasms - novel genetic and therapeutic improvements
15. Title: Recent advances in the management of chronic ITP
Tutor: Péter Batár M.D., Ph.D.

Division of Rare Diseases

1. Title: Langerhans histiocytosis
2. Title: Osteosclerotic myeloma
3. Title: Therapeutic challenges in rare haemostatic disorders
Tutor: György Pfliegler M.D., Ph.D.

Division of Rheumatology

1. Title: Cardiopulmonary manifestation in systemic sclerosis
2. Title: Pulmonary arterial hypertension in systemic sclerosis.
Tutor: Gabriella Szűcs M.D., Ph.D.

3. Title: Rheumatology 2015 - modern diagnostics and therapy.
Tutor: Zoltán Szekanecz M.D., Ph.D., D.Sc.

4. Title: Quality of life in systemic sclerosis
Tutor: Szilvia Szamosi M.D.,Ph.D.

5. Title: Diagnosis and therapy of early arthritis
Tutor: Nóra Bodnár M.D.

6. Title: Extra-articular manifestations of ankylosing spondylitis
7. Title: Modern treatment of spondyloarthritides
Tutor: Sándor Szántó M.D.,Ph.D.

8. Title: Efficacy of long-term therapy with biological agents in rheumatoid arthritis.
Tutor: Ágnes Horváth M.D.

Department of Neurology

1. Title: Cerebral hemodynamics and cognitive dysfunction in treated and non-treated stroke patients
2. Title: Neurosonological investigations in acute and chronic stroke patients
3. Title: Non-invasive investigation of endothelial dysfunction.
Tutor: László Csiba M.D., Ph.D., D.Sc.

4. Title: Comorbidity in Multiple sclerosis
Tutor: Tünde Csépány M.D., Ph.D.

5. Title: Effect collateral circulation from the external carotid artery in patients with unilateral internal carotid artery occlusion.
6. Title: Effect of actual blood pressure on the cerebrovascular reactivity.
Tutor: László Oláh M.D., Ph.D.

7. Title: Cardiovascular risk in sleep apnea.
8. Title: Hypoxic stress and its consequenses in sleep apnea.
9. Title: Obesity and sleep apnea.
Tutor: Tünde Magyar M.D., Ph.D.

Department of Neurosurgery

1. Title: Comparison of cerebral vasopasm following endovascular or surgical treatment of aneurysmal rupture
2. Title: Do middle cerebral artery aneurysms exhibit right sided dominance?
3. Title: Treatment of multiple cerebral metastases: clinical results
Tutor: Sándor Szabó M.D., Ph.D.

4. Title: Current treatment of multiloculated hydrocephalus.
5. Title: Surgical treatment of lesional epilepsy
Tutor: László Novák M.D., Ph.D.

6. Title: Connection of proteoglycans and cell membrane receptors in the peritumoral extracellular matrix
Tutor: Álmos Klekner M.D., Ph.D.

7. Title: History of neurosurgical radiosurgery.
Tutor: József Dobai M.D.

8. Title: Vertebroplasty.
Tutor: Péter Ruszthi M.D.

Department of Nuclear Medicine

1. Title: Development of E-learning material for nuclear medicine
Tutor: József Varga M.Sc., Ph.D.

2. Title: Analysis of metabolic and morphologic pattern of breast cancer in case of the diameters larger then 3 cm
3. Title: Posttherapeutic I-131 whole body SPECT/CT in patients with thyroid cancer
4. Title: The role of Tc99m-Tektrotyd SPECT/CT to evaluate metastatic neuroendocrine tumors
Tutor: Ildikó Garai M.D., Ph.D.

5. Title: Localisation of anatomical regions on CT scans with machine learning methods
Tutor: Zoltán Barta M.D.

6. Title: Screening of thyroid malignancy with scintigraphic methods (Tc99m pertechnetate and MIBI)
Tutor: Orsolya Sántha M.D.

Department of Obstetrics and Gynecology

1. Title: Clinical trials of new drugs for the treatment of osteoporosis
Tutor: Ádám Balogh M.D., Ph.D., D.Sc.

2. Title: Diagnosis and Treatment of Endometrial Cancer
3. Title: Diagnosis and Treatment of Ovarian Cancer
4. Title: Diagnosis and Treatment of Vulvar Cancer
5. Title: Screening /Diagnosis and Treatment of Cervical Cancer
Tutor: Zoltán Hernádi M.D., Ph.D., D.Sc.

6. Title: Labour induction
Tutor: Tamás Major M.D., Ph.D.

7. Title: Non-invasive prenatal testing for chromosomal aneuploidies
Tutor: Olga Török M.D., Ph.D.

8. Title: Efficiency and safety of first line chemotherapy in ovarian cancer
9. Title: Efficiency and safety of second and subsequent line chemotherapy in ovarian cancer
10. Title: Efficiency of HPV vaccination
11. Title: Fetal assessment by biophysical profile
12. Title: Marker studies in ovarian cancer
13. Title: Molecular medicine and ovarian cancer
14. Title: Molecular medicine and prenatal diagnosis
15. Title: Neoadjuvant chemotherapy of cervical cancer
16. Title: Placental atherogenesis
17. Title: Surgical treatment of recurrent ovarian cancer
18. Title: Surgical treatment of vulval cancer
19. Title: The role of inherited and acquired thrombophilia in reproductive health
20. Title: The role of lymphadenectomy in the treatment of endometrial cancer
21. Title: The role of preoperative MRI in cervical cancer
22. Title: Trends in operative delivery
Tutor: Róbert Póka M.D., Dr. habil., Ph.D.

23. Title: Acceptance of invasive prenatal diagnostic tests
24. Title: Meiotic abnormalities and their clinical significance in human reproduction
25. Title: Role of Doppler ultrasound in antenatal care
Tutor: Tamás Szilveszter Kovács M.D., Ph.D.

26. Title: Anovulatory infertility
27. Title: Examination of genetic concerns about the safety of assisted reproduction
28. Title: Role of antimullerian hormone (AMH) in clinical practice
29. Title: Ultrasound dating in pregnancy
Tutor: Attila Jakab M.D., Ph.D.

30. Title: Vaginal Birth After Cesarean
Tutor: Alpár Gábor Juhász M.D., Ph.D.

31. Title: Cervical cancer prevention: the role and the future of HPV vaccination besides conventional screening
32. Title: New treatment strategies in ovarian cancer
Tutor: Zoárd Krasznai M.D., Ph.D.

33. Title: Role of endoscopy in infertility work-up
Tutor: Péter Török M.D., Ph.D.

34. Title: Pregnancy care in PCOS patients
35. Title: Special aspects of pregnancy care in patients with endocrine disorders
36. Title: Thyroid autoimmunity - clinical significance, prevention and treatment in human reproduction
Tutor: Tamás Deli M.D., Ph.D.

37. Title: Transvaginal hydrolaparoscopy - a new method
38. Title: Hysteroscopic treatment of different gynecologic pathologies
39. Title: White blood cell function in preeclampsia
Tutor: Rudolf Lampé M.D., Ph.D.

40. Title: Contraception in the 21st century
Tutor: Balázs Erdődi M.D.

Division of Gynecological Oncology

1. Title: Chemotherapy of ovarian cancer
2. Title: Prognostic relevance of HPV-infection in cervical cancer
3. Title: Surgical treatment of HPV-infection
4. Title: The prognostic role of CA-125 in ovarian cancer
Tutor: Zoltán Hernádi M.D., Ph.D., D.Sc.

5. Title: Chemotherapy of cervical cancer
6. Title: Epidemiology and therapy of vulvar cancer
7. Title: Epidemiology of metastatic ovarian cancer
8. Title: Follow-up of endometrial cancer patients, analysis of prognostic factors
9. Title: Prothrombotic states in gynaecologic cancer
10. Title: Superoxid anion production of granulocytes in gynecologic cancer
Tutor: Róbert Póka M.D., Dr. habil., Ph.D.

11. Title: Prognostic factors and treatment of cervical cancer
12. Title: The role of CA125 and HE4 in the follow-up of ovarian cancer
Tutor: Zoárd Krasznai M.D., Ph.D.

Department of Ophtalmology

1. Title: Biomechanics of different corneal diseases
2. Title: Corneal tomography in the diagnosis of keratoconus
3. Title: Diagnosis and treatment of dry eye
4. Title: Lamellar and penetrating keratoplasty techniques
Tutor: László Módis M.D., Ph.D., D.Sc.

5. Title: Intraocular tumors
Tutor: Judit Damjanovich M.D., Ph.D.

6. Title: Anti VEGF treatment for macular edema in retinal vein occlusion patients
7. Title: Ocular clinical signs in rare diseases
Tutor: Valéria Nagy M.D., Ph.D.

8. Title: Corneal dystrophies
9. Title: Stem cells of the cornea
Tutor: Lili Takács M.D., Ph.D.

10. Title: Nuclear medicine measurements in the inflammatory disorders of the eye's anterior segment
11. Title: Prospective study of vascular pathogenesis of eye diseases associated to rheumatologic and immunologic disorders
12. Title: Tear citokine measurements in inflammatory diseases of the anterior segment of the eye associated to immunological and autoimmunological disorders
13. Title: Tear-clearance measurements in dry eye syndrome with dacryoscintigraphy
Tutor: Ádám Kemény-Beke M.D., Ph.D.

14. Title: Contact lens wear and complications
15. Title: Cosmetical contact lenses
Tutor: Beáta Kettesy M.D.

16. Title: Importance of screening in diabetic retinopathy
17. Title: Morfologic changes in glaucma
Tutor: Adrienne Csutak M.D., Ph.D.

18. Title: Aging of the human eye
19. Title: Corneal changes after keratorefractive sugeries
Tutor: Gábor Németh M.D., Ph.D.

20. Title: Diagnostic evolution in keratoconus
21. Title: Topometric and tomometric measurements in keratoconus
Tutor: Bence Lajos Kolozsvári M.D., Ph.D.

22. Title: Examination of peptide receptors in human uveal melanoma
23. Title: Results of orbital decompression surgeries
Tutor: Zita Steiber M.D.

24. Title: Color Doppler in the follow-up of choroidal melanoma after brachytherapy
25. Title: Fluorescein angiographic characteristics of choroidal melanoma
Tutor: Éva Surányi M.D.

26. Title: Genetic causes of high grade myopia
27. Title: Molecular genetic analysis of ocular fundus disorders
Tutor: Gergely Losonczy M.D., Ph.D.

28. Title: Graves' orbitopathy - current concepts in diagnosis and therapy
29. Title: Pathogenesis of Graves' orbitopathy
Tutor: Bernadett Ujhelyi M.D.,Ph.D.

30. Title: Assessing the safety and efficacy of intravitreal ranibizumab as a preoperative adjunct treatment before vitrectomy surgery in severe proliferative diabetic retinopathy (PDR) compared to standard vitrectomy alone
31. Title: Evaluate and demonstrate the results of the Hungarian Lucentis National Patient Registry
Tutor: Attila Vajas M.D.

32. Title: Congenital ptosis peculiar assotiated movements of the affected lid
33. Title: Diagnosis and therapy in retinopathy of prematurity
34. Title: Non - surgical and surgical therapy of congenital ptosis
Tutor: Annamária Nagy M.D.

35. Title: Ocular manifestations of Weill-Marchesani syndrome
36. Title: Pellucid marginal degeneration
Tutor: Mariann Fodor M.D., Ph.D.

37. Title: BCVA changing after intravitreal ranibizumab injection
38. Title: IOP changing after intravitreal ranibisumab injection
Tutor: Erika Papp M.D.

Department of Orthopedic Surgery

1. Title: The role of arthrodesis in the treatment of degenerative arthritis of the knee.
2. Title: Treatment options in knee instability.
Tutor: Henrik Rybaltovszki M.D.

Department of Otolaryngology and Head and Neck Surgery

1. Title: The role of the biofilm in the inflammatory diseases of the otorhinolaringology
Tutor: László Tóth M.D., Ph.D.

2. Title: Cochlear implantation
3. Title: Middle ear implantation
4. Title: Pathology and treatment of Cholesteatoma
Tutor: István Sziklai M.D., Ph.D., D.Sc.

5. Title: Cartillage tympanoplasty
Tutor: István Jókay M.D., Ph.D.

6. Title: Local fleps in head and neck surgery
7. Title: Methods of reconstruction in head and neck surgery
8. Title: Reconstruction of nasal deformities
Tutor: Attila Szűcs M.D., Ph.D.

Department of Pediatrics

1. Title: Contemporary evaluation and treatment of medulloblastoma
2. Title: Thalassemia minor in North-East Hungary
Tutor: Csongor Kiss M.D., Ph.D., D.Sc.

3. Title: Beta-blocker therapy for preventing and treating cyanotic spells in pre-operative patients with tetralogy of Fallot
Tutor: Gábor Mogyorósy M.D., Ph.D.

4. Title: Hydrocephaly of infants
Tutor: Andrea Nagy M.D.

5. Title: IgA nephropathy in childhood
Tutor: Tamás Szabó M.D., Ph.D.

6. Title: Fungal infections in malignant hematology
Tutor: István Szegedi M.D., Ph.D.

7. Title: Experience with tissue adhesives in lip cleft surgery
Tutor: Ágnes Magyar M.D.

8. Title: Aldosteron producing suprarenal tumors in children
9. Title: Efficiency of Nordic Walking therapy in case of obese children regarding motivation for slimming
10. Title: Physiotherapy of diabetic children - prevention of hypoglycemia
Tutor: Enikő Felszeghy M.D.,Ph.D.

Department of Physical Medicine and Rehabilitation

1. Title: The importance of multidisciplinary rehabilitation to improve functional capacity, quality of life, cardiovascular function and metabolic parameters of obese patients, those suffering from osteoarthritis.
2. Title: The significance of conductive rehabilitation activities in gait development (gait analysis test)
3. Title: The significance of the (upper extremity) functional capacity of patients with cerebrovascular diseases in the effectiveness of rehabilitation
Tutor: Zoltán Jenei M.D., Ph.D.

4. Title: Assessment of quality of life of people with disabilities or with the risk of disability
5. Title: Goal Attainment Scaling in rehabilitation medicine
6. Title: Treatment of spasticity in children with cerebral palsy
Tutor: Zsuzsanna Vekerdy-Nagy (retired, part time) M.D., Ph.D.

Department of Psychiatry

1. Title: Effectiveness of schema therapy in personality disorders
2. Title: Emotion dependent and independent cognitive functions in unipolar depression
3. Title: Significance of disfunctional attitudes in depression and anxiety disorders
4. Title: Theory of mind and mentalization deficits in patients with personality disorders
Tutor: Anikó Égerházi M.D., Ph.D.

5. Title: Brain imaging in psychiatry.
6. Title: Oxidative stress and chronic inflammation in psychiatric disorders
7. Title: Post-traumatic stress disorder and post-traumatic growth.
8. Title: The neurobiology of depression.
9. Title: The role of mikrobiota in mental health
10. Title: The therapeutic potentials of psychodelics
Tutor: Ede Frecska M.D., M.A., Ph.D.

Department of Pulmonology

1. Title: New perspectives in the treatment of lung cancer.
Tutor: Andrea Fodor M.D.

2. Title: New perspectives in the treatment of community acquired pneumonia
Tutor: László Brugós M.D., Ph.D.

3. Title: Modern Therapy of NSCLC
Tutor: Tamás Kardos M.D.

Department of Surgery

1. Title: Differentiated thyroid cancer in Graves' disease
Tutor: Ferenc Győry M.D.

2. Title: Surgical treatment of bowel obstruction in colorectal diseases
Tutor: László Damjanovich M.D., Ph.D.

3. Title: Surgical and endovascular interventions in critical limb ischemia
Tutor: Sándor Olvasztó M.D.

4. Title: Surgical treatment of adrenal tumors
5. Title: Surgical treatment of hyperthyroidism complicated with endocrine orbitopathie
Tutor: Ferenc Juhász M.D., Ph.D.

6. Title: Surgery of pulmonary metastases
7. Title: Surgical treatment of severe acute pancreatitis
Tutor: Zsolt Szentkereszty M.D., Ph.D.

8. Title: Laparoscopic fundoplication
Tutor: László Orosz M.D.

9. Title: The role of one-day surgery
Tutor: Csaba Bánfi M.D.

10. Title: Histopathologic examination of the carotid plaques regarding their possible prognostic value
Tutor: Krisztina Litauszky M.D.

11. Title: Liver resections for metastases of colorectal cancer
Tutor: János Pósán M.D.

12. Title: Prevention of bronchial stump insufficiency after lung resections
Tutor: István Takács M.D.,Ph.D.

13. Title: The clinical significance of occult malignancies
Tutor: Zoltán Garami M.D.

14. Title: Different forms of hereditary colorectal cancer among our patients.
Tutor: Miklós Tanyi M.D.,Ph.D.

15. Title: Mesh implantation in the surgical treatment of thoracic defects
16. Title: Surgical treatment of myasthenia gravis
Tutor: Attila Enyedi M.D.

17. Title: Assessment of risk factors associated with local recurrency in distal rectal cancer.
18. Title: Assessment of the results of hybrid operations during pelveo-femoral vascular reconstruction.
19. Title: Assessment of tumor regression after neoadjuvant chemo-irradiation in distal rectal cancer.
Tutor: Gábor Martis M.D.

Division of Operative Techniques and Surgical Research

1. Title: Anesthesia in experimental animals (for Pharmacy students)
Tutor: Ádám Deák D.V.M., Ph.D.

2. Title: New technical possibilities in surgery (for Medicine students)
Tutor: Andrea Furka M.D., Ph.D.

3. Title: Famous surgeons and famous discoveries (for Medicine students)
Tutor: Irén Mikó M.D., Ph.D., C.Sc.

4. Title: Changes of red blood cell mechanical stability in surgical pathophysiological processes (for Medicine and Dentistry students)
5. Title: Investigation of hemorheological and microcirculatory changes in ischemia-reperfusion, including therapeutical possibilities (for Medicine students)
Tutor: Norbert Németh M.D., MBA, Ph.D.

6. Title: Hemostatic agents (bioplasts) in surgery (for Pharmacy students)

7. Title: Ischemia-reperfusion injury and its prevention with different methods (for Medicine and Dentistry students)
Tutor: Katalin Pető M.D.,Ph.D.

8. Title: Instruments and devices used in pharmacological care (for Pharmacy students)
Tutor: Tamás Lesznyák M.D., D.Pharm.

9. Title: Chapters from the history of surgical asepsis, antisepsis (for Medicine and Dentistry students)
Tutor: Irén Mikó M.D., Ph.D.

10. Title: New methods and techniques in microsurgery (for Medicine students)
Tutor: Enikő Tóth M.D.

Department of Traumatology and Hand Surgery

1. Title: Shoulder replacement (ÁOK, gyógytornász)
Tutor: Ferenc Urbán M.D.

2. Title: Bone and ligament injuries of the hand (ÁOK)
3. Title: Excersises of the physiotherapy in the postoperative treatment of the flexor tendon injuries (gyógytornász)
Tutor: István Frendl M.D.

4. Title: The operative treatment and physiotherapy of the adult distal humeral fractured patients in our department (gyógytornász)
5. Title: Up-to-date operative treatment of femoral neck fractures (ÁOK)
Tutor: István Szarukán M.D.

6. Title: Fractures of the leg (ÁOK)
7. Title: Physiotherapy after operation of the shoulder instability (gyógytornász)
Tutor: András Nagy M.D.

8. Title: Treatment of open fractures (ÁOK)
Tutor: Péter Horkay M.D.

9. Title: Operative treatment of severe skull injuries (ÁOK)
Tutor: Zoltán Németi M.D.

10. Title: Current concept in operative treatment of proximal tibial fractures (ÁOK)
11. Title: Current treatment of intertrochanteric and subtrochanteric femoral fractures (ÁOK)
Tutor: Béla Turchányi M.D., Ph.D.

Department of Urology

1. Title: Different topics regarding prostate cancer
2. Title: New challenges in treatment of renal cancer
Tutor: Csaba Berczi M.D., Ph.D.

3. Title: Bladder replacement after radical cystectomy
Tutor: Antal Farkas M.D., Ph.D.

4. Title: Male contraception
5. Title: The role of Color Doppler ultrasound in testicular diseases
Tutor: Mátyás Benyó M.D., Ph.D.

CHAPTER 21
LIST OF TEXTBOOKS

BMC

Introduction to Biophysics I.:

Serway/Vuille: College Physics.
9th edition. Brooks/Cole Cengage Learning, 2009. ISBN: 9780495386933.
Gáspár R.: Physics for BMC students.
University of Debrecen.

Introduction to Medical Chemistry I.:

McMurry, J., Fay, R.C.: Chemistry.
6th edition. Pearson Education, 2012. ISBN: 978-0-13232-1464.

Introduction to Medical Chemistry II.:

McMurry, J., Fay, R.C.: Chemistry.
6th edition. Pearson Education, 2012. ISBN: 978-0-13232-1464.
F., Erdődi, Cs., Csortos: Organic Chemistry for Premedical Students. University of Debrecen, 2011.

Hungarian Language for BMC students:

Marschalkó, Gabriella: Hungarolingua Basic Level 1.
Debreceni Nyári Egyetem, 2011.

Introduction to Biology I.:

Sadava, Hillis, Heller, Berenbaum: Life: The Science of Biology.10th edition. Sinauer Macmillan, 2013. ISBN: 978-1-4641-4124-9.

Introduction to Biophysics II.:

Serway/Vuille: College Physics.
9th edition. Brooks/Cole Cengage Learning, 2009. ISBN: 9780495386933.
Gáspár R.: Physics for BMC students.
University of Debrecen

Introduction to Biology II.:

Sadava, Hillis, Heller, Berenbaum: Life: The Science of Biology. 10th edition. Sinauer Macmillan, 2013. ISBN: 978-1-4641-4124-9.

English for BMC students:

Soars, John and Liz: Headway - Pre-Intermediate Students' Book and Workbook.
The 3rd edition. Oxford.

BMCII

Introduction to Biophysics:

Serway/Vuille: College Physics. 9th edition. Brooks/Cole Cengage Learning, 2009. ISBN: 9780495386933.

Introduction to Medical Chemistry:

McMurry, J., Fay, R.C.: Chemistry.
6th edition. Pearson Education, 2012. ISBN: 978-0-13232-1464.
F., Erdődi, Cs., Csortos: Organic Chemistry for Premedical Students.
University of Debrecen, 2011.

Introduction to Biology:

Sadava, Hillis, Heller, Berenbaum: Life: The Science of Biology.
10th edition. Sinauer Macmillan, 2013. ISBN: 978-1-4641-4124-9.

1st year

Biophysics:

Biophysics laboratory manual.
Department of Biophysics and Cell Biology, 2001.
Wayne W. Daniel: Biostatistics. A foundation for Analysis in the Health Sciences.
John Wiley & Sons. ISBN: 0-471-16386-4.
Edited by János Szőllősi: Medical Biophysics.
Medicina, 2009.

Basics of Behavioural Sciences:

Segerstrale, U., Peter Molnár: Nonverbal Communication: Where Nature Meets Culture.
Lawrence Erlbaum Mahwah N.J., 1997.
Alan Stoudemire: Human Behavior. An Introduction for Medical Students.
J.B. Lippincott Company, Philadelphia, 1994.
Márta Csabai and Péter Molnár: Medical Psychology.
Background material. Reprint University of Debrecen, 2008.
Smith, E. E., & Nolen-Hocksema, S.: Atkinson and Hilgards's Introduction to Psychology.
US: Thomson, ISBN: (Chapters 1., 2., 3.
Kantor, J. E.: Medical Ethics for Physicians-in-Training.
New York & London: Plenum.,
Helman, C. G.: Culture, Health and Illness.
CRC Press.(Chapter 1.),
Barry, A-M. – Yuill, Ch.: Understanding the Sociology of Health.
SAGE., 2012. ISBN: (Chapters 1., 2.).

Medical Chemistry:

McMurry, J., Fay, R.C.: Chemistry.
6th edition. Pearson Education, 2012. ISBN: 978-0-13232-1464.
Gergely, P.: Organic and Bioorganic Chemistry for Medical Students.
3rd edition. Medical and Health Science Center, University

of Debrecen, 2008.
Gergely, P.: Introduction to Bioinorganic Chemistry for Medical Students.
Medical and Health Science Center, University of Debrecen, 2008.
Ed. Dombrádi, V.: Laboratory Practicals in Medical Chemistry.
Medical and Health Science Center, University of Debrecen, 2009.

Hungarian Crash Course:

Marschalkó, Gabriella: Hungarolingua Basic Level 1.
Debreceni Nyári Egyetem, 2011.

Latin Language:

Répás, L.: Basics of Medical Terminology.
Répás László, 2012.
Répás, László - Bóta, Balázs: E-learning site for students of Medical terminology.
URL: http://www.medi-lingua.hu

Computer Science:

Greg Perry: Microsoft Office
2007. ISBN: 9789-6396-3737-5.

Biostatistics:

Wayne W. Daniel: Biostatistics: a foundation for analysis in the health sciences.
7th edition. John Wiley and Sons, New York, 1991. ISBN: 0-471-52988-5.

Physical foundations of biophysics:

Halliday-Resnick-Walker: Fundamentals of Physics.

Hungarian Language I/1.:

Győrffy Erzsébet, Ph.D.: Hogy s mint? I.
2013.

First aid and reanimation:

The St. John Ambulance Association and Brigade, The British Red Cross society: First Aid Manual.
Dorling Kisnerdsley Ltd., 1992. ISBN: 0-863-18-4.
Jerrold B. Leikin, Bernard J. Feldman: Handbook of First Aid and Emergency Care.
Random House, New York, 2000. ISBN: 0-375-75486-5.
József Betlehem: First Things to Be Done in Emergencies – Providing First Aid for Health Professionals.
Medicina Könyvkiadó Zrt., 2012.

Anatomy, histology and embryology I.:

K.L. More: Clinically Oriented Anatomy.
6th edition. Lippincott Williams &Wilkins, 2004. ISBN: 9781-60547-652-0.
M.H. Ross: Histology. A Text and Atlas.
5th edition. Lippincott Williams &Wilkins, 2006. ISBN: 0-781-75056-3.
Sobotta: Atlas of Human Anatomy I.-II..
14th edition. Urban & Schwarzenberg. ISBN: 978-0-443-10349-0.
T. W. Sadler: Langman's Medical Embriology.
12th edition. Lippincott Williams &Wilkins, 2012. ISBN: 978-1-4511-4461-1.
E.K. Sauerland: Grant's Dissector.
11th edition. Williams & Wilkins, 2000. ISBN: 0-683-03701-3.

Molecular Biology:

Alberts et al.: Molecular Biology of the Cell.
5th edition. Garland Public Inc., 2007.
T. Á. Brown: Genomes.
3rd edition. Garland Public Inc., ISBN: 0-8153-4138-5.
Ed. László Fésüs: Biochemistry and Molecular Biology on-line Syllabus Volume I.: Molecular Biology, 2014..
URL: http://bmbi.med.unideb.hu
Lodish et al.: Molecular Cell Biology.
4th edition.

Cell Biology:

Alberts et al.: Molecular Biology of the Cell.
5th edition. Garland Public Inc., 2007.
Alberts et al.: Essential Cell Biology.
3rd edition. Garland Public Inc., 2004. ISBN: 0-8153-3481-8.
Cell Biology Laboratory Manual.
Department of Biophysics and Cell Biology, 2003.
Lodish et al.: Molecular Cell Biology.
4th edition.

Latin Medical Terminology:

Répás, L.: Basics of Medical Terminology.
Répás László, 2012.
Répás, László - Bóta, Balázs: E-learning site for students of Medical terminology.
URL: http://www.medi-lingua.hu

Hungarian Language I/2.:

Győrffy Erzsébet, Ph.D.: Hogy s mint? I.
2013.

Medical Genetics:

Robert L. Nussbaum, Roderick R. McInnes, Huntington F. Willard, Ada Hamosh: Thompson and Thompson Genetics in Medicine.
7th edition. Saunders Elsevier, 2007. ISBN: 978-1-4160-3080-5.
Practical Courses in Genetics.
University Medical School of Debrecen, 2002.
Hartl D. L.: Essential Genetics: A Genomics Perspective.
6th edition. Jones & Bartlett Publishers, 2014. ISBN: 978-1-4496-8688-8.
Thomas D. Gelehrter, Francis S. Collins, David Ginsburg: Principles of Medical Genetics.
2nd. Williams and Wilkins, 1998. ISBN: 0-683-03445-6.
Tom Strachan, Andrew P. Read: Human Molecular Genetics.

4th. Garland Science, 2011. ISBN: 0-8153-4184-9.
Eberhard Passarge: Color Atlas of Genetics.
2nd edition. Georg Thieme Verlag, 2001. ISBN: 3-13-100362-6.

Medical Genomics:

Campbell, A. M., Heyer, L. J.: Discovering genomics, proteomics and bioinformatics.
Pearson Education Inc., ISBN: 0-8053-4722-4.
www.genetics.dote.hu
URL: http://www.genetics.dote.hu/

2nd year

Biochemistry I.:

Thomas M. Devlin: Textbook of Biochemistry with Clinical Correlations.
6th edition. Wiley-Liss, 2006.
Lubert Stryer: Biochemistry.
6th edition. W.H. Freeman and Company, 2007.
Ed. László Fésüs: Biochemistry and Molecular Biology on-line Syllabus Volume II.: Metabolism, 2013..
URL: http://bmbi.med.unideb.hu

Medical Physiology I.:

A. Fonyó: Principles of Medical Physiology.
Medicina Publishing House, Hungary, 2002. ISBN: 963-242-726-2.
Physiological Practice, A Laboratory Guide.
2nd (revised) edition.2007.
J. B. West: Best and Taylor's Physiological Basis of Medical Practice.
12th edition. Williams & Wilkins, 1990.
R. M. Berne, M. N. Levy, B. M. Koeppen, B. A. Stanton: Physiology.
5th edition. V.C. Mosby Co., 2003.
A.C. Guyton, J. E. Hall: Textbook of Medical Physiology.
11th edition. W.B. Saunders Co., 2005. ISBN: 1007-2160-240-1.
R. M. Berne, M. N. Levy: Principles of Physiology.
4th edition. V. C. Mosby Co., 2005. ISBN: 1003-2303-195-1.
Gillian Pocock, Christopher D. Richards: Human Physiology - The Basis of Medicine.
3rd edition. Oxford University Press, 2006. ISBN: 9780-1985-6878-0.
Physiology Practice. Exercise Book.
revised edition.2000.

Anatomy, histology and embryology II.:

K. L. More: Clinically Oriented Anatomy.
4th edition. Lippincott Williams &Wilkins, 2004. ISBN: 0-683-06141-0.
Sobotta: Atlas of Human Anatomy I.-II..
14th edition. Urban & Schwarzenberg,. ISBN: 978-0-443-10349-0.
T. W. Sadler: Langman's Medical Embriology.
12th edition. Lippincott Williams &Wilkins, 2012. ISBN: 978-1-4511-4461-1.
E.K. Sauerland: Grant's Dissector.
11th edition. Williams & Wilkins, 2000. ISBN: 0-683-03701-3.
Ross, M.H., Romrell, L.J., Kaye, G.I.: Histology. A Text and Atlas.
5th edition. Lippincott Williams & Wilkins, 2006. ISBN: 0-781-75056-3.

Multimodal imaging and virtual reality in neurosciences:

Fred A. Mettler: Essentials of Radiology 2. Elsevier, 2005. ISBN: ISBN 0-7216-0527-3.

Investigation of the embryonic cell-and tissue differentation:

Scott F. Gilbert: Developmental Biology.
6th edition.

Biochemistry II.:

Thomas M. Devlin: Textbook of Biochemistry with Clinical Correlations.
6th edition. Wiley-Liss, 2006.
Lubert Stryer: Biochemistry.
6th edition. W.H. Freeman and Company, 2007.
Ed. László Fésüs: Biochemistry and Molecular Biology on-line Syllabus Volume III.: Cell- and Organ Biochemistry, 2014.
URL: http://bmbi.med.unideb.hu

Medical Physiology II.:

A. Fonyó: Principles of Medical Physiology.
Medicina Publishing House, Hungary, 2002. ISBN: 963-242-726-2.
Physiological Practice, A Laboratory Guide.
2nd (revised) edition.2007.
J. B. West: Best and Taylor's Physiological Basis of Medical Practice.
12th edition. Williams & Wilkins, 1990.
R. M. Berne, M. N. Levy, B. M. Koeppen, B. A. Stanton: Physiology.
5th edition. V.C. Mosby Co., 2003.
A.C. Guyton, J. E. Hall: Textbook of Medical Physiology.
11th edition. W.B. Saunders Co., 2005. ISBN: 1007-2160-240-1.
R. M. Berne, M. N. Levy: Principles of Physiology.
4th edition. V. C. Mosby Co., 2005. ISBN: 1003-2303-195-1.
Gillian Pocock, Christopher D. Richards: Human Physiology - The Basis of Medicine.
3rd edition. Oxford University Press, 2006. ISBN: 9780-1985-6878-0.
Physiology Practice. Exercise Book, revised edition.2000.

Neurobiology (Neuroanatomy, Neurobiochemistry, Neurophysiology):

K. L. More: Clinically Oriented Anatomy.
4th edition. Lippincott Williams &Wilkins, 2004. ISBN: 0-683-06141-0.
Sobotta: Atlas of Human Anatomy I.-II..
14th edition. Urban & Schwarzenberg, ISBN: 978-0-443-10349-0.
T. W. Sadler: Langman's Medical Embriology.
12th edition. Lippincott Williams &Wilkins, 2012. ISBN: 978-1-4511-4461-1.
A. Fonyó: Principles of Medical Physiology.
Medicina Publishing House, Hungary, 2002. ISBN: 963-242-726-2.
Haines, D.E.: Fundamental Neuroscience Haines.
3rd edition. Churchill Livingstone, 2006. ISBN: 0-443-06751-1.
Snell, R.E.: Clinical Neuroanatomy for Medical Students.
5th edition. Lippincott Williams & Wilkins, ISBN: 0-7817-2831-2.
L. Komáromy: The Dissection of the Brain.
A Topographical and Technical Guide Medicina,. ISBN: 9-632-26050-3.
Ross, M.H., Romrell, L.J., Kaye, G.I.: Histology. A Text and Atlas.
5th edition. Lippincott Williams & Wilkins, 2006. ISBN: 0-781-75056-3.
Physiology Practice. A Laboratory Guide.
revised edition.2000.
Physiology Practice. Exercise Book.
revised edition.2000.
Biochemistry and Molecular Biology, Sillabus, Volume III. Chapter IX..
3rd edition.2002.
Exercise Book.
2nd (revised) edition.2007.
Purves: Neuroscience.
Fourth Edition. Sinauer Publishing, 2008.
George J Siegel: Basic Neurochemistry.
6th edition.. ISBN: 10: 0-397-51820-X.
Lecture handouts (including figures).
URL: http://bmbi.med.unideb.hu

Functional Anatomy of the Visual System:

Eric R. Kandel, MD (winner of the Nobel Prize in 2000); James H. Schwartz, MD, PhD; Thomas M. Jessell, PhD; Steven A. Siegelbaum, PhD; and A. J. Hudspeth, PhD: Principles of Neural Science
Fifth Edition. 2012. ISBN: 13: 978-0071390118.
Gordon M. Shepherd: The Synaptic Organization of the Brain.
Edition: 5.2003. ISBN: -10: 019515956X.

Selected Problems of the Neural Control: Modelling of Single Neurons and Neural Networks:

Christof Koch and Idan Segev: Methods in Neuronal Modeling, From Synapses to Networks.
MIT Press, Cambridge, Massachusetts, and London, England, 1991., ISBN: ISBN 0-262-61071-X.

Latin Medical Terminology:

Répás, L.: Basics of Medical Terminology.
Répás László, 2012.
Répás, László - Bóta, Balázs: E-learning site for students of Medical terminology.
URL: http://www.medi-lingua.hu

Modern biophysical methods in biology and medicine:

Damjanovich S., J. Fidy, J. Szöllősi: Medical Biophysics.
1st edition. Medicina, 2009. ISBN: 978 963 226 249 9.

3rd year

Clinical Biochemistry I.:

W.J. Marshall and S.K. Bangert: Clinical Chemistry.
6th edition. Mosby Elsevier Ltd., 2008. ISBN: 9-78072-343460-3.
János Kappelmayer, László Muszbek: Practicals in Clinical Biochemistry.
Debrecen, 2010.
Hoffbrand A.V., Pettit J.E.: Essential Haematology.
3rd edition. Blackwell Sciences, 1999. ISBN: 0-632-03083-6.

Pathology I.:

Kumar-Abbas-Fausto-Mitchell: Basic Pathology.
8th edition. WB Saunders, 2007. ISBN: 1-4160-2973-7.
Zoltán Nemes: Histopathological Practicals.
2005.
Zoltán Nemes: The Technique of Gross Pathological Description.
1993.

Immunology:

Fred S. Rosen: Case studies in immunology.
3rd.2001.
Parham, P.: The Immune System.
Third Edition. Garland Science, 2009. ISBN: 0-8153-4146-6.
Abbul K. Abbas, Andrew H. Lichtman, Shiv Pillai: Basic Immunology.
Fourth Edition. Elsevier,. ISBN: 978-1-4557-0707-2.

Medical Microbiology I.:

Levinson, W.: Review of Medical Microbiology and Immunology.
12th edition. McGraw Hill, 2012. ISBN: 978-0071774345.
Lajos Gergely: Diagnostic Medical Microbiology,

Laboratory Exercises.
1989.

Hungarian Language III/1.:

Dr. Paragh György & Dr. Hajnal Judit: 1. Tessék mondani!.
2000.
Lampé, Judit Ph.D.: Jobbulást kívánok I..
2014.

Basic Oncology:

Basic Science of Oncology.
Fifth Edition. McGraw-Hill International Editions, 2013.

Propedeutics of Internal Medicine (Internal Medicine I.):

David R. Ferry: Basic Electrocardiography in Ten Days. ISBN: 0-07-135292-9.
Dr. Paragh György & Dr. Hajnal Judit: 1. Tessék mondani!.
2000.
McPhee St. J., M. Papadakis: Current Medical Diagnosis and Treatment.
50th edition. McGraw-Hill Incorporated, 2011. ISBN: 0-07-176372-4.
Harrison: Principles of Internal Medicine.
17th. International Edition of Health Profession Series, 2008.
Merck Manual,
latest edition. Merck Research Laboratories, ISBN: 0-9119-1016-6.
Győrffy Mária: 2. "Mi a panasz?".
Idióma Bt. Pécs, 1997. ISBN: 963-04-8860-4.

Social acceptance of people with disabilities:

DeLisa / Gans / Walsh: Physical Medicine and Rehabilitation. Principles and practice.
4th edition. Lippincott Williams & Wilkins, 2005.
Gutenbrunner C, Ward AB, Chamberlain MA: White Book on Physical and Rehabilitation Medicine in Europe.
UEMS, 2006.
International Classification of Functioning. Disability and Health.
World Health Organisation, Geneva, 2001.

Basic Surgical Techniques:

H.E. Grewe: Grewe's Manual of Basic Surgical Skills. An Introduction to Surgical Procedures.
B.C. Decker Inc., 1986. ISBN: 0-941158-84-5.
G.R. McLatchie, D.J. Leaper: Oxford Handbook of Operative Surgery.
Oxford University Press, 1996. ISBN: 0-19-262097-5.
Mikó I., Furka I.: Basic Surgical Techniques, Faculty of Medicine.
3rd enlarged edition. Debrecen University Press, 2011. ISBN: 978-963-318-145-4.

Dealing with irradiation induced side effects:

C.A.Perez, L.W.Brady, E.C.Halperin, R.K.Schmidt-Ullrich: Principles and Practice of Radiation Oncology.
4th edition. Lippincott Williams & Wilkins,. ISBN: 0-7817-3525-4.

Medical Anthropology:

Helman C.G.: Culture, Health and Illness. An Introduction to Health Professionals.
Butterworth-Heinemann, 2000.
Thomas M. Johnson and Carolyn F. Sargent: Medical Anthropology. A Handbook of Theory and Method.
Greenwood Press, 1990.
Byron J. Good: Medicine, Rationality, and Experience. An Anthropological Perspective.
Cambridge University Press, 1994.

Medical Psychology:

Alan Stoudemire: Human Behavior. An Introduction for Medical Students.
J.B. Lippincott Company, Philadelphia, 1994.
Csabai, M. and Molnar, P.: Health, Illness and Care. A Textbook of Medical Psychology.
Springer, Budapest, 2000.
Edward P. Sarafino: Health Psychology: Biopsychosocial Interactions.
Wiley, 1990.
Márta Csabai and Péter Molnár: Medical Psychology. Background material. Reprint University of Debrecen, 2008.

Pathology II.:

Kumar-Abbas-Fausto-Mitchell: Basic Pathology.
8th edition. WB Saunders, 2007. ISBN: 1-4160-2973-7.
Zoltán Nemes: Histopathological Practicals.
2005.
Zoltán Nemes: The Technique of Gross Pathological Description.
1993.

Clinical Physiology:

S.J., Ganong, W.F.: Pathophysiology of Disease. An Introduction to Clinical Medicine.
McGraw Hill, 2005. ISBN: 0-0714-4159-X.
Houghton A.R., Gray D.: Making Sense of the ECG.
Hodder Arnold, 2003. ISBN: 9-780340-80978-5.
Dale Davis: Quick and Accurate 12-Lead ECG Interpretation.
ISBN: 0-7817-2327-2.
David R. Ferry: Basic Electrocardiography in Ten Days. ISBN: 0-07-135292-9.

Medical Microbiology II.:

Levinson, W.: Review of Medical Microbiology and Immunology, 12th edition. McGraw Hill, 2012. ISBN: 978-0071774345.

Internal Medicine II. (Immunology and Rheumatology):

Abbas A. K., Lichtmann A. H., Pober S.: Cellular and Molecular Immunology.
4th edition. W.B. Saunders Co., 2000. ISBN: 0-7216-8233-2.
Merck Manual,
latest edition. Merck Research Laboratories. ISBN: 0-9119-1016-6.
Robert R Rich, et al.: Clinical Immunology (Principles and practice) I..
Mosby, 2008.
Robert R Rich, et al.: Clinical Immunology (Principles and practice) II..
Mosby, 2008.
Buchanan WW., de Ceulaer K., Bálint G.: Clinical examination of the musculoskeletal system.
1st edition. Williams and Wilkins, 1997. ISBN: 0-683-01127-8.
Klippel JH., Dieppe PA.: Practical rheumatology.
3rd edition. Mosby, 2008. ISBN: 0-723-42429-2.

Hungarian Language III/2.:

Lampé, Judit Ph.D.: Jobbulást kívánok II.
2014.

Clinical Biochemistry II.:

William J. Marshall, Stephan K. Bangert, Marta Lapsley: Clinical Chemistry.
7th Edition. Mosby-Elsevier, 2012.
János Kappelmayer and László Muszbek: Practicals in laboratory medicine.
Debrecen, 2010.

Cellular and molecular pathophysiology of the cardiovascular system:

Opie L.H.: The Heart, Physiology, from cell to circulation.
Lippincott-Raven Publishers, 1998.
Bers, D.M.: Excitation-contraction coupling and cardiac contractile force.
Kluver Academic Publishers, 2001.

Surgical operative techniques:

Brigden R.J.: Operating Theatre Technique (A Textbook for Nurses, Operating Department Assistants, Medical Students, Junior Medical Staff and Operating Theatre Designers).
5th edition. Churchill Livingstone, 1990. ISBN: 0-443-03364-1.
Kirk R.M., Williamson R.C.N.: General Surgical Operations.
4th edition. Churchill Livingstone, 2000. ISBN: 0-443-06396-6.
Mikó I., Furka I.: Basic Surgical Techniques, Faculty of Medicine.
3rd enlarged edition. Debrecen University Press, 2011. ISBN: 978-963-318-145-4.

Functional Anatomy of the Visual System:

Eric R. Kandel, MD (winner of the Nobel Prize in 2000); James H. Schwartz, MD, PhD; Thomas M. Jessell, PhD; Steven A. Siegelbaum, PhD; and A. J. Hudspeth, PhD: Principles of Neural Science.
Fifth Edition. 2012. ISBN: 13: 978-0071390118.
Gordon M. Shepherd: The Synaptic Organization of the Brain.
Edition: 5.2003. ISBN: -10: 019515956X.

Selected Problems of the Neural Control: Modelling of Single Neurons and Neural Networks:

Christof Koch and Idan Segev: Methods in Neuronal Modeling, From Synapses to Networks.
MIT Press, Cambridge, Massachusetts, and London, England, 1991., ISBN: ISBN 0-262-61071-X

Latin Medical Terminology:

Répás, L.: Basics of Medical Terminology.
Répás László, 2012.
Répás, László - Bóta, Balázs: E-learning site for students of Medical terminology.
URL: http://www.medi-lingua.hu

Selected topics of Immunology:

Janeway CA and Travers P.: Immunbiology.
Garland Science.
Peter Parham: The Immune System.
3rd Edition. Garland Science, 2009. ISBN: ISBN: 0-8153-4146-6.

Pathology II.:

Kumar-Abbas-Fausto-Mitchell: Basic Pathology.
8th edition. WB Saunders, 2007. ISBN: 1-4160-2973-7.
Zoltán Nemes: Histopathological Practicals.
2005.
Zoltán Nemes: The Technique of Gross Pathological Description.
1993.
J. V. Soames and J. C. Southam: Oral Pathology.
3rd. Oxford University Press,.
R.A.Cawson: Essentials of Oral Pathology and Oral Medicine.
Churchill Livingstone, 1998. ISBN: 0-4430-5348-0.

Medical Sociology:

Barry, A.-M. - Yuill, Ch. (Eds.): Understanding Health. A Sociology Introduction..
SAGE, 2002.
Armstrong, D.: A New History of Identity. A Sociology of Medical Knowledge.
Palgrave, 2002.

Medical Imaging:

Paul Suetens: Fundamentals of Medical Imaging.
Cambridge Medicine, 2009.

4th year

Pharmacology I.:

Neal M.J.: Medical Pharmacology at a Glance.
3rd edition. Blackwell Scientific Publications, 1997.
Katzung, B.G., Trevor, A.J.: Pharmacology: Examination and Board Review.
6th edition. Appleton and Lange, Stamford, CT, 2002.
Lüllman H. et al.: Color Atlas of Pharmacology.
2nd edition. Thieme, Stuttgart, 2000.
Dale M.M. &Haylett D.G.: Pharmacology Condensed.
Churchill Livingstone, 2004.
Katzung, BG. Masters SB. Trevor AJ.: Basic and Clinical Pharmacology.
11th edition. McGraw-Hill Medical, 2009. ISBN: 978-007-127118-9.
Humphrey Rang, Maureen Dale, James Ritter, Rod Flower, Graeme Henderson: Rang & Dale's Pharmacology.
7th edition. Elsevier, 2011. ISBN: 978-0-7020-3471-8.
George Brenner, Craig Stevens: Pharmacology.
3rd edition. Elsevier, 2009. ISBN: 978-1-4160-6627-9.

Orthopaedic Surgery:

Miklós Szendrői: Orthopaedics.
First edition. Semmelweis Publisher, 2008. ISBN: 978-963-9656-932.

Radiology and Nuclear Medicine I.:

Peter Armstrong-Martin L. Wastic: Diagnostic imaging.
ISBN: 0-632-03093-3.
Taylor A., Alazraki N., Schuster D.M.: A Clinician's Guide to Nuclear Medicine.
2nd edition. The Society of Nuclear Medicine, Reston, 2006. ISBN: 0-9726-4787-2.
Elgazzar, A. H.: A Concise Guide to Nuclear Medicine.
Springer, 2011. ISBN: 3642194257.
Fred A. Mettler: Essentials of Radiology.
2. Elsevier , 2005. ISBN: ISBN 0-7216-0527-3.
Michael Y. M. Chen, Thomas L. Pope, David J. Ott.: Basic Radiology.
URL: http://accessmedicine.mhmedical.com/book.aspx?bookID=360

Surgery I.:

Doherty: Current Surgical Diagnosis and Treatment.
13th edition. McGraw-Hill-Companies, 2009. ISBN: 0-0716-3515-7.
Clive R. G. Quick: Essential Surgery: Problems, Diagnosis and Management.
5th Edition. Churchill Livingstone, 2013. ISBN: 978-0702046742.

Traumatology I.:

Mark R. Brinker: Review of Orthopaedic Trauma.
W. B. Saunders Company, 2001.
David J. Dandy - Dennis J. Edwards: Essential Ortopaedics and Trauma.
Churchill Livingstone, 2003.
Gert Krischak: Traumatology for the Physical Therapist.
Thieme, 2014. ISBN: 978-3-13-172421-2.

Preventive Medicine and Public Health I.:

M. Porta, J.M. Last: A dictionary of epidemiology.
5th edition. Oxford University Press Inc, USA, 2008.
Kenneth J. Rothman: Epidemiology: An Introduction.
2nd edition. Oxford University Press Inc, USA, 2012.
R.J. Donaldson, G. Scally: Essential Public Health Medicine.
3rd Revised edition. Kluwer Academic Publishers, 2009.

Surgical Oncology:

Doherty: Current Surgical Diagnosis and Treatment.
13th edition. McGraw-Hill-Companies, 2009. ISBN: 0-0716-3515-7.
Clive R. G. Quick: Essential Surgery: Problems, Diagnosis and Management.
5th Edition. Churchill Livingstone, 2013. ISBN: 978-0702046742.

Basic microsurgical training. Introduction to microsurgery:

Robert D. Acland: Practice Manual for Microvascular Surgery.
C.V. Mosby Company, 1989. ISBN: 0-8016-0006-5.
Van Dongen J.J., Remie R., Rensema J.W., Van Wunnik G.H.J.: Manual of Microsurgery on the Laboratory Rat, Part 1 (General Information and Experimental Techniques).
Elsevier, 1990. ISBN: 0-444-81139-7.

Basics of Hemorheology:

Stoltz J.F., Singh M., Riha P.: Hemorheology in practice.
IOS Press, 1999. ISBN: 90-5199-435-4.

Hungarian Language Elective - Medical I.:

Marthy Annamária, Végh Ágnes: Egészségére! Magyar orvosi szaknyelv.
Semmelweis Egyetem Egészségtudományi Kar, 2012.

Traumatology II.:

Mark R. Brinker: Review of Orthopaedic Trauma.
W. B. Saunders Company, 2001.
David J. Dandy - Dennis J. Edwards: Essential Ortopaedics and Trauma.
Churchill Livingstone, 2003.
Gert Krischak: Traumatology for the Physical Therapist.
Thieme, 2014. ISBN: 978-3-13-172421-2.

Cardiac interventions:

Nguyen T.N.: Practical Handbook of Advanced Interventional Cardiology.

Echocardiography:

Feigenbaum: Echocardiography.

Urological Laparoscopic Surgery:

Nyirády, Peter - Romics, Imre: Textbook of Urology.
1st. Semmelweis Publisher, 2009. ISBN: 9789639879232.

Andrology:

Nyirády, Peter - Romics, Imre: Textbook of Urology.
1st. Semmelweis Publisher, 2009. ISBN: 9789639879232.

Internal Medicine III. (Cardiology, Angiology):

Merck: Merck Manual.
URL:
http://www.merckmanuals.com/home/bone_joint_and_muscle_disorders.html

Benign Prostatic Hyperplasia (BPH):

Nyirády, Peter - Romics, Imre: Textbook of Urology.
1st. Semmelweis Publisher, 2009. ISBN: 9789639879232.
Emil A., Tanagho, Jack W. McAninch: Smith's general urology.
12th edition. Appleton and lange, 1988. ISBN: 0-8385-8605-8.

Uro-radiology:

Nyirády, Peter - Romics, Imre: Textbook of Urology.
1st. Semmelweis Publisher, 2009. ISBN: 9789639879232.

History of Radiology:

Adrian M. K. Thomas, Arpan K. Banerjee: The History of Radiology.
1st edition. Oxford University Press, 2013. ISBN: 978-0-19-963997-7.
Ronald L. Eisenberg: Radiology: An Illustrated History.
Mosby-Year Book, 1993. ISBN: 0-8016-1526-7.

Epidemiology, pathophysiology, diagnosis and treatment of osteoporosis.:

Murray Favus: Premier on the metabolic bone diseases and disorders of mineral metabolism.
Sixth Edition. American society for bone and mineral research, 2006.

Surgery Block Practice - 4th year:

Doherty: Current Surgical Diagnosis and Treatment.
13th edition. McGraw-Hill-Companies, 2009. ISBN: 0-0716-3515-7.
Clive R. G. Quick: Essential Surgery: Problems, Diagnosis and Management.
5th Edition. Churchill Livingstone, 2013. ISBN: 978-0702046742.

Modern brachytherapy techniques:

Levitt, S.H.: Technical Basis of Radiation Therapy.
Springer.
Ausili Céfaro: Delineating Organs at Risk in Radiation Therapy. Springer.

Obstetrics and Gynecology I.:

Baker, PN and Kenny, LC: Obstetrics by Ten Teachers.
19th edition. Hodder & Stoughton Ltd, 2011. ISBN: 978 0 340 983 539.
Monga, A. and Dobbs, S: Gynaecology by Ten Teachers.
19th edition. Hodder & Stoughton Ltd, 2011. ISBN: 978-0-340-983-546.
Marschalkó (Gabriella) G. - Zatik (János) J.: Tessék mondani (Szülészet-nőgyógyászat).
ISBN: 9-6347-2587-2.

Behavioural Medicine:

Csabai, M. and Molnar, P.: Health, Illness and Care. A Textbook of Medical Psychology..
Springer, Budapest, 2000.
Jane Ogden: Health Psychology.
Open University Press, 1996.
Friedman, H.S., DiMatteo, M.R.: Health Psychology.
Prentice-Hall Inc., 1989.
Synder, J.J.: Health Psychology and Behavioral Medicine.
Prentice-Hall Inc., 1989.

Surgical operative techniques:

Brigden R.J.: Operating Theatre Technique (A Textbook for Nurses, Operating Department Assistants, Medical Students, Junior Medical Staff and Operating Theatre Designers).
5th edition. Churchill Livingstone, 1990. ISBN: 0-443-03364-1.
Kirk R.M., Williamson R.C.N.: General Surgical Operations.
4th edition. Churchill Livingstone, 2000. ISBN: 0-443-06396-6.
Mikó I., Furka I.: Basic Surgical Techniques, Faculty of Medicine.
3rd enlarged edition. Debrecen University Press, 2011.
ISBN: 978-963-318-145-4.

Antimicrobial chemotherapy:

Dr. Krisztina Szarka, Dr. Gábor Kardos: Pharmaceutical microbiology I. Antimicrobial procedures and chemotherapy. Lecture notes for pharmacy students..
Debreceni Egyetem, 2011.

Stomatology:

R.A.Cawson: Essentials of Oral Pathology and Oral Medicine.
Churchill Livingstone, 1998. ISBN: 0-4430-5348-0.

Gy. Szabó: Oral and Maxillofacial Surgery.
Alapítvány a Száj- Arc- és Állcsontsebészeti Betegségek Gyógyításáért, 1997.

Pharmacology II.:

Neal M.J.: Medical Pharmacology at a Glance.
3rd edition. Blackwell Scientific Publications, 1997.
Katzung, B.G., Trevor, A.J.: Pharmacology: Examination and Board Review.
6th edition. Appleton and Lange, Stamford, CT, 2002.
Lüllman H. et al.: Color Atlas of Pharmacology.
2nd edition. Thieme, Stuttgart, 2000.
Dale M.M. &Haylett D.G.: Pharmacology Condensed.
Churchill Livingstone, 2004.
Katzung, BG. Masters SB. Trevor AJ.: Basic and Clinical Pharmacology.
11th edition. McGraw-Hill Medical, 2009. ISBN: 978-007-127118-9.
Humphrey Rang, Maureen Dale, James Ritter, Rod Flower, Graeme Henderson: Rang & Dale's Pharmacology.
7th edition. Elsevier, 2011. ISBN: 978-0-7020-3471-8.
George Brenner, Craig Stevens: Pharmacology.
3rd edition. Elsevier, 2009. ISBN: 978-1-4160-6627-9.
Laurence L. Brunton (editor): Goodman & Gilman's The pharmacological Basis of Therapeutics.
12th edition. McGraw Hill Medical, 2011. ISBN: 978-0-07175352-4.

Internal Medicine IV. (Endocrinology, Nephrology):

L.M. Tierney, Jr., Stephen J. McPhee, Maxine A. Papadakis: Current Medical Diagnosis and Treatment.
latest edition. Appleton and Lange, Stamford, CT,.
Wyngaarden / Smith / Bennett: Cecil Textbook of Medicine.
latest edition. W.B. Saunders Co., .
Richard J Johnson FeehallyMosby: Comprehensive Clinical Nephrology.
Harcourt Publishers Limited, 2000.
C. C. Tisher, C. S. Wilcox: Nephrology and Hyperteasion Hans Officer Series.
latest edition..
Francis S. Greenspan and Peter H. Forsham: Basic and Clinical Endocrinology.
latest edition. Lange Medical Publications/Los Altos, California.

Obstetrics and Gynecology II.:

Baker, PN and Kenny, LC: Obstetrics by Ten Teachers.
19th edition. Hodder & Stoughton Ltd, 2011. ISBN: 978 0 340 983 539.
Monga, A. and Dobbs, S: Gynaecology by Ten Teachers.
19th edition. Hodder & Stoughton Ltd, 2011. ISBN: 978-0-340-983-546.
Marschalkó (Gabriella) G. - Zatik (János) J.: Tessék mondani (Szülészet-nőgyógyászat).
ISBN: 9-6347-2587-2.

Radiology and Nuclear Medicine II.:

Sutton, D.: Radiology and imaging for medical students.
5th edition. Churchill Livingstone, 1998. ISBN: 0-443-03955-0.
Peter Armstrong-Martin L. Wastic: Diagnostic imaging.
ISBN: 0-632-03093-3.
Taylor A., Alazraki N., Schuster D.M.: A Clinician's Guide to Nuclear Medicine.
2nd edition. The Society of Nuclear Medicine, Reston, 2006. ISBN: 0-9726-4787-2.
Elgazzar, A. H.: A Concise Guide to Nuclear Medicine.
Springer, 2011. ISBN: 3642194257.

Surgery II.:

Doherty: Current Surgical Diagnosis and Treatment.
13th edition. McGraw-Hill-Companies, 2009. ISBN: 0-0716-3515-7.
Clive R. G. Quick: Essential Surgery: Problems, Diagnosis and Management.
5th Edition. Churchill Livingstone, 2013. ISBN: 978-0702046742.

Urology:

Emil A., Tanagho, Jack W. McAninch: Smith's general urology.
12th edition. Appleton and lange, 1988. ISBN: 0-8385-8605-8.
Jürgen Sökeland: Urology - A Pocket Reference.
2nd (revised) edition. Gerg Thieme Verlag, Stuttgart, 1989. ISBN: 3-13-610702-0.
Nyirády, Peter - Romics, Imre: Textbook of Urology.
1st. Semmelweis Publisher, 2009. ISBN: 9789639879232.
Dr. Paragh György & Dr. Hajnal Judit: 1. Tessék mondani!.2000.

Preventive Medicine and Public Health II.:

K.J. Rothman: Epidemiology: An Introduction.
Oxford University Press Inc., 2002.
M. Porta, J.M. Last: A dictionary of epidemiology.
5th edition. Oxford University Press Inc, USA, 2008.
R.J. Donaldson, G. Scally: Essential Public Health Medicine.
3rd Revised edition. Kluwer Academic Publishers, 2009.

Cellular and molecular pathophysiology of the cardiovascular system:

Opie L.H.: The Heart, Physiology, from cell to circulation.
Lippincott-Raven Publishers, 1998.
Bers, D.M.: Excitation-contraction coupling and cardiac contractile force.
Kluver Academic Publishers, 2001.

Functional Anatomy of the Visual System:

Eric R. Kandel, MD (winner of the Nobel Prize in 2000); James H. Schwartz, MD, PhD; Thomas M. Jessell, PhD; Steven A. Siegelbaum, PhD; and A. J. Hudspeth, PhD: Principles of Neural Science.
Fifth Edition. 2012. ISBN: 13: 978-0071390118.
Gordon M. Shepherd: The Synaptic Organization of the Brain.
Edition: 5.2003. ISBN: -10: 019515956X.

Selected Problems of the Neural Control: Modelling of Single Neurons and Neural Networks:

Christof Koch and Idan Segev: Methods in Neuronal Modeling, From Synapses to Networks.
MIT Press, Cambridge, Massachusetts, and London, England, 1991. ISBN: ISBN 0-262-61071-X.

Latin Medical Terminology:

Répás, L.: Basics of Medical Terminology.
Répás László, 2012.
Répás, László - Bóta, Balázs: E-learning site for students of Medical terminology.
URL: http://www.medi-lingua.hu

Radiotherapy in the clinical practice:

K.S. Clifford Chao, Carlos A. Perez, Luther W. Brady: Radiation oncology Management Decisions.
Lippincott-Raven, 1999. ISBN: 0-397-58468-7.
C.A.Perez, L.W.Brady, E.C.Halperin, R.K.Schmidt-Ullrich: Principles and Practice of Radiation Oncology.
4th edition. Lippincott Williams & Wilkins,. ISBN: 0-7817-3525-4.

Pulmonology:

Merck Manual.
latest edition. Merck Research Laboratories. ISBN: 0-9119-1016-6.

Hungarian Language Elective - Medical II.:

Marthy Annamária, Végh Ágnes: Egészségére! Magyar orvosi szaknyelv.
Semmelweis Egyetem Egészségtudományi Kar, 2012.

Idiopathic inflammatory myopathies, from bench to bedside:

Robert R Rich et al: Clinical Immunology (Principles and practice) I. II..
(3rd Edition). Mosby, 2008.
EULAR: Textbook on Rheumatic diseases.
Johannes WJ Bijlsma.

Reproductive Endocrinology and Infertility:

Marc A. Fritz and Leon Speroff: Clinical Gynecologic Endocrinology and Infertility.
Eighth Edition. Walters Kluwer/Lippincott Williams Wilkins. Philadelphia, 2011.

Problem based learning - Skills' training:

J.A.A. Hunter: Clinical Dermatology.
Blackwell Scientific Publications, 1992.

Clinical Genetics:

Kingston, Helen M.: ABC of Clinical Genetics.
3rd. Wiley, 2012. ISBN: 9780727916273.
Strachan, Tom and Read, Andrew: Human Molecular Genetics.
4th. Garland Science/Taylor & Francis Group, 2011. ISBN: 978-0815341499.
Michael R. Speicher, Arno G. Motulsky, Stylianos E. Antonaraskis: Human Genetics.
4th. Springer, 2010. ISBN: 978-3-540-37653-8.

Bioethics:

Erich H. Loewy, M.D.: Textbook of Healthcare Ethics.
Plenum Press, 1996.
Seedhouse, D.: Ethics: The Heart of Health Care.
John Wiley and Sons, Chichester, 1993.
Raanan Gillon, Ann Lloyd: Principles of Health Care Ethics.
John Wiley and Sons, Chichester, 1995.
Wear, S.: Informed Consent. Patient Autonomy and Physician Beneficence Within' Clinical Medicine.
Kluwer Academic Publishers, 1993.

Ophthalmological aspects of wound healing processes:

Sobotta: Atlas of Human Anatomy I.-II..
14th edition. Urban & Schwarzenberg. ISBN: 978-0-443-10349-0.
Robbins: Basic Pathology.
Süveges Ildikó: Ophthalmology.

5th year

Forensic Medicine I.:

L. Buris: Forensic Medicine.
Spinger Hungarica. ISBN: 9-6379-2277-6.

Family Medicine:

Roger Jones: Oxford Textbook of Primary Medical Care 1-2.
2005, Oxford University Press. Alison Langton, 2005. ISBN: 0 19 856580 1.

Dermatology:

Gordon C. Sauer: Manual of skin diseases.
8th edition. J.B. Lippincott Company, Philadelphia, 2000.
J.A.A. Hunter: Clinical Dermatology.
Blackwell Scientific Publications, 1992.

Neurology I.:

Mumenthaler: Neurology.
2004.
Kerri, Simpson, Remmel: Handbook of symptom-oriented Neurology.
2002.
Barker, Scolding, Rowe, Larner: The A-Z of Neurological Practice.
Cambridge Univ. Press, 2005.
Weiner, Levitt, Rae-Grant: House Officer Series: Neurology.
7th edition. Lippincott Williams & Wilkins, 2004.
Adams, Victor: Manual of Neurology.
2002.
Duus: Topical diagnosis in Neurology.
1998.
Misulis, Head: Netter's Concise Neurology.
Elsevier Saunders, 2007.

Emergency Medicine:

Mary T. Ho, Charles E. Saunders: Current Emergency Diagnosis and Treatment.
4th edition. Appleton and Lange, Stamford, CT, 1994. ISBN: 0-8385-1347-6.
Michael Clancy, Colin Robertson, Colin Graham, Jonathan Wyatt, Robin Illingworth: Oxford Handbook of Emergency Medicine.
4. Oxford, 2012. ISBN: 978 0 19 958956 2.

Pediatrics I.:

Richard E. Berman & Robert M.: Nelson Essentials of Pediatrics.
4th edition. W.B. Saunders Co., 2005.

Psychiatry I.:

Kaplan, H. I., Sadock, B. J.: Synopsis of Psychiatry.
10th edition. Williams & Wilkins, 2010. ISBN: 1-4511-0864-8.
Nancy Andreasen, Donald W.Black: Introductory Textbook of Psychiatry.
4th edition. American Psychiatric Press, 2006.
Harold I. Kaplan and Benjamin J. Sadock: Pocket Handbook of Clinical Psychiatry.
4th edition. Williams & Wilkins, 2005.

Surgical Oncology:

Doherty: Current Surgical Diagnosis and Treatment.
13th edition. McGraw-Hill-Companies, 2009. ISBN: 0-0716-3515-7.
Clive R. G. Quick: Essential Surgery: Problems, Diagnosis and Management.
5th Edition. Churchill Livingstone, 2013. ISBN: 978-0702046742.

Basics of Hemorheology:

Stoltz J.F., Singh M., Riha P.: Hemorheology in practice.
IOS Press, 1999. ISBN: 90-5199-435-4.

Cardiac interventions:

Nguyen T.N.: Practical Handbook of Advanced Interventional Cardiology.

Echocardiography:

Feigenbaum: Echocardiography.

Urological Laparoscopic Surgery:

Nyirády, Peter - Romics, Imre: Textbook of Urology.
1st. Semmelweis Publisher, 2009. ISBN: 9789639879232.

Andrology:

Nyirády, Peter - Romics, Imre: Textbook of Urology.
1st. Semmelweis Publisher, 2009. ISBN: 9789639879232.

Hungarian Language Elective - Medical I.:

Marthy Annamária, Végh Ágnes: Egészségére! Magyar orvosi szaknyelv.
Semmelweis Egyetem Egészségtudományi Kar, 2012.

Self-centered psychotherapy:

Nancy Andreasen, Donald W.Black: Introductory Textbook of Psychiatry.
4th edition. American Psychiatric Press, 2006.
Kaplan, H. I., Sadock, B. J.: Synopsis of Psychiatry.
10th edition. Williams & Wilkins, 2010. ISBN: 1-4511-0864-8.
Harold I. Kaplan and Benjamin J. Sadock: Pocket Handbook of Clinical Psychiatry.
4th edition. Williams & Wilkins, 2005.

Basic laparoscopic surgical training:

Reddick E.J.: Atlas of Laparoscopic Surgery.
Raven Press, New York, 1993. ISBN: 0-88167-923-1.
Cuschieri A., Buess G., Pérrisat J.: Operative Manual of Endoscopic Surgery.
Springer Verlag, 1992. ISBN: 3-540-53486-5.

Anesthesiology and Intensive care:

Singer, M., A.R. Webb: Oxford Handbook of Critical Care.
Oxford University Press, 1997. ISBN: 0-19-262542-X.
G.Morgan, Maged Mikhail, Michael Murray: Clinical Anesthesiology.
4th. Appleton and Lange, 1996. ISBN: 0-8385-1553-3.

Infectology:

Behrman RE, Kliegman RM, Jenson HB: Nelson Textbook

of Pediatrics.
19th edition. W.B. Saunders Co., 2010.
Mandell GL, Bennett JE, Dolin R.: Principles and Practice of Infectious Diseases.
6th edition. Churchill Livingstone, 2006.

Internal Medicine V. (Gastroenterology):

Schoreder, Krupp, Tierney, McPhee: Current Medical Diagnosis and Therapy.
latest edition. Appleton and Lange, Stamford, CT,.
Merck Manual.
latest edition. Merck Research Laboratories,. ISBN: 0-9119-1016-6.

History of Radiology:

Adrian M. K. Thomas, Arpan K. Banerjee: The History of Radiology.
1st edition. Oxford University Press, 2013. ISBN: 978-0-19-963997-7.
Ronald L. Eisenberg: Radiology: An Illustrated History.
Mosby-Year Book, 1993. ISBN: 0-8016-1526-7.

Operativ techniques in radiotherapy (brachytherapy):

C.A.Perez, L.W.Brady, E.C.Halperin, R.K.Schmidt-Ullrich: Principles and Practice of Radiation Oncology.
4th edition. Lippincott Williams & Wilkins. ISBN: 0-7817-3525-4.

Surgical biomaterials:

Mikó I., Furka I.: Basic Surgical Techniques, Faculty of Medicine.
3rd enlarged edition. Debrecen University Press, 2011.
ISBN: 978-963-318-145-4.

Benign Prostatic Hyperplasia (BPH):

Nyirády, Peter - Romics, Imre: Textbook of Urology.
1st. Semmelweis Publisher, 2009. ISBN: 9789639879232.
Emil A., Tanagho, Jack W. McAninch: Smith's general urology.
12th edition. Appleton and lange, 1988. ISBN: 0-8385-8605-8.

Advanced Surgical Operative Techniques:

H.E. Grewe: Grewe's Manual of Basic Surgical Skills. An Introduction to Surgical Procedures.
B.C. Decker Inc., 1986. ISBN: 0-941158-84-5.
G.R. McLatchie, D.J. Leaper: Oxford Handbook of Operative Surgery.
Oxford University Press, 1996. ISBN: 0-19-262097-5.
Mikó I., Furka I.: Basic Surgical Techniques, Faculty of Medicine.
3rd enlarged edition. Debrecen University Press, 2011.
ISBN: 978-963-318-145-4.

Forensic Medicine II.:

L. Buris: Forensic Medicine.
Spinger Hungarica. ISBN: 9-6379-2277-6.

Internal Medicine VI. (Haematology, Haemostaseology):

Merck Manual.
latest edition. Merck Research Laboratories,. ISBN: 0-9119-1016-6.
Harrison: Principles of Internal Medicine.
latest edition. McGraw-Hill-Companies,
Schoreder, Krupp, Tierney, McPhee: Current Medical Diagnosis and Therapy.
latest edition. Appleton and Lange, Stamford, CT,.
Hoffbrand A.V., Pettit J.E.: Essential Haematology.
3rd edition. Blackwell Sciences, 1999. ISBN: 0-632-03083-6.

Neurology II.:

Mumenthaler: Neurology.
2004.
Kerri, Simpson, Remmel: Handbook of symptom-oriented Neurology.
2002.
Barker, Scolding, Rowe, Larner: The A-Z of Neurological Practice.
Cambridge Univ. Press, 2005.
Weiner, Levitt, Rae-Grant: House Officer Series: Neurology.
7th edition. Lippincott Williams & Wilkins, 2004.
Adams, Victor: Manual of Neurology.
2002.
Duus: Topical diagnosis in Neurology.
1998.
Misulis, Head: Netter's Concise Neurology.
Elsevier Saunders, 2007.

Neurosurgery:

György I. Csécsei: Lecture book of neurosurgery for medical students.
2003.
Lindsay, Bone, Callander: Neurology and Neurosurgery.
2nd edition. Churchill Livingstone, 1991. ISBN: 0-4430-4345-0.

Ophthalmology:

Hollwich F.: Ophthalmology.
Gerg Thieme Verlag, Stuttgart, 1985. ISBN: 3-13-560802-6.
Kanski Jack J.: Clinical Ophthalmology: A Systematic approach.
Butterworth-Heinemann, 1989. ISBN: 0-7506-1430-7.

Otolaryngology:

István Sziklai: Oto-Rhino-Laryngology.

Pediatrics II.:

Richard E. Berman & Robert M.: Nelson Essentials of Pediatrics.
4th edition. W.B. Saunders Co., 2005.

Psychiatry II.:

Kaplan, H. I., Sadock, B. J.: Synopsis of Psychiatry.
10th edition. Williams & Wilkins, 2010. ISBN: 1-4511-0864-8.
Nancy Andreasen, Donald W.Black: Introductory Textbook of Psychiatry.
4th edition. American Psychiatric Press, 2006.
Harold I. Kaplan and Benjamin J. Sadock: Pocket Handbook of Clinical Psychiatry.
4th edition. Williams & Wilkins, 2005.

Cellular and molecular pathophysiology of the cardiovascular system:

Opie L.H.: The Heart, Physiology, from cell to circulation.
Lippincott-Raven Publishers, 1998.
Bers, D.M.: Excitation-contraction coupling and cardiac contractile force.
Kluver Academic Publishers, 2001.

Functional Anatomy of the Visual System:

Eric R. Kandel, MD (winner of the Nobel Prize in 2000); James H. Schwartz, MD, PhD; Thomas M. Jessell, PhD; Steven A. Siegelbaum, PhD; and A. J. Hudspeth, PhD: Principles of Neural Science.
Fifth Edition. 2012. ISBN: 13: 978-0071390118.
Gordon M. Shepherd: The Synaptic Organization of the Brain.
Edition: 5.2003. ISBN: -10: 019515956X.

Selected Problems of the Neural Control: Modelling of Single Neurons and Neural Networks:

Christof Koch and Idan Segev: Methods in Neuronal Modeling, From Synapses to Networks.
MIT Press, Cambridge, Massachusetts, and London, England, 1991, ISBN: ISBN 0-262-61071-X.

Latin Medical Terminology:

Répás, L.: Basics of Medical Terminology.
Répás László, 2012.
Répás, László - Bóta, Balázs: E-learning site for students of Medical terminology.
URL: http://www.medi-lingua.hu

Hungarian Language Elective - Medical II.:

Marthy Annamária, Végh Ágnes: Egészségére! Magyar orvosi szaknyelv.
Semmelweis Egyetem Egészségtudományi Kar, 2012.

Idiopathic inflammatory myopathies, from bench to bedside:

Robert R Rich et al: Clinical Immunology (Principles and practice) I. II.
(3rd Edition). Mosby, 2008.
EULAR: Textbook on Rheumatic diseases.
Johannes WJ Bijlsma.

Principles of Physical Medicine and Rehabilitation:

DeLisa / Gans / Walsh: Physical Medicine and Rehabilitation. Principles and practice.
4th edition. Lippincott Williams & Wilkins, 2005.
Gutenbrunner C, Ward AB, Chamberlain MA: White Book on Physical and Rehabilitation Medicine in Europe.
UEMS, 2006.
International Classification of Functioning. Disability and Health.
World Health Organisation, Geneva, 2001.

Reproductive Endocrinology and Infertility:

Marc A. Fritz and Leon Speroff: Clinical Gynecologic Endocrinology and Infertility.
Eighth Edition. Walters Kluwer/Lippincott Williams Wilkins. Philadelphia, 2011.

Ophthalmological aspects of wound healing processes:

Sobotta: Atlas of Human Anatomy I.-II..
14th edition. Urban & Schwarzenberg,. ISBN: 978-0-443-10349-0.
Robbins: Basic Pathology.
Süveges Ildikó: Ophthalmology.


SZÉCHENYI 2020
HUNGARIAN GOVERNMENT
European Union
European Social Fund
INVESTING IN YOUR FUTURE