

**BULLETIN**

**UNIVERSITY OF DEBRECEN**

**ACADEMIC YEAR 2020-2021**

**FACULTY OF PUBLIC HEALTH**

**BSc in Physiotherapy**

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## CHAPTER 1 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 centre 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.

#### *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 Centre 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 University 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 bests 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).

### HISTORY OF THE FACULTY OF PUBLIC HEALTH

The first Faculty of Public Health in Hungary was established by the decision of the Hungarian Government on 1st December 2005.

Becoming an independent faculty of the University of Debrecen (presently uniting 15 different faculties) was preceded by a 10-year period of development. Establishment and launching of 5 different postgraduate and one graduate training programs as well as the establishment of a doctoral program were carried out by the teaching staff of the faculty with the effective support of the University of Debrecen. As a result of these efforts the Faculty became a unique, internationally recognized and competitive training center in Hungary. According to the Bologna process the Faculty has established and from 2006 and 2007 launched its bachelor and master training programs in the field of public health and health sciences. With its 3 bachelor, 5 master training programs and 6 postgraduate courses, the Faculty of Public Health offers a rich variety of learning experience at present. There are two doctoral programs available since 2009.

Close cooperation with several faculties of the University of Debrecen guided the process of becoming a faculty, and the Faculty also became an internationally recognized workshop of public health research.

### ORGANISATION STRUCTURE OF THE FACULTY OF PUBLIC HEALTH

Department of Biostatistics and Bioinformatics  
Department of Health Promotion  
Department of Humanities for Health Care  
Department of Intervention Epidemiology  
Department of Habilitation Medicine  
    Division of Public Health Medicine  
Department of Physiotherapy  
Department of Hospital Hygiene and Infection Control  
Department of Health Management and Quality Assurance  
    Unit of Leadership Training for Health Care

### MISSION OF THE FACULTY OF PUBLIC HEALTH

The mission of the Faculty of Public Health of the University of Debrecen as the center of public health education in Hungary is to improve health of the population by developing and maintaining high- and internationally recognized quality training programs, complying with the training needs of the public health and health care institutions, both at the graduate and postgraduate level; pursuing excellence in research; providing consultancy as well as developing and investing in our staff. The Faculty of Public Health organizes and carries out its training activities by the

professional guidelines of the Association of Schools of Public Health in the European Region.

#### BSC AND MSC PROGRAMMES AT THE FACULTY OF PUBLIC HEALTH

Bachelor program in Physiotherapy launched by the Faculty of Public Health of the University of Debrecen is built on the experience in education of physiotherapists at the University of Debrecen. The course is based on the University's highly trained, internationally competitive staff and excellent infrastructure in order to fulfil an international demand in health care (involving physiotherapy) training.

The another bachelor program launched by the Faculty of Public Health is the BSc in Public Health.

The majority of teachers have remarkable teaching experience in English taking part in the international training programmes of University of Debrecen. The BSc in Dietetics programme starts in the academic year 2021/22 at first.

The international MSc programs (MSc in Public Health, MSc in Complex Rehabilitation) launched by the Faculty of Public Health are offered for students graduated in the BSc courses of health sciences. Students studying in English – similarly to those studying in Hungarian – will have the opportunity to join the Students' Scientific Association, the most important means to prepare students for future academic career.

Outstanding students may present their work at the local Students' Scientific Conference organized by the Council of the Students' Scientific Association annually. Best performing students can advance to the National Students' Scientific Conference held every second year. Another way for students to introduce their scientific findings is to write a scientific essay which is evaluated through a network of reviewers.



**CHAPTER 2**  
**– ORGANISATION STRUCTURE**

**RECTOR OF THE UNIVERSITY OF  
DEBRECEN**

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**FACULTY OF PUBLIC HEALTH**

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## CHAPTER 3

### – ADMINISTRATIVE UNITS

#### EDUCATIONAL ORGANIZATIONAL OFFICE OF FACULTY OF PUBLIC HEALTH

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	Ms. Dóra Mónus M.A.
Financial Coordinator	Ms. Rita Kovács J.D.
Agent Coordinator	József Harmati J.D.
Ranking and Marketing Coordinator	Ms. Zsófia Münnich M.Sc.
English Program Coordinators	Ms. Dóra Benkő (Admission, Visa Issues, BMC, US Loans)
	Ms. Regina Berei (Tuition fee, Financial certificates, Refunds)
	Ms. Marianna Gyuris (Admission, Visa issues, USMLE, MCCEE, Stipendium Hungaricum Scholarship, Wyckoff Heights)
	Ms. Ildikó Lakatos M.A. (Admission, Visa Issues)
	Ms. Krisztina Németh M.Sc. (Bulletin)
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(Tuition fee, Health Insurance)

Ms. Mária Tóth M.Sc.  
(Stipendium Hungaricum Scholarship)

IT Project Coordinator

Imre Szűcs B.Sc.

## CHAPTER 4

### – DEPARTMENTS OF THE FACULTY OF PUBLIC HEALTH

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

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Ms. Krisztina Ádámné Vágó

Ms. Boglárka Vincze

Ms. Dóra Lámfalusi-Németh M.Sc.

## CHAPTER 5

### – UNIVERSITY CALENDAR

#### UNIVERSITY CALENDAR FOR THE BSC IN PHYSIOTHERAPY PROGRAM ACADEMIC YEAR 2021/2022

Academic year opening ceremony	5 <sup>th</sup> September 2021 (Sunday)
1 <sup>st</sup> semester Registration week	30 <sup>th</sup> August –3 <sup>rd</sup> September 2021(1 week)
1 <sup>st</sup> semester study period	6 <sup>th</sup> September 2021–10 <sup>th</sup> December 2021(14 weeks)
Professional week	18 <sup>th</sup> October 2021–22 <sup>th</sup> October 2021(1 week)
1 <sup>st</sup> semester exam period	13 <sup>th</sup> December 2021–28 <sup>th</sup> January 2022(7 weeks)
1 <sup>st</sup> semester extension week	31 <sup>th</sup> January 2022–4 <sup>th</sup> February 2022(1 week)
2 <sup>nd</sup> Semester Registration week	31 <sup>th</sup> January 2022–4 <sup>th</sup> February 2022(1 week)
2 <sup>nd</sup> semester study period	7 <sup>th</sup> February 2022–13 <sup>h</sup> May 2022(14 weeks)
2 <sup>nd</sup> semester exam period	16 <sup>th</sup> May 2022–1 <sup>st</sup> July 2022(7 weeks)
2 <sup>nd</sup> semester extension week	4 <sup>th</sup> July 2022–8 <sup>th</sup> July 2022(1 weeks)
Graduation ceremony (plan)	24 <sup>th</sup> June 2022 (Friday)

## **CHAPTER 6**

### **– ACADEMIC PROGRAM FOR CREDIT SYSTEM**

In September 2003, the introduction of the credit system became compulsory in every Hungarian university, including the University of Debrecen. 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, required elective or optional 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) (in the library or at home). 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 is in perfect harmony with the European Credit Transfer System (ECTS). The introduction of the ECTS promotes student mobility, facilitates more organization of student' 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 students with a wider range of choice, enables them 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 knowledge, 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:

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

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

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

Students accumulate the required amount of credits by passing exams on compulsory, required elective and optional 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 within 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 optional courses, which are usually not closely related to the basic (and thus mandatory) subjects, but they offer a different type of knowledge.

Students can be given their degree if, having met other criteria as well, they have collected 240 credits during their studies. Considering the recommended curriculum, this can be achieved in four years.

The pilot curricula show the recommended pacing of compulsory courses. If these courses are

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Carefully supplemented with credits obtained from the necessary number of required elective and optional courses, students can successfully accumulate the credits required for their degree within 8 semesters.

The diploma work is worth 20 credits.

Internship (supervised practices) in the final year is compulsory.

Regulations concerning the training of students in the credit system prescribe a minimum amount of credits for certain periods as outlined in the Regulations of Training and Examination (RTE).

Although Physical Education and Summer Internship (controlled practices) 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).

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	<b>Subject</b>	<b>Subject type: compulsory/elective</b>	<b>Lec</b>	<b>Sem</b>	<b>Pract</b>	<b>TOT</b>	<b>Cr</b>	<b>Ass</b>	<b>Pre-requirement</b>
<b>I. SEMESTER</b>	Applied Health Sciences I.	compulsory	52	39	0	91	7	ESE	
	Anatomy of skeletal system for physiotherapists	compulsory	39	39	0	78	5	ESE	
	General principles in nursing and clinical propedeutics	compulsory	13	13	0	26	6	ESE	
	Introduction to basics of biostatistics	compulsory	0	13	13	26	2	AW5	
	Health informatics I.	compulsory	10	0	16	26	2	AW5	
	Basics of physiotherapy	compulsory	26	0	0	26	2	ESE	
	Kinesiology I.	compulsory	0	13	26	39	3	ESE	
	Roger's Conversation	compulsory	13	0	0	13	1	AW5	
	Physical education I.	compulsory	26	0	0	26	0	Sign	
	Hungarian language I.	compulsory for SH students	0	0	28	28	0	Sign	
	Elective subjects						2		
<b>Total</b>			<b>179</b>	<b>117</b>	<b>83</b>	<b>379</b>	<b>30</b>		
<b>II. SEMESTER</b>	Applied Health Sciences II.	compulsory	52	39	0	91	7	ESE	Applied Health Sciences I.
	Anatomy histology and embryology for physiotherapists	compulsory	39	13	13	65	4	ESE	Anatomy of skeletal system for physiotherapists
	General principles in nursing and clinical propedeutics – summer practice	criteria	0	0	39	39	0	Sing	
	Basics of dietetics	compulsory	26	0	0	26	2	ESE	General principles in nursing and clinical propedeutics
	Health informatics II.	compulsory	10	0	16	26	2	AW5	Health informatics I.
	Electro-, balneo-, hydro- and climatotherapy (EBHCT)	compulsory	13	0	13	26	2	AW5	General principles in nursing and clinical propedeutics

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	Physiology I.	compulsory	26	13	0	39	3	ESE	General principles in nursing and clinical propedeutics Applied Health Sciences I.
	Basics of epidemiology	compulsory	13	13	0	26	2	ESE	
	Communication	compulsory	13	0	0	13	1	AW5	Roger's Conversation
	Kinesiology II.	compulsory	26	26	56	108	10	ESE	Anatomy of skeletal system for physiotherapists Kinesiology I.
	Hungarian language II.	compulsory for SH students	0	0	28	28	0	SIGN	
	Physical education II.	criteria	26	0	0	26	0	Sign	
<b>Total</b>			<b>244</b>	<b>104</b>	<b>165</b>	<b>513</b>	<b>33</b>		

	<b>Subject</b>	<b>Subject type: compulsory/elective</b>	<b>Lec</b>	<b>Sem</b>	<b>Pract</b>	<b>TOT</b>	<b>Cr</b>	<b>Ass</b>	<b>Pre-requirement</b>
<b>III.SEMESTER</b>	Basic psychology	compulsory	26	0	0	26	2	ESE	
	Physiology II.	compulsory	26	0	13	39	3	ESE	Physiology I.
	First aid	compulsory	13	0	13	26	2	AW5	
	Introduction to law	compulsory	26	0	0	26	2	ESE	
	Microbiology I.	compulsory	13	13	0	26	2	ESE	Applied Health Sciences II.
	Mobilization-Manual Techniques I.	compulsory	13	0	65	78	6	AW5	Kinesiology II., Physiology I.
	Kinesiology III.	compulsory	26	13	78	117	10	ESE	Kinesiology II., Physiology I.
	Work safety and fire protection	compulsory	0	6	0	6	1	AW5	
	Public Health medicine I.	compulsory	39	0	0	39	3	ESE	Basics of dietetics
	Latin	compulsory	0	26	0	26	2	AW5	
<b>Total</b>			<b>182</b>	<b>58</b>	<b>169</b>	<b>409</b>	<b>33</b>		
<b>IV.SEMESTER</b>	Applied Training Methods	compulsory	10	10	10	30	3	AW5	Kinesiology II., Physiology II.
	Professional Hungarian Language I.	compulsory	0	26	0	26	2	AW5	Hungarian language II.
	Internal Medicine for Physiotherapists	compulsory	20	20	20	60	6	ESE	
	Internal Medicine for Physiotherapists (Respiratory physiotherapy, Cardiovascular rehabilitation)	compulsory	20	20	20	60	6	ESE	Public Health medicine I. Physiology II
	Principles of Health Sciences	compulsory	10	0	0	10	1	ESE	Anatomy histology and embryology for physiotherapists,

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									Physiology II.
	Health Care Law	compulsory	10	0	0	10	1	ESE	Introduction to law
	I. block practice (Respiratory physiotherapy 30 hours; Cardiovascular rehabilitation 30 hours; Kinesiology - subaqual exercises 30 hours)	criteria	0	0	90	90	0	Sign	
	Principles of Kinesiology	compulsory	10	0	0	10	1	ESE	Kinesiology III
	Microbiology II.	compulsory	20	0	0	20	2	ESE	Microbiology I.
	Mobilization-Manual Techniques II.	compulsory	0	0	70	70	6	AW5	Mobilization-Manual Techniques I.
	Kinesiology (summer practice)	criteria	0	0	80	80	0	Sign	Principles of Kinesiology, Mobilization-Manual Techniques II.
	Psychoterapeutic and Addictological skills	compulsory	20	0	10	30	2	ESE	Basic psychology
<b>Total</b>		<b>120</b>	<b>76</b>	<b>300</b>	<b>496</b>	<b>30</b>			

	<b>Subject</b>	<b>Subject type: compulsory/elective</b>	<b>Lec</b>	<b>Sem</b>	<b>Pract</b>	<b>TOT</b>	<b>Cr</b>	<b>Ass</b>	<b>Pre-requirement</b>
<b>V. SEMESTER</b>	Basics of pedagogy	compulsory	10	0	0	10	1	ESE	
	Basics of sociology	compulsory	10	0	0	10	1	ESE	
	Professional Hungarian Language II.	compulsory			42	42	3	AW5	Professional Hungarian Language I.
	Philosophy	compulsory	10	0	0	10	1	ESE	
	Pharmacology	compulsory	20	0	0	20	2	ESE	Physiology II., Microbiology II.
	II. Block practice (Obstetrics and Gynaecology 30 hours; Kinesiology 90 hours)	criteria	0	0	90	90	0	Sign	
	Epidemiology of communicable and non-communicable diseases I.	compulsory	20	20	0	40	4	ESE	
	Neurology for Physiotherapists I.	compulsory	10	10	0	20	2	ESE	Physiology II, Principles of Kinesiology
	Orthopaedics for Physiotherapists	compulsory	10	10	0	20	2	ESE	Principles of Kinesiology
	Physiology III.	compulsory	20	0	0	20	2	ESE	Public Health medicine I., Physiology II
	Rheumatology for Physiotherapists I.	compulsory	10	10	0	20	2	ESE	Public Health medicine I., Principles of Health Sciences, Principles of Kinesiology
	Obstetrics and Gynaecology for Physiotherapists	compulsory	20	0	10	30	3	ESE	Public Health medicine I., Principles of Kinesiology
	Traumatology for Physiotherapists	compulsory	30	0	0	30	3	ESE	Principles of Health Sciences, Principles of Kinesiology
Elective subjects	elective					5			



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		<b>Total</b>	<b>170</b>	<b>50</b>	<b>100</b>	<b>320</b>	<b>28</b>		
<b>VI. SEMESTER</b>	Bioethics	compulsory	10	0	0	10	1	ESE	
	Infant Care and Paediatrics for Physiotherapists	compulsory	10	10	20	40	4	ESE	Orthopaedics for Physiotherapists, Neurology for Physiotherapists I.
	Infant Care and Paediatrics Clinical Practice	criteria	0	0	80	80	0	Sign	Infant Care and Paediatrics for Physiotherapists
	Thesis I. – Basics of Research Methodology	compulsory	0	0	10	10	2	AW5	
	III. Block practice (Orthopaedics 30 hours, Traumatology 30 hours, Rheumatology 30 hours)	criteria	0	0	90	90	0	Sign	
	Physiotherapy Principles of Internal Medicine	compulsory	10	0	0	10	1	ESE	Internal Medicine for Physiotherapists
	Epidemiology of communicable and non-communicable diseases II.	compulsory	10	20	0	30	3	ESE	Epidemiology of communicable and non-communicable diseases I.
	Physiotherapy of the Movement System I.	compulsory	30	20	30	80	8	ESE	Mobilization-Manual Techniques II. Orthopaedics for Physiotherapists Traumatology for Physiotherapists
	Neurology for Physiotherapists II.	compulsory	10	0	20	30	3	ESE	EBHCT, Neurology for Physiotherapists I.
	Neurology practice 80 hours + Infant Care and Paediatrics practice 80 hours (summer practice)	criteria	0	0	160	160	0	Sign	
	Radiology and Diagnostic Imaging for Physiotherapists	compulsory	10	0	0	10	1	AW5	Orthopaedics for Physiotherapists, Traumatology for Physiotherapists
	Rheumatology for Physiotherapists II.	compulsory	20	0	20	40	4	ESE	EBHCT, Mobilization-Manual Techniques II. Rheumatology for Physiotherapists I.
	Nutritional psychology	compulsory	10	0	0	10	1	ESE	
	Elective subjects	elective					1		
<b>Total</b>			<b>120</b>	<b>50</b>	<b>430</b>	<b>600</b>	<b>29</b>		

	<b>Subject</b>	<b>Subject type: compulsory/elective</b>	<b>Lec</b>	<b>Sem</b>	<b>Pract</b>	<b>TOT</b>	<b>Cr</b>	<b>Ass</b>	<b>Pre-requirement</b>
<b>VII. SEMESTER</b>	Thesis II.	compulsory	0	0	10	10	10	AW5	Thesis I.
	Health promotion in primary care	compulsory	10	0	0	10	1	AW5	
	Economics and Management	compulsory	20	0	0	20	2	ESE	
	Intensive Therapy for Physiotherapists	compulsory	10	0	0	10	1	ESE	Physiotherapy Principles of Internal Medicine, Physiotherapy of the Movement System I.
	IV. Block practice (Rehabilitation skills 90 hours)	criteria	0	0	90	90	0	Sign	

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	Physiotherapy Principles of the Movement System	compulsory	10	0	0	10	1	ESE	Physiotherapy of the Movement System I. Rheumatology for Physiotherapists II.
	Neurology for Physiotherapists III.	compulsory	10	10	10	30	4	AW5	Neurology for Physiotherapists II.
	Rehabilitation skills	compulsory	20	0	20	40	4	ESE	Rheumatology for Physiotherapists II., Physiotherapy of the Movement System I., Neurology for Physiotherapists II.
	Cardiopulmonary Resuscitation (CPR)	criteria	0	0	10	10	1	AW5	
	Elective subjects	elective					4		
	<b>Total</b>		<b>86</b>	<b>32</b>	<b>136</b>	<b>282</b>	<b>30</b>		
VIII. SEMESTER	Internal Medicine Clinical Practice I. (Respiratory physiotherapy 80 hours)	compulsory	0	0	80	80	3	AW5	
	Internal Medicine Clinical Practice II. (Cardiovascular rehabilitation 80 hours)	compulsory	0	0	80	80	3	AW5	Physiotherapy Principles of Internal Medicine
	Neurology Clinical Practice	compulsory	0	0	60	60	3	AW5	Neurology for Physiotherapists III.
	Orthopaedics Clinical Practice	compulsory	0	0	80	80	3	AW5	Physiotherapy Principles of the Movement System
	Rehabilitation Clinical Practice	compulsory	0	0	80	80	3	AW5	Physiotherapy Principles of the Movement System, Rehabilitation skills
	Rheumatology Clinical Practice	compulsory	0	0	80	80	3	AW5	Physiotherapy Principles of the Movement System
	Traumatology Clinical Practice	compulsory	0	0	80	80	3	AW5	Physiotherapy Principles of the Movement System
	Thesis III.	compulsory	0	0	10	10	8	AW5	Thesis II.
	<b>Total</b>		<b>0</b>	<b>0</b>	<b>550</b>	<b>550</b>	<b>29</b>		
	<b>Subtotal</b>		<b>1095</b>	<b>465</b>	<b>1881</b>	<b>3441</b>	<b>240</b>		

## CHAPTER 7

Subject: **APPLIED HEALTH SCIENCES I.**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Lecture: **52**

Seminar: **39**

### **1. week**

1. Basic chemical concepts, structure of atoms 2. Introduction to biophysics, types and law of radioactive decay, radioactive series 3. General cell biology, pro-and eucaryotes, basic cellular functions.

1. Basic chemical concepts, structure of atoms.

### **2. week**

1. Chemical bonds 2. Electromagnetic waves, dual nature of light, matter waves, production of light 3. Nucleus, chromatin, chromosomes.

2. Types and law radioactive decay.

### **3. week**

1. Water, aqueous solutions, acids, bases, buffers 2. Molecular spectra. Jablonski diagram, fluorescence, phosphorescence and their applications 3. Cell cycle and its regulation.

3. General cell biology, pro-and eucaryotes, basic cellular functions.

### **4. week**

1. Reaction kinetics, types of chemical reactions, catalysis 2. Radiation and its interaction with absorbing matter. Detection of radiation 3. Mitosis, meiosis, the human genome, results of HGP.

1. Chemical bonds. Water, aqueous solutions, acids, bases, buffers. Reaction kinetics, types of chemical reactions, catalysis.

### **5. week**

1. Oxidation, reduction, redox processes 2. Radiation biophysics: target theory, direct and indirect action of radiation, dosimetry, the biological effect of radiation 3. Genetic code, regulation of prokaryotic gene expression.

2. Electromagnetic waves, dual nature of light, matter waves, production of light. Molecular spectra. Jablonski diagram, fluorescence, phosphorescence and their applications.

### **6. week**

1. Types of carbon bonding, classification of organic compounds 2. Experimental, diagnostic and therapeutic applications of radioactive isotopes; accelerators 3. Regulation of eucaryotic gene expression, epigenetics.

3. Nucleus, chromatin, chromosomes, cell cycle and its regulation. Mitosis, meiosis, human genome; results of HGP. The genetic code, regulation of pro-and eucaryotic gene expression, epigenetics.

### **7. week**

1. Hydrocarbons 2. Generation of X-rays, its absorption mechanisms; X-ray crystallography 3. Mendelian genetics, Mendel's 1st law, monogenic inheritance, monohybrid cross, genes, alleles, genotype, phenotype.

1. Oxidation, reduction, redox processes. Types of carbon bonding, classification of organic compounds.

**8. week**

1. Halogenated hydrocarbons, alcohols, ethers 2. Basics of nuclear magnetic resonance (NMR), NMR spectroscopy in biology and in medicine 3. Mendel's 2nd law, dihybrid cross, dominant and recessive alleles, gene interactions, epistasis, lethal genes, autosomal and X-linked genes.

2. Radiation and its interaction with absorbing matter. Detection of radiation. Radiation biophysics: target theory, direct and indirect action of radiation, dosimetry, the biological effect of radiation. Experimental, diagnostic and therapeutic applications of radioactive isotopes; accelerators.

**9. week**

1. Aldehydes, ketones, carboxylic acids, esters 2. X-ray diagnostics, CT, magnetic resonance imaging (MRI) 3. Population genetics.

1. Hydrocarbons. Halogenated hydrocarbons, alcohols, ethers. Aldehydes, ketones, carboxylic acids, esters.

**10. week**

1. Nitrogen-containing bases, nucleosides, nucleotides, nucleic acids 3. Mutations, DNA repair, DNA polymorphisms, human blood group systems, the HLA system.

3. Mendelian genetics, Mendel's 1st law, monogenic inheritance, monohybrid cross, genes, alleles, genotype, phenotype. Mendel's 2nd law, dihybrid cross, dominant and recessive alleles, gene interactions, epistasis, lethal genes, autosomal and X-linked genes. Mutations, DNA repair, DNA polymorphisms, human blood group systems, the HLA system.

**11. week**

1. Amines, amides, amino acids, peptides. 2. Gamma camera, SPECT, PET. 3. Molecular background of hereditary diseases.

2. Generation of X-rays, its absorption mechanisms, CT; basics of nuclear magnetic resonance (NMR), NMR spectroscopy in biology and in medicine, magnetic resonance imaging (MRI). Gamma camera, SPECT, PET.

**12. week**

1. Proteins. 2. Sedimentation and electrophoretic techniques, mass spectrometry. 3. Genetic background of tumors; oncogenes.

1. Nitrogen-containing bases, nucleosides, nucleotides, nucleic acids. Amines, amides, amino acids, peptides. Proteins. 2. Sedimentation and electrophoretic techniques, mass spectrometry, X-ray crystallography.

**13. week**

1. Carbohydrates. 2. Chemical potential, Brownian motion, diffusion on molecular level, statistical interpretation, Fick's laws, osmosis. 3. Pharmacogenetics and pharmacogenomics, ecological genetics.

3. Population genetics. Genetic background of tumors; oncogenes. Genetic background of tumors, oncogenes. Pharmacogenetics and pharmacogenomics, ecological genetics.

**14. week**

1. Lipids 2. Structure of biological membranes, membrane transport 3. Disease-gene associations, prenatal diagnostics, genetic consulting, ethical issues.

1. Carbohydrates. Lipids. 2. Chemical potential, Brownian motion, diffusion on molecular level, statistical interpretation, Fick's laws, osmosis. Structure of biological membranes, membrane transport.

Attending lectures is recommended, attending seminars is mandatory. The maximum absence from seminars is permitted to be 1 occasion (3 hours)/semester. Participation can be made up in another group, after consulting with the seminar leader. Exceeding the permitted absence (regardless of

being confirmed or unjustified) will result in a refusal of the signature. The material covered during lectures and seminars is the base of the mid-semester (week #7) and end-of-semester (week #14) written tests. Based on the achieved average scores of the two tests, the grades of the best scores (top 1/3 of ranked scores) will be offered. If a student does not receive an offered grade or if it is not adequate for him/her, he/she must take a written exam during the exam period.

**Subject: ANATOMY OF SKELETAL SYSTEM FOR PHYSIOTHERAPISTS**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Lecture: **39**

Seminar: **39**

**1. week**

Introduction. Anatomical nomenclature, planes, directions and parts of the human body

Organization of human body – cells, tissues and organs

Anatomy and histology of skeletal system I – bones and the bone tissue

**2. week**

Anatomy and histology of skeletal system II – structure and types of joints

Anatomy and histology of skeletal system III – muscles and the skeletal muscle tissue

Anatomy and histology of skeletal system IV – connective tissue and epithelial tissue

**3. week**

Anatomy and histology of the skeletal system V – cartilaginous tissue

Bones of the upper limb – bones of the pectoral girdle and the free upper limb

Joints of the upper limb I – the glenohumeral joint and joints of the pectoral girdle

**4. week**

Joints of the upper limb II – elbow joint, wrist joint and joints of the hand

Muscles of the upper limb I – thoracohumeral and spinohumeral muscles, muscles of the scapular and deltoid region, the anterior and posterior brachial region, location of the axillary fossa, bicipital sulcus, medial and lateral axillary hiatuses

Muscles of the upper limb II – muscles of the anterior and posterior antebrachial region and the cubital region

**5. week**

Muscles of the upper limb III – muscles of the anterior and posterior carpal region, palmar region, and dorsal region of the hand, location of the carpal tunnel, foveola radialis and Guyon tunnel

Blood supply and lymphatic drainage of the upper limb – arteries, superficial and deep veins, lymphatic vessels and lymph nodes

Nerves of the upper limb – cutaneous innervation, structure of brachial plexus and symptoms of nerve injuries

**6. week**

Structure, statics and ligaments of the pelvis

Bones of the lower limb – bones of the free lower limb

Joints of the lower limb I – hip joint and joints of the pelvis

**8. week**

MIDTERM: anatomy of the upper limb and general histology

Joints of the lower limb II – knee joint, ankle joint, joints of the leg and arches of the foot

Muscles of the lower limb I – muscles of the subinguinal region and gluteal region; description of the subinguinal hiatus, infra- and suprapiriform hiatuses

**9. week**

Muscles of the lower limb II – muscles of the anterior and posterior femoral region, description of the femoral triangle, adductor canal and popliteal fossa

Muscles of the lower limb III – muscles of the anterior and posterior crural region, lateral and medial malleolar region and the leg

Anatomy of posture and gait

**10. week**

Blood supply and lymphatic drainage of the lower limb – arteries, superficial and deep veins, lymphatic vessels and lymph nodes

Nerves of the lower limb – cutaneous innervation, structure of the lumbar and sacral plexuses and symptoms of nerve injuries

Structure of vertebrae

**11. week**

Joints and movements of the vertebral column

Bones and joints of the thorax

Muscles of the trunk I – muscles of the thorax

**12. week**

Muscles of the trunk II – abdominal muscles, back muscles

Muscles of the trunk III – muscles of the pelvis and perineum

Muscles of the neck

**13. week**

Structure of the skull and parts of the neurocranium

Calvaria and basis cranii interna

Basis cranii externa

**14. week**

Bones and cavities of the viscerocranium

Muscles of the head and the temporomandibular joint

MIDTERM: anatomy of the lower limb, head, neck and trunk

### Requirements

The aim of the subject is to introduce physiotherapy students to the basic anatomical structures and terms that are necessary for understanding of the skeletal system. Within this, there is a primary importance to gain a detailed knowledge of the bones, joints and muscles of the limbs, trunk, head and neck. In addition, the subject provides an insight into the general histology, the blood supply and innervation of the skeletal system.

Requirements of the subject:

- Attendance at the lessons: Concerning attendance, the rules written in the Regulations Governing Admission, Education and Examinations of the University of Debrecen are valid. The attendance in seminars is obligatory and will be recorded.

- Allowed absences: The subject coordinator may refuse to accept the academic performance if a student is absent from more than two practices in the semester.

-Midterm examinations: Two written midterm exams covering the following topics: anatomy of the upper limb and general histology (1) and anatomy of the lower limb, head, neck and trunk (2) will be held. Writing of the midterm tests is optional.

- Planned week of the midterms: Two midterm exams will be held on 8th and 14th weeks.

- End term examinations: A written end term exam will be held. The students, who pass both midterm exams, and the end term exam as well, get one mark better as a final exam mark. The students, who do not pass or attend the written exam, have to fulfil an oral exam.

-Condition for obtaining a signature: The student fulfils the requirements written in the Regulations Governing Admission, Education and Examinations of the University of Debrecen as regards the attendance at the lessons.

Compulsory reading:

Gray's: Anatomy for students, editors: Richard R. Drake, A. Wayne Vogl, Adam W. M. Mitchell, Churchill Livingstone Elsevier

dr Mihály Pepkó: Histology, University textbook

Further reading:

Sobotta: Atlas of Human Anatomy Urban & Schwarzenberg

Nigel Palastanga, Roger Soames: Anatomy and Human movement, structure and function, Churchill Livingstone Elsevier

Andras Birinyi: Anatomy, University textbook

Subject: **GENERAL PRINCIPLES IN NURSING AND CLINICAL PROPEDEUTICS**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Lecture: **13**

Seminar: **13**

**1. week**

Lecture: The history of nursing and medicine The physician's behavior. The patient and health care staff relationship. The professional secrecy. The aim of the diagnosis and its different forms. Symptoms of diseases.

**2. week**

Lecture: System of definitions and philosophy of nursing; nursing theories; nursing models, basic human needs; assessment of the basic human needs; patient observation. Nursing protocols and standards. Rules of the nursing documentation; ethical and legal aspects of nursing.

**3. week**

Lecture: Physiological breathing: needs of the rest and movements and their gratification; needs of nutrition, water and fluid balance and their gratification; suitable clothes and physiological body temperature.

**4. week**

Lecture: Defecation and micturition; hygienic needs; needs of communication and information. Needs of the safety; the unconscious patient; postoperative nursing tasks; aseptic and hygienic environment. How to take care of a dying patient.

**5. week**

Practical: Scene of the nursing; structure of a hospital unit; observation of the patient; measurement of vital parameters. Nursing diagnosis and preparing of the nursing plan; maintenance of the patient's personal hygiene; beds and bed-making; methods of bed-making; general and specific instructions for the bed-making.

**6. week**

Practical: Patient medication; personal and objective conditions of feeding; artificial feedings; feeding with tube.

**7. week**

Lecture: Tools for collecting urine and faeces; the planning and evaluation of the safety for patient.

**8. week**

Lecture: History taking. Family history, previous diseases, present complaints. Types of diagnosis, hospital course, hospital discharge summary. General medical physical examination (inspection, palpation, percussion, auscultation).

**9. week**

Lecture: Physical examination of the skin, head, neck, and thyroid gland, the lymph nodes, the oral cavity, the eyes and the breasts and axillae.

**10. week**

Lecture: Clinical laboratory: anatomic pathology, clinical microbiology, clinical biochemistry, hematology. Non invasive and invasive diagnostic tests (electrocardiography, nuclear medicine techniques, x-ray, ultrasound, MRI, PET, CT etc), cardiac catheterization and different forms of endoscopy.

**11. week**

Lecture: Physical examination of the respiratory and cardiovascular system.

**12. week**

Lecture: Physical examination of the abdomen and genital-urinary system.

**13. week**

Lecture: Physical examination of the locomotors system and the nervous system.

**14. week**

Lecture: Different forms of management of patients, Drug treatment efficacy, side effects, overdose and interaction. Clinical toxicology.

**Requirements**

Attendance of lectures is highly recommended, since the topics in examination cover the lectured topics. Attendance of practices is compulsory. If you missed more than 2 practices, the signature may be refused. To pass the practical examination is the indispensable condition for signature of Lecture Book.



**Subject: INTRODUCTION TO BASICS OF BIOSTATISTICS**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Seminar: **13**

Practical: **13**

**1. week**

The role and importance of statistical analysis

Demonstration of a statistical software package

**2. week**

Data handling, variable types. Links between biostatistics and data handling

Data handling, variable types

**3. week**

Mathematical basics of biostatistics (set theory, operations)

Mathematical basics of biostatistics (set theory, operations 2)

**4. week**

Description of sample data; numeric measures; graphs

Data handling (2)

**5. week**

Theoretical fundamentals of interval estimation

Theoretical fundamentals of interval estimation

**6. week**

Estimation of the population mean

Theoretical fundamentals of interval estimation; estimation of the population mean

**7. week**

Theoretical fundamentals of hypothesis testing; statistical power; type I and II error

Theoretical fundamentals of hypothesis testing; statistical power; type I and II error

**8. week**

Statistical inference; relation between interval estimation and hypothesis testing

Z test of the sample mean; one-sample t test

**9. week**

Comparison of two means, two-sample t test; paired t test

Comparison of several means

**10. week**

One-way ANOVA

Probability, proportion, odds

**11. week**

Estimation of probability

Estimation of probability; Z test of a single proportion; confidence interval

**12. week**

Comparison of two proportions; links with epidemiological indicators

Analysis of 2×2 contingency tables

**13. week**

Simple linear regression; correlation

Simple linear regression; correlation

### Requirements

Students should gain insight into the role of biostatistics, its core analytic toolset, and the job of a biostatistician in general. They should be introduced to the fundamentals of biostatistical thinking as well as the role and importance of cooperation with professional biostatisticians. They should be able to interpret common statements of a biostatistical nature and become familiar with the

application areas of the most fundamental methods.

Subject requirements:

- attendance requirement: seminars and practicals are mandatory to attend
- absence allowance: up to 2 absences allowed
- midterm exam(s) type (written, oral, moodle, etc.) and number: ---
- midterm exam(s) scheduled for week nr.: ---
- end-of-term exam(s) type (written, oral, moodle, etc.): written
- requirement(s) for signature: attendance requirement satisfied

Required reading: ---

Recommended reading: Essentials of Medical Statistics 2nd Edition by B. Kirkwood and J. Sterne, ISBN-13: 978-0865428713

**Subject: HEALTH INFORMATICS I.**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Lecture: **10**

Practical: **16**

**1. week**

Information, data, knowledge, communication, codes, measures, interpretation in the field of Informatics / Health Informatics. Signal processing, biometrics, digital imaging, artificial intelligence.

Introduction

Neptun: <http://neptun.unideb.hu/?page=studeng>

MOODLE: The e-learning system <https://elearning.med.unideb.hu/?lang=en>"

**2. week**

Health care: data security and protection – data types, data management. Health and economic data. Legal issues: Hungarian and international practice: law and judgment.

**3. week**

Health care: organizations, prevention, screening, health promotion and prevention (countries, regions, global issues), decisions. WHO and global organizations: data, legal and relevant sources, availability of data.

**4. week**

Administration, dataflow, standards, quality assurance in the Health Care. Problems, errors possible causes, uncertainties and solutions. Information systems – possibilities.

**5. week**

Classification, code systems, nomenclature, conversions. ICD, Procedure codes, SNOMED, TNM, RCC, metacode, bar code, QR code, PID, solution provider ID, economic data codes. Graphs, UMLS, GRAIL. Statistical models. Usage and value.

**6. week**

TEST (MOODLE: Multiple Choice from the Lecture material)

**8. week**

MS WORD: DATA import. Insert and edit text, picture, table, textbox chart. Formatting Fonts and Paragraphs (MS WORD) / MS PowerPoint: Making a Presentation

**9. week**

MS WORD: Cover page. Page/Section break, Header, Footer, Footnote, Endnote, Table of Contents, List of Figures, List of Tables, Number of characters / words (Home assignment!)

**10. week**

MS EXCEL: DATA export and import – text file / Selection of the cells – ranges / Filling the cells / Search, Find and Replace. / Order / Filters / 3D references / Functions

**11. week**

MS EXCEL: statistical functions: COUNT(), COUNTIF(), AVERAGE(), AVERAGEIF(),

SUM(),SUMIF(), MEDIAN(), MIN(), MAX()

**12. week**

MS EXCEL: IF(), VLOOKUP(), HLOOKUP(), INDEX() MATCH() search tables. text functions / LEFT(), RIGHT(), MID(), LENGTH(), CONCATENATE(), Date and time functions TODAY()

**13. week**

MS EXCEL: PIVOT Table + practice

**14. week**

TEST (Practical EXCEL (exercises solving with computer))

### Requirements

Basic knowledge of concepts related to Health Informatics: Information processing, file management, data protection, text and data management, knowledge of health administration systems, health care organizations, knowledge of data quality aspects. Learn about code systems. Development of basic Word and Excel (functions, statements) skills.

Subject requirements:

- Class Attendance: Attendance to lectures is optional. Attendance to the practical classes is mandatory.
- Permitted absences: 3 occasions may be missed for practical classes. If you are missing more than 3 occasions, you will not receive a signature. If you do not have a signature, you will not receive a grade.
- Form and number of mid-year examination (s) (written, oral, moodle, etc.): Two exam must be completed, each exam must be at least 60% to obtain a grade. The first exam is a multiple-choice test from the theoretical part, the second exam is a set of practical tasks to be written in front of computer. The first exam counts 40 and the second 60 percent weight into the end-of-semester grade.
- planned week of mid-year examination (s): 6th week (Theoretical exam), 14th (Practical exam)
- form of end-of-semester examination (s) (written, oral, moodle, etc.): Solving a series of practical tasks in front of a computer (14th week)
- condition (s) for obtaining a signature: Adherence to mandatory class attendance.

Required reading (max. 1 or more per topic, but with chapters):

Robert E. Hoyt Ann K. Yoshihashi: Health Informatics: Practical Guide for Healthcare and Information Technology Professionals (Sixth Edition)

Ramona Nelson, Nancy Staggers: Health Informatics: An Interprofessional Approach, 1e 1st Edition

Dimitrios Zikos, Data Driven Health Informatics (Digital Lecture), 29.06.2021.

[https://www.academia.edu/39212760/Data\\_Driven\\_Health\\_Informatics\\_Digital\\_Lecture\\_Companion](https://www.academia.edu/39212760/Data_Driven_Health_Informatics_Digital_Lecture_Companion)

E. Kékes, Gy. Surján, L. Balkányi, Gy. Kozmann: Health Informatics. Medicine, Bp. 2000.

Recommended reading:

Microsoft Support, Microsoft, 29.06.2021. (Word, Excel, PowerPoint)

<https://support.microsoft.com/hu-hu/office?ui=hu-hu&rs=hu-hu&ad=hu>

Subject: **BASICS OF PHYSIOTHERAPY**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Lecture: **26**

Subject: **KINESIOLOGY I.**

Year, Semester: 1st year/1nd semester

Number of teaching hours:

Seminar: **13**

Practical: **26**

Subject: **ROGER'S CONVERSATION**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Lecture: **13**

Subject: **PHYSICAL EDUCATION I.**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Practical: **26**

Content:

Practical: Sports events: Aerobic, Basketball, Handball, Horse-riding, Ice-skating, Skiing, Soccer, Spinning, Swimming, Tennis, Volleyball. Spare time sports: body building, badminton, floorball, Pilates, Speed Minton, cardio-workout

### **Requirements**

The subject is a criterion condition for getting Certificate of Completion.

Registering for the Physical Education courses:

Step 1: register in Neptun system – you have to choose course

Step 2: you have to come in the P.E. Department (Móricz Zsigmond körút 22, 3rd Youth Hostel) to choose sport course.

If you have any question don't hesitate to ask: [nvkata@med.unideb.hu](mailto:nvkata@med.unideb.hu)

Subject: **HUNGARIAN LANGUAGE I.**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Practical: **28**

Subject: **APPLIED HEALTH SCIENCES II.**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **52**

Seminar: **39**

**1. week**

1. Metabolism, storage of biological energy 2. Thermodynamic equilibrium potentials (Nernst-, Donnan-potential). Diffusion potential (Goldman-Hodgkin-Katz equation) 3. Intracellular transport processes, nuclear envelope, nuclear transport

**2. week**

1. Digestion and absorption of carbohydrates, glycolysis 2. Action potential and electric excitability. Measurement of the membrane potential 3. Intracellular membrane systems: lysosome, peroxysome, ER, Golgi, endo- and exocytosis

**3. week**

1. The citric acid cycle, terminal oxidation 2. Ion channels (gating, selectivity) "patch-clamp" technique 3. Energy transduction, mitochondrion

**4. week**

1. Gluconeogenesis, synthesis of glycogen, glycogenolysis 2. Physical basics of ECG and EEG I. 3. Cytoskeleton, microtubules, intermediate and microfilaments

**5. week**

1. Digestion and absorption of lipids, lipid transfer particles 2. Physical basics of ECG and EEG II. 3. Cell motility

**6. week**

1. Beta-oxidation, lipid biosynthesis 2. Basic geometrical optics. Optical microscopy. Electron microscopy 3. Cell membrane, membrane transport, ABC transporters

**7. week**

1. Digestion of proteins, amino acid degradation, urea cycle 2. The human eye as an optical system. Photoreceptors. Molecular mechanism of vision 3. Ion channels, membrane potential

**8. week**

1. Synthesis of amino acids, nitrogen balance 2. Mechanism of hearing, Weber-Fechner law. Electrical properties of auditory receptors, coding of sound 3. Signaling I: general concepts, nuclear receptors, GPCR

**9. week**

1. Digestion of nucleic acids, purine and pyrimidine metabolism 2. Biomechanics I. 3. Signaling II: TK, proteolytic signals, signaling pathways to the nucleus

**10. week**

1. Synthesis of purines, pyrimidines, nucleosides and nucleotides 2. Biomechanics II. 3. Cellular aging, cell death

**11. week**

1. Integrated metabolic pathways, starving, obesity, hormonal regulation of circadian rhythm 2. Flow of fluids, basics of blood circulation 3. Stem cells, from genes to cellular functions

**12. week**

1. Coagulation and the complement system 2. Biophysics of respiration 3. Intracellular Ca<sup>2+</sup>

**13. week**

1. Iron and hemoglobin metabolism. Extracellular matrix and muscle biochemistry

**14. week**

1. Biochemistry of bones and cartilages. Vitamins

Subject: **ANATOMY HISTOLOGY AND EMBRYOLOGY FOR PHYSIOTHERAPISTS**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **39**

Seminar: **13**

Practical: **13**

**1. week**

- Lecture: 1. Cell division. Development of gametes  
2. Fertilization. Cleavage. Development of the germ layers  
3. Differentiation of the germ layers I  
4. Differentiation of the germ layers II

**2. week**

- Lecture: 1. Development of the skeletal system I  
2. Development of the skeletal system II  
3. Development of the nervous system  
4. Development of the fetal membranes. Labor

**3. week**

- Lecture: 1. Epithelium  
2. Connective tissue  
3. Histology of the blood and bone marrow  
4. The role of white blood cells in immunity

**4. week**

- Lecture: 1. Muscle tissue  
2. The anatomy of the heart I  
3. The anatomy of the heart II  
4. Histology of blood vessels. Vascular system of the human body  
Practicum: Anatomy of the heart. Vascular system of the human body

**5. week**

- Lecture: 1. Lymph circulation. Histology of lymph nodes and spleen  
2. Organization of the respiratory system. Anatomy of the nasal cavity and larynx  
3. Anatomy and histology of the trachea and lung  
4. Organization of the digestive system. The oral cavity  
Practicum: Anatomy of the respiratory system

**6. week**

- Lecture: 1. Anatomy and histology of the pharynx, esophagus and stomach  
2. Anatomy and histology of the intestine  
3. Anatomy and histology of the liver and pancreas  
4. Organization of the urinary system. Anatomy and histology of the kidney  
Practicum: Anatomy of the digestive system

**7. week**

- Lecture: 1. Anatomy and histology of the ureter, urinary bladder and urethra  
2. Anatomy and histology of the male genital organs  
3. Anatomy and histology of the female genital organs  
4. Nervous tissue - neurons and glial cells  
Practicum: Anatomy of the urinary and genital systems

**8. week**

- Lecture: 1. Nervous tissue - synapses  
2. The peripheral nervous system - receptors, nerves and ganglia  
3. The central nervous system - organization of the spinal cord  
4. The brain. Organization of the brainstem

Practicum: Exam: Anatomy of the inner organs

**9. week**

- Lecture: 1. Structure of the brainstem. Nuclei of cranial nerves  
2. Anatomy and histology of the cerebellum  
3. Diencephalon - structure of the thalamus and hypothalamus  
4. Organization of the pituitary gland. Hypothalamo-hypophyseal system  
Practicum: Structure of the spinal cord. Organization of the spinal nerves

**10. week**

- Lecture: 1. The parts of the forebrain. Functional anatomy of the lobes  
2. Histology of the forebrain  
3. Somatosensory system  
4. Organization of the somatomotor system. Innervation of the skeletal muscles  
Practicum: Anatomy of the brainstem. Cranial nerves

**11. week**

- Lecture: 1. Role of the spinal cord in organization of movements  
2. Descending motor pathways  
3. Role of the motor cortex and basal ganglia in organization of movements  
4. Autonomic nervous system  
Practicum: Structure of the cerebellum and diencephalon

**12. week**

- Lecture: 1. Vestibular system  
2. Auditory system  
3. The eye  
4. The visual system  
Practicum: Forebrain. Meninges, liquor and blood circulation of the brain

**13. week**

Practicum: Anatomy of the auditory and visual systems

**14. week**

Practicum: Exam: Anatomy of the spinal cord and brain

### Requirements

Prerequisite: Anatomy I

Rules of examination

Concerning attendance, the rules written in the Educational and Examination Regulations of the University of Debrecen are valid. The presence in practices, seminars and lectures will be recorded. The course organizer may refuse to accept the academic performance if a student is absent from more than two practices or misses more than 50% of the lectures in the semester.

Midterm examinations

Two midterm examinations will be held on the 9th and 15th weeks in the dissection room covering the gross anatomy of the viscera and central nervous system, respectively. The students who performed the midterm examinations successfully are exempted from two topics during the practical parts of the end-semester exam.

End-semester examinations

The end-semester examinations are divided into two stations:

1. The first part of the end-semester exam is a practical oral exam will be held in the dissecting room. The exam covers gross anatomy of the viscera and central nervous system. The students have to choose a question including four topics. The list of the topics is available for the students during the semester. The students who performed the midterm examinations successfully have the right to choose only two topics out of the four during the practical examination.
2. The second part of the end-semester exam is a written exam including simple and multiple-choice test questions which cover the topics of lectures and practices.

The student has to pass the practical and the written exam, respectively. If the student pass the practical or the written exam during the A chance he/she does not have to do it again next time. Registration and postponement of the exam can be done through the NEPTUN system.

Subject: **GENERAL PRINCIPLES IN NURSING AND CLINICAL PROPEDEUTICS – SUMMER PRACTICE**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Practical: **39**

Subject: **BASICS OF DIETETICS**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **26**

**8. week**

Introduction of dietetic nutrition. Basic definitions. Energy and food requirements. Nutrients.

**9. week**

Characteristics for the nutrition of the Hungarian population. Hungarian nutrition recommendation.

**10. week**

Food product knowledge. Food preparation methods. Basics of menu planning.

**11. week**

Counting appropriate energy and nutrient intake for individuals.

**12. week**

Obesity. Opportunities the healthy losing weight.

**13. week**

Diet of Diabetes mellitus. Diet in Osteoporosis. Diet in Celiac Disease.

**14. week**

Eating disorders. Possibilities of roboration. Food allergies treatment.

Subject: **HEALTH INFORMATICS II.**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **10**

Practical: **16**

**1. week**

Concepts of database systems, database and database manager, historical overview of its development, Requirements for information systems, Structure of data storage, Access to data, Application programs.

**2. week**

Formation of a relational data model, Relational data structure (getting to know its elements), Operations of a relational data model. Normalization.

**3. week**

An insight into the relational algebra that forms the basis of queries. Structural description of SQL language. Data security, Data protection in healthcare - data types, data management, disposal rights.

**4. week**

New data storage, collection and processing procedures. (Big Data, Machine Learning, Data Mining, Artificial Intelligence) Representation of results, interpretation of health statistics Getting to know data sources: HFA database, OECD database, EUROSTAT, KSH.hu, www.cdc.gov



**5. week**

TEST (MOODLE: Multiple Choice from the Lecture material)

**6. week**

MS EXCEL: Search functions: INDEX (MATCH()) knowledge and comparison with the already known FKERES, VKERES search functions + problem solution

**7. week**

MS EXCEL: Pivot table (creation of groups, filters, multi-level tables, slicers)

**8. week**

MS EXCEL: Exercise solution (search functions and pivot tables)

**9. week**

DATABASE MANAGEMENT: Learn about MS Access database manager. Learn about other database management systems: Apache OpenOffice, LibreOffice Data Import, Export. Creating a data table, Linking data tables

**10. week**

DATABASE MANAGEMENT: Queries (SQL) I. (Understanding the structure of SQL, Simple queries, Sorting result rows, Alias)

**11. week**

DATABASE MANAGEMENT: Queries (SQL) II. (Select rows, query with search criteria: Simple criteria, Criteria in sets, Advanced search criteria, Precedence of operations)

**12. week**

DATABASE MANAGEMENT: Queries (SQL) III. (Grouping, Group Functions, Nested SELECT Instructions, Linking Tables)

**13. week**

DATABASE MANAGEMENT: Task Solution I.

**14. week**

DATABASE MANAGEMENT: Task solution II.

**15. week**

TEST (practical exercise EXCEL + ACCESS (problem solving with a computer)

Subject: **ELECTRO-, BALNEO-, HYDRO-, AND CLIMATOTHERAPY (EBHCT)**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **13**

Practical: **13**

**1. week**

Definition and subdivisions of physical therapy, theoretical background of electrotherapy, low frequency treatments, galvanic current therapy, special Galvan treatments

**2. week**

Theoretical background of the iontophoresis and TENS therapies

**3. week**

Theoretical background of selective stimulus therapies and the middle frequency electrotherapies (diadynamic and interference treatments)

**4. week**

Theoretical background of the high frequency therapies and magnetotherapy, mechanotherapy: ultrasound, traction therapies, hydromassage

**5. week**

Theoretical background of hydrotherapy, balneotherapy and climate therapy

**7. week**

Theoretical background of inhalation therapies, phototherapy

**Requirements**

Prerequisite: Biophysics, Basics of Physiotherapy

Course Requirements:

Conditions for obtaining a signature:

Attendance at lectures and practice is compulsory. The prerequisite for obtaining the signature is not to exceed the permissible absences from theoretical and practical lessons! Theoretical absences are 2 hours, and the practical lessons are 2 hours during the semester. Exceeding the permissible absences implies a refusal to sign. Replacement is possible on the basis of consultation with the practice supervisors.

Exam type: 5 grade practice grade. One complex written exam (from theoretical and practical part) during the semeste, pass grade:60%. During the first two weeks of the exam period a complex oral exam will take place.

Examination:End-semester exam (ESE)

Subject: **PHYSIOLOGY I.**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **26**

Seminar: **13**

**1. week**

lecture: Basic neuronal functions: resting potential and excitatory processes; function of neuronal networks; sensory receptors; properties of impulse propagation, synaptic transmission, effectors; injury of nerves, regeneration

seminar: Introduction to the subject. Requirements

**2. week**

lecture: Somatosensory function of CNS: psychological and psychophysical basic definitions; deep sensation; proprioception; exteroceptors, the skin as a sensory organ; significance and mechanisms

of pain sensation; specific and aspecific ascending sensory systems; function of the sensory cortex  
seminar: Disorders of impulse propagation and synaptic transmission

**3. week**

lecture:

Somatomotor function of CNS: reflex activity at different levels; proprioceptive and exteroceptive spinal cord reflexes; injury of spinal cord, acute and permanent consequences

seminar: Disorders of sensory functions

**4. week**

lecture

Reflex control of posture, the vestibular apparatus as receptor structure; distribution of muscle tone

seminar: Reflex control of posture

**5. week**

lecture: Role of the brainstem in the movement regulation; cortical mechanisms; role of the cerebellum in the coordination of movement; dysfunction of motoric system at various level of regulation

seminar: Postural disorders

**6. week**

lecture:

Skeletal muscles as effectors: motor unit; electric properties of skeletal muscle; characteristics of mechanical response; regulation of muscle tone

seminar: Higher function of CNS

**7. week**

lecture: Neuromuscular synaptic transmission; myasthenia gravis; dysfunctions of skeletal muscles with myogenic and neurogenic origin; denervation and inactivity atrophy

practice: Neurological examinations

**8. week**

lecture: Lecture: Impulse generation and conduction in the heart in normal and pathological conditions; myogenic and neural regulation of cardiac output; factors affecting cardiac performance; role of Starling mechanism in pathologic conditions

practice: Discussion of clinical relations (disorders of impulse generation and conduction): analysis of abnormal ECG records

**9. week**

lecture: Main features of coronary circulation; oxygen consumption and physical work. Aspects of cardiac performance; metabolic demand for physical activity

practice: Analysis of abnormal ECG records

**10. week**

lecture: Lecture: Regional circulation in resting condition (pulmonary circulation, cerebral flow, blood supply of skeletal muscles; renal and splanchnic circulation)

practice: Pulse qualities, blood pressure measurement, heart sound; changes in cardiovascular parameters during physical activity, restoration

**11. week**

lecture: Regional circulation during physical activity, redistribution of cardiac output.

Characteristics of circulation and changes in the flow during physical exercise in the skeletal muscle vessels

seminar: Case studies

**12. week**

lecture: Microcirculatory system, effects of physical exercise on its function; venous circulation, improvement the venous return by physical exercise

practice: Summary: neural and humoral factors acting on the precapillary vessels

**13. week**

lecture: Mechanical aspects of respiration: resistance of airways; static and dynamic respiratory parameters; factors affecting respiratory minute volume; effects of physical exercise on respiration  
practice: Obstructive and restrictive respiratory disorders, pathophysiology, analysis of respiratory parameters; analysis of respiratory parameters during physical activity

**14. week**

lecture: Alveolar gas exchange in normal and pathological conditions; chemical and neural regulation of respiration; energetic aspects of physical work; metabolic changes during physical activity; physical activity and thermoregulation  
practice: Normal and pathological breathing patterns; long term adaptation of cardiorespiratory system to physical activity

**Requirements**

Signature of Lecture Book

Attendance at lectures and seminars is compulsory. The signature of the Lecture Book may be refused for the semester in the cases of absences from more than two seminars.

Evaluation during the semester

The knowledge of students will be tested 3 times per semester using a written test system (mid-semester tests). Participation is compulsory.

Examination

The semester is closed by the end-semester exam (ESE) covering the topics of all lectures, seminars. It is not compulsory to take the ESE if the average of mid-semesters test reaches or higher than the passing limit (55%) and none of the individual tests' results are less than 40%.

The mark based on the average score of mid-semester tests is calculated according to the following table:

0 – 54 % fail (1)

55 – 64 % pass (2)

65 – 74 % satisfactory (3)

75 – 84 % good (4)

85 – 100 % excellent (5)

If one is not satisfied with this result, (s)he may participate in ESE during the examination period. A and B chances are written tests, C chance is oral presentation.

Actual information is available on the website of the Department of Physiology:

<http://phys.dote.hu/index.php?action=oldal&process=showpage&id=46>

The contact hours are completed by an e-learning module containing the course material and assessments.

The e-learning module is available at: <https://elearning.med.unideb.hu/course/view.php?id=434>

The e-learning module is aimed to support the effective learning process. The lectures cannot be substituted by e-learning activity. You can collect bonus points by fulfilment of different tasks in the module. 10% of the scores can be achieved in the e-learning module. The bonus points (maximum 10% of total) are added to the average score achieved in mid-term tests or ESE, if there is no performance below 40% and the average score is at least 55% without bonus points.

Subject: **BASICS OF EPIDEMIOLOGY**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **13**

Seminar: **13**

Subject: **COMMUNICATION**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Seminar: **13**

**1. week**

Lecture: Introduction to the concept of communication. Channels of communication. Verbal and non-verbal communication. The main non-verbal channels.

**2. week**

Lecture: The helping relationship. Influencing factors, principles. The role of empathy in the communication.

**3. week**

Lecture: Aggressive, passive and assertive communication. Effective communication techniques

**4. week**

Lecture:

The importance of communication with people in different situations. Difficulties in communication situations. Persuasive communication.

**5. week**

Lecture: Communication Disorders. Special issues in communication.

**6. week**

Lecture: Management of the conflicts occurred during the helping relationship. Communication with the elderly.

**7. week**

Lecture: Communication with impaired persons. Communication with the 'difficult' patient. Communication with acute patients.

**8. week**

Lecture: Consultation

Practical: Preparation for the field practice. Review of the basic concepts of communication, communication channels. Verbal and non-verbal communication.

**9. week**

Practical: Significance of the first impression. Analysis of our own communication styles. Aggressive, passive and assertive communication. Persuasive communication.

**10. week**

Practical: Film – the doctor.

**11. week**

Practical: Film – analyzing its communicational aspect.

**12. week**

Practical: Field practice – observation (no course).

**13. week**

Practical: Persuasive communication Effective communications techniques. Presentation of the field practice and feedbacks.

**14. week**

Practical: Presentation of the field practice and feedbacks.

Feedbacks. Written exam.

### **Requirements**

Attendance at lectures is highly recommended, at practical hours is compulsory. If there are more than 2 absences from practical hours the module coordinator refuses the signature of the Lecture Book.

Subject: **KINESIOLOGY II**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **26**

Seminar: **26**

Practical: **56**

#### **1. week**

Lecture: Description and analysis of human movements by physical terms.

E Seminar: Fundamentals in physical examination, SOAP-NOTE – General process of examination.

Examination in pathological conditions based on James Cyriax's theory

A Seminar: Review of the anatomy of the trunk muscles, general rules of physical exercises.

Gravity, body positions, tools, lever arm used in the physiotherapy. Movement terminology:

elongation, isometric and isotonic muscle contractions, synergisms.

#### **2. week**

Lecture: Structure and function of joints. Determination of osteokinematics and arthrokinematics.

E Seminar: Anamnesis and inspection of the pelvis and SI joint. Complex functional examination of pelvis and SI joint.

A Seminar: Analysing movements of trunk flexors in different positions.

#### **3. week**

Lecture: Structure and function of skeletal muscles. Types of muscle activity.

E Seminar: Complex functional examination of pelvis and SI joint.

A Seminar: Analysing movements of trunk extensors in different positions

#### **4. week**

Lecture: The vertebral column - general structure and function: the mobile segment, a typical vertebra, the intervertebral disk, articulation, ligaments and joint capsules. Function: kinematics and kinetics

E Seminar: Anamnesis and inspection of the lumbar spine. Complex functional examination of the lumbar spine.

A Seminar: Analysing movements of trunk lateral flexors in different positions

#### **5. week**

Lecture: Structure and function of the sacral and lumbar region, sacroiliac joint and the symphysis.

Effect of muscles on lumbar and sacral regions. Pelvico-lumbo-hip synergism. Analysis of the muscle synergism of the trunk.

E Seminar: Complex functional examination of the lumbar spine.

A Seminar: Analysing movements of trunk rotators in different positions

#### **6. week**

E Seminar: Anamnesis and inspection of the thoracic spine. Complex functional examination of the thoracic spine.

A Seminar: Muscle chains - synergism. Possibilities of improvement of proprioception by different tools. Compensatory mechanisms.

#### **7. week**

Lecture: Structure and function of the thoracic region: typical thoracic vertebra, articulations, kinematics and kinetics. Diaphragm, muscles associated with rib cage. Respiratory function

E Seminar: Anamnesis and inspection of cervical spine. Complex functional examination of the

cervical spine.

A Seminar: Complex analysis of muscle chains of pelvis and trunk.

**8. week**

Lecture: Structure and function of the upper cervical region: typical cervical vertebra, articulations, kinematics and kinetics. Atlanto-occipital and atlanto-axial joints. Effect of muscles on the cervical regions. Lower functional region of the neck. Effect of muscles on the cervical regions.

Practice - Analysis: General rules of physical exercises, body positions and tools used in the physiotherapy

Elongation, isometric and isotonic muscle contractions, synergisms (practical examples). Active exercises of trunk flexors in different positions by taking the principle of gradation into consideration: with and without tools, in pairs.

Practice – Examination: Rules and tools in examination. Inspection of posture, standing and gait pattern. Examination of pelvis and SI joints.

**9. week**

Practice - Analysis: Strengthening of the trunk flexors in different positions by taking the principle of gradation into consideration: with and without tools, in pairs.

Active exercises and strengthening exercises of the trunk flexors launched from supine position, and on oblique desk.

Practice – Examination: Examination of pelvis and SI joints II.

**10. week**

Lecture: Components of the shoulder complex: sterno-clavicular, acromio-clavicular joints, scapulo-thoracic functional attachment. Structure and function of the shoulder girdle.

Practice - Analysis: Dictation exercises for trunk flexors in different positions by taking the principle of gradation into consideration: gravity and lever arm.

Active exercises of the trunk extensors by taking the principle of gradation into consideration: gravity and lever arm.

Practice – Examination: Examination of lumbar spine.

**11. week**

Lecture: Components of the gleno-humeral joint. Structure and function, osteo and arthrokinematic motions of the gleno-humeral joint.

Practice - Analysis: Active exercises and strengthening of the trunk extensors in different positions by taking the principle of gradation into consideration: with and without instruments, in pairs.

Strengthening exercises of the trunk extensors launched from prone position, on all fours, creeping-, kneeling-, standing positions, and on oblique desk.

Practice – Examination: Examination of lumbar spine II.

**12. week**

Practice - Analysis: Active exercises of the trunk extensors in different positions by taking the principle of gradation into consideration: with and without tools, in pairs.

Strengthening exercises of the lateral trunk flexors and rotators with and without tools, exercises in pairs.

Practice – Examination: Examination of lumbar spine II.

**13. week**

Lecture: Complex overview of dynamic stabilizers of pelvis, trunk and shoulder girdle.

Practice - Analysis: Active exercises of the trunk lateral flexors and rotators in different positions by taking the principle of gradation into consideration: gravity and lever arm.

Active exercises of the trunk lateral flexors and rotators in different positions by taking the principle of gradation into consideration: with and without tools, in pairs

Practice – Examination: Examination of cervical spine.

**14. week**

Lecture: The temporo-mandibular joint: articular surfaces, disk, capsules and ligaments; mandibular motion and muscular control Examinations of the temporo-mandibular joint in physiological and pathological states; relationships between the functions of the temporo-mandibular joint and neck.

Practice - Analysis: Complex exercises of the trunk muscles in different positions by taking the principle of gradation

Strengthening exercises of the trunk muscles in different positions by taking the principle of gradation

Practice – Examination: Examination of cervical spine II.

### **Requirements**

Attendance at lectures is highly recommended, attendance at seminars and practices is compulsory. If you miss more than 2 seminars or practices per modules, the signature may be refused.

Exam: The exam consists of three components: complex (theoretical +examination +analysis) exam should be taken in the exam period.

The final grade is calculated as the average of the results of the 3 components (theoretical +examination +analysis) if each of them are at least pass (2).

The grade cannot be improved separately during the semester. If any of the module grades is fail, then the final grade of the exam is fail.

Subject: **HUNGARIAN LANGUAGE II.**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Practical: **28**

#### **1. week**

Lesson Greetings

#### **2. week**

Lesson Nationalities, languages

#### **3. week**

Lesson Places, numbers

#### **4. week**

Lesson Test your Knowledge

#### **5. week**

lesson Activities, times of day

#### **6. week**

Lesson Activities II

#### **7. week**

Lesson Revision (Midterm)

#### **8. week**

Lesson Everyday objects, food and drink

#### **9. week**

Lesson The menu, ordering, shopping

#### **10. week**

Lesson The weather

#### **11. week**

Lesson Test your knowledge 2

#### **12. week**

Lesson Body parts

#### **13. week**

Lessn Jobs, family relations

#### **14. week**



Revision 2 (Endterm+oral exams)

Attending the online language classes is compulsory. If a student joins the online class after 15 minutes the class starts, it is considered as an absence. In case of missing more than 10 percent of the lessons the student may not take the exam. For the successful completion of the course students should participate in the classes using their microphones and cameras and should complete all the assignments given by their teacher. Students have to take a written mid and final exams + oral form at the end of the course. Passing requirement for the mid and final tests is 60%.

(Students who do not complete the Hungarian Language Course cannot receive a signature ).

90% 5 (jeles) excellent A

80% 4 (jó) good B

70% 3 (közepes) medium C

60% 2 (elégséges) satisfactory D

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0-59% 1 (elégtelen) unsatisfactory – you failed F

Subject: **PHYSICAL EDUCATION II.**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **28**

**Content:**

Practical: Sports events: Aerobic, Basketball, Handball, Horse-riding, Iceskating, Skiing, Soccer, Spinning, Swimming, Tennis, Volleyball. Spare time sports: body building, badminton, floorball, Pilates, Speed Minton, cardio-workout etc.

**Requirements**

The subject is a criterion condition for getting Certificate of Completion.

Registering for the Physical Education courses:

Step 1: register in Neptun system – you have to choose course

Step 2: you have to come in the P.E. Department (Móricz Zsigmond körút 22, 3rd Youth Hostel) to choose sport course

If you have any question don't hesitate to ask: [nvkata@med.unideb.hu](mailto:nvkata@med.unideb.hu)

**Subject: BASIC PSYCHOLOGY I.**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **26**

**1. week**

Introduction, course requirements. Topics, fields, history and methods of psychology. Psychological functions and behavior.

**2. week**

Object and subject. Sensation and perception. Attention, memory, wakefulness and sleep. Stages of sleep.

**3. week**

Thinking, intelligence, creativity. Arousal, affect, emotion, mood, instinct. Basic emotions. Recognition and control of emotions, impulse control.

**4. week**

Drive, impulse, motivation. Hierarchy of motivation (Maslow, Ryan&Deci). Stimulation and incentive.

**5. week**

Stress and coping: stressful events, psychological and physiological reactions to stress. Acute and chronic stress and their impact on health. Coping skills.

**6. week**

Learning and conditioning. Classical and operant conditioning. Teaching and learning.

**7. week**

Personality. Theories of personality.

**8. week**

Stages of psychological development. Expected competences and behaviours by age during normal development. Gender differences in psychology and behavior.

**9. week**

Social behavior. Attachment, mother-baby relationship, intimate relationship. Family, socialization.

**10. week**

Basics of health psychology.

**11. week**

Interrelationship of body and mind. (Psychosomatic diseases, impact of belief on the body.)

**11. week**

Basics of clinical psychology.

**13. week**

How to improve/treat psychological dysfunctions. (Psychoterapy, pharmacotherapy, relaxation techniques)

**Subject: PHYSIOLOGY II.**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **26**

Practical: **13**

**1. week**

Basic neuronal functions: resting membrane potential and excitatory processes; electrotonic potential, receptor potential, postsynaptic potential

Function of neuronal networks, properties of impulse propagation, injury of nerves, regeneration

**2. week**

Significance and mechanisms of pain sensation; specific and aspecific ascending sensory systems; function of the sensory cortex

Principles of cell physiology

**3. week**

Somatomotor function of CNS: reflex activity at different levels; proprioceptive and exteroceptive spinal cord reflexes; Reflex control of posture

Sensory function of the nervous system in normal and pathologic conditions

**4. week**

Role of the brainstem in the movement regulation; cortical mechanisms; role of the cerebellum in the coordination of movement; dysfunction of motoric system at various level of regulation

Neurological examinations

**5. week**

Neuromuscular synaptic transmission; myasthenia gravis; dysfunctions of skeletal muscles with myogenic and neurogenic origin; denervation and inactivity atrophy Electrical activity of the cortex, EEG, Higher function of CNS: sleeping, emotions, learning, memory

Motor function of the nervous system in normal and pathologic conditions Myasthenia gravis; dysfunctions of skeletal muscles with myogenic and neurogenic origin

**6. week**

Impulse generation and conduction in the heart in normal and pathological conditions; myogenic and neural regulation of cardiac output; factors affecting cardiac performance

Analysis of ECG records

**8. week**

Discussion of clinical relations of ECG

Analysis of abnormal ECG records

**9. week**

Main features of coronary circulation; pathologic coronary flow, oxygen consumption and physical work. Aspects of cardiac performance; metabolic demand for physical activity. Vitium cordis, cardiomyopathies. Cardiac decompensation

Pulse qualities, blood pressure measurement, heart sounds

**10. week**

Characteristic of the circulation in pathologic conditions Hypertension, hypotension, pathologic

venous circulation, disorders of the lymphatic circulation, circulatory shock  
Mechanical aspects of respiration: resistance of airways; factors affecting respiratory minute volume; effects of physical exercise on respiration Obstructive and restrictive respiratory disorders, pathophysiology, analysis of respiratory parameters; Alveolar gas exchange in normal and pathological conditions Normal and pathological breathing patterns

**11. week**

Short and long term adaptation of the cardiorespiratory system to the physical activity  
Characteristics of circulation in exercise, metabolic changes during exercise; physical activity and thermoregulation

Cardiac parameters during exercise, metabolic rate, BMI

**12. week**

Nutrition-related pathologic condition I: role of the nutrition in the progression of the cardiovascular disease and cancer, food allergy, food intolerance, eating disorders

Pathologic condition related to the nutrition

**13. week**

Nutrition-related pathologic condition II: obesity, nutrition as a risk factor of diabetes mellitus, metabolic syndrome

Nutrition-related pathologic condition

**14. week**

Disorder of motility and secretion of the gastrointestinal system, disorders of liver function

Interactions among pathological conditions of organs

Subject: **FIRST AID**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **13**

Practical: **13**

Subject: **INTRODUCTION TO LAW**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **26**

**1. week**

Introduction to law, concept of law

**2. week**

The legal system, legal norm

**3. week**

Sources of law, scope of legislation

**4. week**

The state and its functions

**5. week**

Branches of governance, separation of powers

**6. week**

The parliament, the government

**7. week**

The president, the constitutional court

**8. week**

The judicial system

**9. week**

Legal relationships; civil, political and personal rights

**10. week**

Corporations

**12. week**

Property law

**12. week**

Contractual law

**13. week**

Civil law - Criminal law

### Requirements

Obtaining general legal knowledge and defining the role of law. To present the legal systems, the law, the functioning of the state, the role of legal entities. Overview of the branches of power and the structure of the state, its institutional system, principles of operation and legal framework, knowledge of different legal sources. Providing comprehensive knowledge on law enforcement, enforcement, and the role of the courts. Understanding the rights of individuals, the importance of different legal relationships and the presentation of the general principles of civil law and legal institutions, the legal relevance of property, and the importance of contracts in our everyday lives.

Tantárgyi követelmények:

- óralátogatási kötelezettség: in accordance with the Academic and Examination Code of the University of Debrecen
- hiányzások megengedett mértéke: in accordance with the Academic and Examination Code of the University of Debrecen
- évközi számonkérés(ek) formája (írásbeli, szóbeli, moodle, stb.) és száma: -
- évközi számonkérés(ek) tervezett oktatási hete: -
- félév végi számonkérés(ek) formája (írásbeli, szóbeli, moodle, stb.): written
- aláírás megszerzésének feltétele(i): -

Kötelező irodalom (max. 1, vagy témakörönként több, de jelölve a fejezeteket):

Lucy Jones: Introduction to Business Law. Oxford University Press, 2013.

Subject: **MICROBIOLOGY I.**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **13**

Seminar: **13**

**1. week**

History of microbiology. Structure of bacterial cells. Essential and nonessential components. Cell walls of Gram-positive and Gram-negative bacteria. Virulence factors (capsule, enzymes). Microscopic examination.

**2. week**

Bacterial metabolism. Aerobic and anaerobic bacterial growth. Fermentation of sugars. Iron metabolism. Aerobic and anaerobic cultivation. Sterilization and disinfection.

**3. week**

The human microbiome. Types of bacterial infections. Bacterial pathogenesis. Toxin production: exotoxins and endotoxins. Infectious diseases and host defenses. Innate and adaptive immunity.

**4. week**

Laboratory diagnosis of bacterial infections. Rules for collecting clinical specimens. Serological reactions: precipitation, agglutination, and complement activation. Enzyme-linked immunosorbent assay (ELISA), fluorescent-antibody assay.

**5. week**

Bacterial vaccines. Antimicrobial drugs. Chemoprophylaxis. Antibiotic sensitivity.

**6. week**

Overview of the major Gram-positive bacteria: Staphylococci, Streptococci, Bacillus, Clostridia. Epidemiology and clinical findings. Laboratory diagnosis.

**7. week**

Overview of the major and Gram-negative bacteria. Enterobacteriaceae and non-fermentative Gram-negative bacilli. Zoonotic infections. Epidemiology and clinical findings. Laboratory diagnosis.

**8. week**

Skin and soft tissue infections caused by bacteria: Staphylococcus aureus, Streptococcus pyogenes, Clostridium perfringens.

**9. week**

Respiratory tract infections caused by bacteria. Streptococcus pyogenes, Haemophilus influenzae, Corynebacterium diphteriae, Bordetella pertussis, Streptococcus pneumoniae, Mycobacterium tuberculosis, Legionella pneumophila, Mycoplasma pneumoniae.

**10. week**

Intestinal infections caused by bacteria: Campylobacter jejuni, Salmonella spp., Shigella spp., Yersinia spp., Escherichia coli, Vibrio cholerae, Clostridium difficile.

**11. week**

Urinary tract infections caused by bacteria: Escherichia coli, Enterococcus faecalis, Staphylococcus saprophyticus, Proteus spp., Klebsiella spp., Enterobacter spp., Pseudomonas aeruginosa.

**12. week**

Sexually transmitted bacterial diseases. *Neisseria gonorrhoeae*, *Haemophilus ducreyi*, *Treponema pallidum*, *Chlamydia trachomatis*

**13. week**

Central nervous system diseases caused by bacteria: *Neisseria meningitidis*, *Escherichia coli*, *Streptococcus pneumoniae*, *Streptococcus agalactiae*, *Listeria monocytogenes*.

**14. week**

General mycology. Medically important fungi. General properties of fungi. Dermatomycoses, Subcutaneous mycoses. Systemic and opportunistic mycoses. Clinical diagnosis.

The students are required to attend the seminars. The Department may refuse to sign the students' Microbiology subject if they are absent more than two seminars in a semester.

Subject: **MOBILIZATION-MANUAL TECHNIQUES I.**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **13**

Practical: **65**

**1. week**

Lecture: PNF: Definition and history of the proprioceptive neuromuscular facilitation (PNF).

Introduction to classic Swedish massage

Practical: (1) Massage: examination of patient; palpation of subcutaneous connective tissue, blood vessels, lymph nodes, muscles, tendons and insertions of tendons; (2) Passive mobilization: goals, principles, rules of application. (3) PNF I: Introduction to the PNF. Basic positions of the PNF

**2. week**

Lecture: PNF: Basic procedures of the PNF. Specific treatment goals. Massage: basic techniques in Swedish massage; special, complementary techniques; theoretical knowledge of Swedish massage treatment of the back, the neck-shoulder girdle region, chest and abdomen

Practical: (1) Massage: Swedish massage treatment of the back (2) Passive mobilization: passive mobilization of the neck (3) PNF I: Examination of diagonal movements

**3. week**

Lecture: PNF: Fundamentals of the patterns, assessment, manual contact, resistant

Practical: (1) Massage: palpation of the muscles in the neck-shoulder girdle complex; qualitative evaluation of the muscular tone; Swedish massage treatment of the neck-shoulder girdle region (2) Passive mobilization: passive mobilization of the lumbar and thoracic spine (3) PNF I: scapula patterns: anterior elevation, posterior depression, anterior depression, posterior elevation

**4. week**

Lecture: Stretching: Definitions, theoretical elements of stretching

Practical: (1) Massage: Swedish massage treatment of the chest; expectoration of the bronchial secretion by percussion and vibration; support of thoracic breathing by intermittent intervention; Swedish massage treatment of the abdomen; Swedish massage treatment of the face; treatment of scars (2) Passive mobilization: passive mobilization of the scapulae (3) PNF I: pelvis patterns: anterior elevation, posterior depression, anterior depression, posterior elevation

**5. week**

Lecture: Passive mobilization: general purposes of the passive mobilization, theoretical elements of passive mobilization

Practical: (1) Massage: Swedish massage treatment of the lumbo-gluteal region; Swedish massage



treatment of the lower limb (2) Passive mobilization: passive mobilization of the shoulder (3 PNF I: arm patterns; flexion-abduction-external rotation; extension-adduction-internal rotation

**6. week**

Lecture: Massage: types of the reflex zone massage: segment massage, connective tissue and periosteal massage; segmentation of the human body, segmental innervation of the organs and tissues; physiological basis of the segment massage; patterns of the referring pain; viscera-cutaneous and viscera-muscular reflex pathways; definition of the Head and McKenzie zones; hyperalgetic dermatomes and spasms; painful myotomes

Practical: (1) Massage: examination of Head and McKenzie zones (2) Passive mobilization: passive mobilization of the elbow (3) PNF I: arm patterns; flexion-abduction-external rotation with elbow flexion and extension; extension-adduction-internal rotation with elbow flexion and extension

**7. week**

Lecture: Massage: the aim and application fields of the segment massage, duration, techniques

Practical: (1) Massage: preceding examinations of the patients; structure of the segment massage; practising techniques (2) Passive mobilization: passive mobilization of the wrist and hand joints (3) PNF I: arm patterns; flexion-adduction-external rotation; extension-abduction-internal rotation

**8. week**

Practical: (1) Massage: special manoeuvres; segment treatment; rules of the segment massage; importance of the maximal points, their mapping; segment massage treatment of the heart and the lungs (2) Passive mobilization: passive mobilization of the hip joints (3) PNF I: arm patterns; flexion-adduction-external rotation with elbow flexion and extension; extension-abduction-internal rotation with elbow flexion and extension

**9. week**

Practical: (1) Massage: segment massage treatment of the stomach, the liver and gallbladder (2) Passive mobilization: passive mobilization of the knee (3) PNF I: leg patterns; flexion-abduction-internal rotation; extension-adduction-external rotation

**10. week**

Practical: (1) Massage: examination of patient, practising techniques of the connective tissue massage (2) Passive mobilization: passive mobilization of the ankle and toe joints (3) PNF I: leg patterns; flexion-abduction-internal rotation with knee flexion and extension; extension-adduction-external rotation with knee flexion and extension

**11. week**

Practical: (1) Massage: practice of the pelvis techniques; treatment of the trunk (2) Passive mobilization: positioning techniques (3) PNF I: leg patterns; flexion-adduction-external rotation; extension-abduction-internal rotation

**12. week**

Practical: (1) Massage: lateral trunk pattern; treatment of the scapula; treatment of the chest; patterns for upper limbs; mobilization techniques (2) Passive mobilization: mobilization techniques (3) PNF I: leg patterns; flexion-adduction-external rotation with knee flexion and extension; extension-abduction-internal rotation with knee flexion and extension

**13. week**

Practical: (1) Massage: treatment of the abdomen and gluteal region; patterns for the lower extremities; repetition (2) Passive mobilization: repetition, practice (3) PNF I: repetition, practice

**14. week**

Practical: (1) Massage: practice exam (2) Passive mobilization: practice exam ((3) PNF I: practice exam

### Requirements

Prerequisites: Anatomy II, Electro-, balneo-, hydro- and climatotherapy, Kinesiology I  
Attendance at practices is compulsory. If you missed more than 2 practices per modules, the

signature may be refused. Examination: The term mark consists of 2 components in each module: (1) theoretical and (2) practical knowledge will be assessed at the end of the semester. The grades of the modules will be averaged and will be determined as the final grade. If any of the partial grades is/are “fail”, the final grade is “fail”. You have a chance to improve the unsuccessful part(s) once in the examination period not later than the end of the third week.

Subject: **KINESIOLOGY III.**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **26**

Seminar: **13**

Practical: **78**

Subject: **WORK SAFETY AND FIRE PROTECTION**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Seminar: **6**

Subject: **PUBLIC HEALTH MEDICINE I.**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **39**

**1. week**

Introduction of Medicine

Introduction of Medicine. Course requirements

Diagnostic behaviour of physicians – case presentation. Prevention of major health diseases (primary, secondary and tertiary prevention). „Evidence based medicine”

Laboratory diagnosis, blood sampling, ABO and Rh blood group determination, examination of urine sediment. Molecular genetic methods.

**2/3. weeks**

Introduction of Public Health Medicine

The physician’s ethical, clinical and legal accountability: health protection and prevention.

Clinically significant symptoms and compulsory questions. Case history and physical examination.

Medical ethics. History taking. General physical examination. Special examinations:

electrocardiography (ECG), blood gas analysis, rectal digital examination.

The importance of internal medicine in public health

The history and methods of public health and preventive medicine. Major public health issues in developing and developed countries

Imaging techniques (X-ray, CT). The basic principles of radiotherapy.

**4/5. weeks**

Metabolic disorders

Diabetes mellitus. Micro- and macrovascular complications of diabetes mellitus

The role of diet in type 2 diabetes mellitus

Diet in metabolic disorders. A practical approach to healthy eating

Obesity, lipid and other metabolic disorders

Diet in metabolic disorders

Insulin regimens and treatment, blood sugar measurement.

Diabetic recipes and a healthy diet

**6/7. weeks**

Cardiology

Epidemiology of heart diseases. Risk factors. Primary and secondary prevention. Acute coronary

and chronic ischaemic heart disease (differential diagnosis of chest pain, acute coronary syndrome)  
Physical examination of patients with cardiac disorders. Differential diagnosis of chest pain, acute coronary syndrome. ECG, exercise tolerance test, Holter-ECG. Echocardiography.

Cardiac failure: signs, diagnosis and treatment. Arrhythmias

Atherosclerosis, occlusive arterial disorders. Acute deep vein thrombosis.

Pacemaker therapy, defibrillation, radiofrequency ablation. Peripheral arterial disease, deep vein thrombosis and pulmonary embolism.

### **8/11. weeks**

Emergency Medicine

Oxyology (fundamental concepts, organization of a National Ambulance Service) Introduction of an Emergency Department, internal oxyology

CPR. BLS, ALS. Work at the local Emergency Department

The most important medical emergencies I.

Related topics

The most important medical emergencies II.

Related topics

The most important medical emergencies III.

Related topics

### **12. week**

Urology

The basic principles of urology, examination of the genitourinary tract

Visiting wards and operating theatres, basic instruments in urology.

### **13. week**

Nephrology

Acute kidney injury (acute renal failure), Chronic kidney diseases (chronic renal failure). Kidney transplantation

Renal Replacement Therapy and Extracorporeal Life Support.

### **14. week**

Hypertension

Hypertension: clinical signs, classification, prevention and therapy

Blood pressure measurement, ambulatory blood pressure monitoring (ABPM). Ankle brachial pressure index (ABPI).

## **Requirements**

During the semester there are going to be 2 written exams (weeks 7 and 13). 25 simple questions (from lecture and practice slides) are going to be asked on each occasion. At the end of the semester every student is going to get a mark based on his/her midterm exam results (maximum 50 points, 90-100% excellent, 80-89% good, 70-79% satisfactory, 60-69% pass, 0-59% fail). Every student can accept/turn down this mark. Those who are not willing to accept their marks have to take a written exam at the end of the semester during the exam period (25 simple questions from all semester topics, 90-100% excellent, 80-89% good, 70-79% satisfactory, 60-69% pass, 0-59% fail). Those who fail 2 times on the written exam during the exam period are going to take an oral exam (exam topics are the same as lecture and practice topics).

During the semester students have the chance to give short presentations (5-10 minutes, power point). Topics should be related to lecture topics but cannot be the same. These presentations are going to be given at the end of lectures during the semester (weeks 7 and 13). Maximum 3 points are going to be given for each presentation. These points are going to be added to your midterm exam results. Presentation slides should be sent to the coordinator's e-mail address (e-mail subject should be the following: student's name, title of presentation, date of presentation). If you turn

down your mark given based on your midterm exams you have to take a written exam at the end of the semester and your additional points (given for your presentation) are going to be lost.

Subject: **LATIN**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Seminar: **26**

Subject: **APPLIED TRAINING METHODS**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **10**

Seminar: **10**

Practical: **10**

**1. week**

Lecture: Basics of applied training methods - General purposes of movement therapy.

Seminar: Definition principles and elements of training.

Lecture: Basics of exercise physiology.

Seminar: Types of training, planning of a training program.

**2. week**

Lecture: Age-dependent characteristics of the endurance.

Seminar: Physical abilities and possibilities for improvement of conditional skills

Lecture: The physical loading.

Seminar: Criteria and rules of strengthening.

**3. week**

Lecture: Effect of physical load on the respiratory system

Seminar: Static and dynamic strengthening.

Lecture: Characteristics of muscle functions.

Seminar: Basic definitions and methods of speed training.

**4. week**

Lecture: Energetic aspects of muscle function.

Seminar: Rules and methods for improvement of flexibility

Lecture: Types of muscle contractions.

Seminar: Improvement of coordination skills.

**5. week**

Lecture: Effect of physical load on the movement system. Muscle fatigue.

Seminar: Types and characteristics of endurance training

Lecture: Methods of improvement of muscle strength and endurance

Seminar: Methods of improvement of endurance

**6. week**

Lecture: Features of endurance training programs

Seminar: Sport specific training theories and their adaptation to rehabilitation.

**7. week**

Lecture - Seminar: System of training materials

Lecture - Seminar: Criteria of training planning

**8. week**

Practice: General structure and rules of workout.

Practice: Principles and elements of warm-up and cool-down in practice.

**9. week**

Practice: General rules, principles and structure of strengthening in practice.

Practice: Strengthening – strength-endurance

**10. week**

Practice: Strengthening – maximal strength

Practice: Improvement of speed

**11. week**

Practice: Improvement of flexibility

Practice: Improvement of coordination skills

**12. week**

Practice: Rules, principles, techniques and structure of endurance training in practice. Low - impact, high - impact exercises, basics and possibilities of own zone loading during constant and interval type workout.

Practice: Difference between constant and interval type workouts. Demonstration of linear structured and choreographed workouts in practice.

**13. week**

Practice: Difference between Fartlek and interval type workouts.

Practice: Improvement of strength by circle training and interval method

**14. week**

Practice: Difference between special constant and interval type workouts

Practice: Practical exam.

### **Requirements**

Attendance at lectures, at seminars and practices is compulsory. The signature may be refused if one has more than 1 times absences from each part.

The final end-result of the subject will be calculated based on the results of theoretical-seminars and practical components.

The theoretical component can be achieved by a written exam (theoretical questions) at the last week of the semester.

Calculation of results of written exam: 0-59% Failed (1), 60-69% Pass (2), 70-79% Satisfactory (3), 80-89% Good (4), 90-100% Excellent (5).

The practical component can be achieved by individual or group projects and dictation on practical lessons according to the previously given topics and “Accepted” or “Well accepted” grade on practical exam. If the student graded “Accepted” at practical exam 5% would be given to the result of written exam. If the student graded “Well accepted” at practical exam 10% would be given to the result of written exam.

If the student graded “Non accepted” at practical exam and/or 60% can't be achieved at written exam in theoretical component, corrective exam should be taken in the first 3 weeks of exam period.

The result of the subject can be corrected only one time in the first 3 weeks of exam period.

Subject: **PROFESSIONAL HUNGARIAN LANGUAGE I.**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Seminar: **26**

**1. week**

Emlékszel?

**2. week**

Napirend

**3. week**

Melyik a jobb?

**4. week**

Melyik a jobb?

**5. week**

A testem

**6. week**

Beteg vagyok

**7. week**

Ismétlés a tudás anyja (Midterm)

**8. week**

A család

**9. week**

A család

**10. week**

Csak azért is zumbázni akarok

**11. week**

Mit csináltál tegnap?

**12. week**

Mit csináltál? 10. Hol nyaraltatok?

**13. week**

Vizsga lesz! (Endterm)

**14. week**

Oral exam

### Requirements

Attending the online language classes is compulsory. If a student joins the online class after 15 minutes the class starts, it is considered as an absence. In case of missing more than 10 percent of the lessons the student may not take the exam. For the successful completion of the course students should participate in the classes using their microphones and cameras and should complete all the assignments given by their teacher. Students have to take a written mid and final exams + oral form at the end of the course. Passing requirement for the mid and final tests is 60%.

(Students who do not complete the Hungarian Professional Course cannot receive a signature and grade).

90% 5 (jeles) excellent A

80% 4 (jó) good B

70% 3 (közepes) medium C

60% 2 (elégéséges) satisfactory D

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0-59% 1 (elégtelen) unsatisfactory – you failed F

Subject: **INTERNAL MEDICINE FOR PHYSIOTHERAPISTS**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **20**

Seminar: **20**

Practical: **20**

**1. week**

Lecture: Structure and function of the respiratory system (respiratory organs, respiratory muscles) – repetition

Practical: Examination of patients, process of examination

**2. week**

Lecture: Gas exchange in the lungs; regulation of breathing – repetition

Practical: Examination of patients, process of examination

**3. week**

Lecture: Classification of pulmonary diseases

Practical: Expectoration techniques; percussion and vibration of the chest; aerosol therapy, postural drainage; indications and contraindications

**4. week**

Lecture: Restrictive pulmonary diseases I (pneumonia)

Practical: Active expectorant techniques (active periodic breathing, forced expiratory techniques, autogenic drainage)

**5. week**

Lecture: Restrictive pulmonary diseases II (pleuritis)

Practical: Positive expiratory pressure techniques (flutter, PEP mask)

**6. week**

Lecture: Restrictive pulmonary diseases III (pulmonary abscess, empyema)

Practical: Rules, effects and contra-indications of the manual treatment of the chest

**7. week**

Lecture: Obstructive diseases of the airways I (chronic bronchitis, emphysema)

Practical: Manual mobilization of the chest (demonstration)

**8. week**

Lecture: Obstructive diseases of the airways II (bronchial asthma)

Practical: Manual mobilization of the chest (practice)

**9. week**

Lecture: Mucoviscidosis (cystic fibrosis)

Practical: Methods for strengthening the respiratory muscles (breathing exercises, exercises against resistance, inspiratory muscle training)

**10. week**

Lecture: Surgical interventions on the chest

Practical: Pre- and postoperative treatments of the patients

**11. week**

Lecture: Respiratory insufficiency

Practical: Prevention and treatment of postoperative respiratory insufficiency with physiotherapeutic methods

**12. week**

Lecture: Pulmonary manifestation of cardiovascular diseases

Practical: Training program for patients with pulmonary diseases (principles)

**13. week**

Lecture: Complex rehabilitation in COPD

Practical: Summary of the movement program in COPD

**14. week**

Lecture: Repetition

Practical: Practice

+14 hours demonstration.

**Requirements**

Prerequisite: Applied Training Methods, Basics of Internal Medicine

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. The attendance at practices is compulsory. The signature of the Lecture Book may be refused if one has more than 4-hour absences from the practical hours. Signature in the Lecture Book and passing the midterm practical exam are the conditions for the end of semester examination.

Subject: **INTERNAL MEDICINE FOR PHYSIOTHERAPISTS (Respiratory physiotherapy, Cardiovascular rehabilitation)**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **20**

Seminar: **20**

Practical: **20**



Subject: **PRINCIPLES OF HEALTH SCIENCES**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **10**

**1. week**

lecture: Anatomy of the skeletal system

**2. week**

lecture: Anatomy of the organs

**3. week**

lecture: Neuroanatomy

**4. week**

lecture: Membrane potential, electrical and mechanical properties of the heart, neural and humoral regulation of the cardiac function in normal and pathophysiological conditions.

**5. week**

lecture: Functional characteristics and regulation of the peripheral circulation in normal and pathophysiological conditions. Blood. Functional characteristics of the respiratory system, neural and humoral regulation.

**6. week**

lecture:

Physiology of the gastrointestinal tract, motoric and secretory function, general aspects of renal function,

**7. week**

lecture:

Principles of the hormonal regulation. Morphology and motor function of nervous system.

Function and regulation of skeletal muscle. Pathology of motor function. Autonomic nervous system.

**Requirements**

Prerequisites: Cardiorespiratory and Exercise Physiology, Neurophysiology, Physiology.

To attend the lectures is strongly recommended. The participation in the e-learning activity is compulsory. If you miss the e-learning activity and/or more than 2 lectures the signature of Lecture Book will be refused.

Subject: **HEALTH CARE LAW**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **10**

**1. week**

Introduction to administrative law

Sources of administrative law

**2. week**

Management and control in public administration

Principles of public administration

**3. week**

Administrative proceedings

Types of cases

**4. week**

Significance of administrative proceedings  
Administrative sanctioning measures

**5. week**

Application, request, suit  
Nonsuit

**6. week**

Probative proceedings

**7. week**

The president, the constitutional court  
Evidence

**8. week**

Closure of the procedure  
Termination

**9. week**

Representation and suspension  
Agency

**10. week**

Rulings  
Case study

**11. week**

Procedural documents  
Documents, public documents, official certificates

**12. week**

Fines  
Sanctions of public administration

**13. week**

Timeline  
Deadlines

**14. week**

Licensing health care services. Minimum requirements of health care services  
Medical practices – GPs' clusters (GPC). Administrative control

Subject: **I. BLOCK PRACTICE (Respiratory physiotherapy 30 hours; Cardiovascular rehabilitation 30 hours; Kinesiology - subaqual exercises 30 hours)**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Practical: **90**

Subject: **PRINCIPLES OF KINESIOLOGY**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **10**

**1. week**

Examination of structural problems and functional dysbalances in the pelvico-lumbo-hip and thoraco-cervico-scapular complex. Sacroiliac dysfunction.

**2. week**

Analysis of structural problems and functional dysbalances in the pelvico-lumbo-hip and thoraco-cervico-scapular complex. Sacroiliac dysfunction.

**3. week**

Examination of structural and functional disturbances in the upper limb, neurological dysfunction in the upper limb, differential diagnosis. Dysfunctions in the cervicobrachial region.

**4. week**

Analysis of structural and functional disturbances in the upper limb, neurological dysfunction in the upper limb, differential diagnosis. Dysfunctions in the cervicobrachial region.

**5. week**

Examination of the physiological axes of the lower limb. Dysfunction of the knee and hip joints. 6. Arches of the foot and dysfunction. Examination of pathological gait.

**7. week**

Analysis of the physiological axes of the lower limb. Dysfunction of the knee and hip joints. Arches of the foot and dysfunction. Analysis of pathological gait. Complex muscle analysis of spine and extremities.

Subject: **MICROBIOLOGY II.**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **20**

**1. week**

Lecture: The microbial world. Cell-mediated and antibody-mediated (humoral) immunity. Active and passive immunization

**2. week**

Lecture: Laboratory diagnosis of bacterial and viral infections. Sterilization and disinfection

**3. week**

Lecture: Structure of bacterial cells. Essential and nonessential components. Exotoxins and endotoxins. Non-toxic virulence factors

**4. week**

Lecture: Overview of the major Gram- positive bacteria

**5. week**

Lecture: Overview of the major and Gram-negative bacteria

**6. week**

Lecture: Bacterial respiratory tract diseases. Skin and soft tissue infections caused by bacteria

**7. week**

Lecture: Sexually transmitted bacterial diseases. Central nervous system diseases caused by bacteria

**8. week**

Lecture: General mycology. Medically important fungi

**9. week**

Lecture: The structure and classification of viruses. The pathogenesis of viral diseases

**10. week**

Lecture: Respiratory tract infections caused by viruses

**11. week**

Lecture: Agents of viral gastroenteritis. Hepatitis viruses

**12. week**

Lecture: Agents of viral skin rash. Congenital virus infections

**13. week**

Lecture: The protozoal diseases

**14. week**

Lecture: Helminths. Ectoparasites

## Requirements

The students are required to attend the lectures.

Examination End semester examination consists of an oral test. The student's performance will be assessed on a five-grade scale.

Subject: **MOBILIZATION-MANUAL TECHNIQUES II.**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Practical: **70**

### 1. week

Practical: (1) Soft tissue mobilization: the position of the soft tissue mobilization in the physiotherapeutic tool; indications, contraindications and treatment principles; palpation of the soft tissues (2) Joint mobilization: Biomechanical basics to joint structure and function (3) PNF II: Neck patterns: flexion-left lateral flexion-left rotation; extension- right lateral flexion-right rotation (4) Stretching: theoretical basis, definitions

### 2. week

Practical: (1) Soft tissue mobilization: Mobilization techniques for the neck-shoulder girdle region (2) Joint mobilization: Convex-concave basic rule, arthrokinematic motions in the upper extremities (3) PNF II: Trunk patterns: chopping, lifting (4) Stretching: demonstration of the stretching techniques; practice

### 3. week

Practical: (1) Soft tissue mobilization: Mobilization techniques applied at the dorsal, ventral and lateral sides of the chest (2) Joint mobilization: Convex-concave basic rule, arthrokinematic motions in the lower extremities (3) PNF II: Combined patterns for the trunk (4) Stretching: stretching of the contracture-predisposed muscles of the upper limb: upper part of the trapezius muscle, levator muscle of the scapula

### 4. week

Practical: (1) Soft tissue mobilization: Mobilization techniques for the lumbar and pelvic girdle region; indications and contraindications (2) Joint mobilization: Traction and mobilization of the shoulder complex: sterno-clavicular-, acromio-clavicular joints and scapulo-thoracic functional attachment. Test and therapy (3) PNF II: Combined patterns for the trunk (4) Stretching: stretching techniques for latissimus dorsi and teres maior muscles

### 5. week

Practical: (1) Soft tissue mobilization: Mobilization techniques for the upper limbs; indications and contraindications (2) Joint mobilization: Traction and mobilization of the gleno-humeral joint. Test and therapy (3) PNF II: Techniques and application of Kabat exercises (4) Stretching: stretching techniques for maior and minor pectoral muscles

### 6. week

Practical: (1) Soft tissue mobilization: Mobilization techniques for the lower limbs; indications and contraindications (2) Joint mobilization: The elbow complex. Traction, ulnar-radial sliding and mobilization of the humero-ulnar and humero-radial articulations; test and therapy (3) PNF II: Mat activities: rolling (4) Stretching: stretching techniques for biceps brachii, brachioradial and brachial muscles

### 7. week

Practical: (1) Soft tissue mobilization: Theoretical basis and practice of the scar treatment (2) Joint mobilization: The elbow complex. Traction, dorsal-ventral sliding and mobilization of the superior and inferior radio-ulnar articulations; test and therapy (3) PNF II: Mat activities: crawling, kneeling,

bridging (4) Stretching: stretching of the triceps brachii, pronator teres and palmaris longus muscles

**8. week**

Practical: (1) Soft tissue mobilization: Stretching techniques in pairs (2) Joint mobilization: The wrist complex: traction, gliding and mobilization of the radio-carpal and mid-carpal joints (3) PNF II: Mat activities: standing up (4) Stretching: repetition of the stretching methods applied on the upper extremities

**9. week**

Practical: (1) Soft tissue mobilization: Definition and position of deep massage technique in the mobilization techniques; indications and contraindications (2) Joint mobilization: The ankle and foot complex: traction and mobilization of the ankle, subtalar and transverse tarsal joints. Test and therapy (3) PNF II: Mat activities: gait training (4) Stretching: stretching of the contracture-predisposed muscles of the lower limb: iliopsoas, rectus femoris muscles and ischiocrural group

**10. week**

Practical: (1) Soft tissue mobilization: Treatment of the neck-shoulder girdle region (2) Joint mobilization: The knee complex: traction, sliding and mobilization of the tibio-femoral joint. Test and therapy (3) PNF II: Specific techniques: rhythmic stabilization, reversed stabilization (4) Stretching: stretching techniques for the adductor group of muscles and tensor fasciae latae muscle

**11. week**

Practical: (1) Soft tissue mobilization: Techniques on the chest (2) Joint mobilization: The knee complex: traction, sliding and mobilization of the patello-femoral, superior tibio-fibular joints and syndesmosis. Test and therapy (3) PNF II: Specific techniques: contract-relax, hold relax (4) Stretching: stretching techniques for the triceps surae and adductor hallucis muscles

**12. week**

Practical: (1) Soft tissue mobilization: Techniques on the upper extremities (2) Joint mobilization: The hip complex: traction, sliding and mobilization. (3) PNF II: PNF in the practice (4) Stretching: summary, practice

**13. week**

Practical: (1) Soft tissue mobilization: Techniques on the lower extremities (2) Joint mobilization: Importance of techniques above in the practice (3) PNF II: Practice (4) Stretching: repetition, practice

**14. week**

Practical: (1) Soft tissue mobilization: Practice examination (2) Joint mobilization: Consultation (3) PNF II: Practice examination (4) Stretching: practice examination

### Requirements

Prerequisite: Mobilization-Manual Techniques I

Attendance at practices is compulsory. If you missed more than 2 practices per modules, the signature may be refused.

Examination: The term mark consists of 2 components in each module: (1) theoretical and (2) practical knowledge will be assessed at the end of the semester.

Subject: **KINESIOLOGY SUMMER PRACTICE**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Practical: **80**

**Content:**

Practical: Observation and examination of the posture; inspection and analysis of position and movements of the joints; palpation of the bones and soft tissues in the articulations; measurement of the range of the active and passive motions in the joints of the spinal column and extremities; analysis of movement in functional units; measurement of the muscle strength, determination of the closed and open position of the joints; investigation of the reason of dysfunction in the Cyriax's system; determination of the origin of the pain; observation of the locomotion; inspection and analysis of physiological and pathological patterns of the locomotion.

**Requirements**

Prerequisites: Mobilization-Manual Techniques II, Principles in Kinesiology

Educational objective: The aim of the practice is to deepen the theoretical knowledge in clinical circumstances, to get experience in the investigation of normal and pathological movement.

To take part in the clinical practice in kinesiology is criteria for the certificate of completion (absolutorium). You accept a signature in the Lecture Book, if you fulfil the requirements detailed in the Practice Lecture Book. The students are required to know: the observation and palpation of the movement system; measurement methods of the active and passive, isotonic and isometric movements; the most frequent special and functional tests in the examination of the movement system; the evaluation of subjective and objective findings, discover the origin of dysfunctions.

Subject: **PSYCHOTERAPEUTIC AND ADDICTOLOGICAL SKILLS**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **20**

Practical: **10**

Subject: **BASICS OF PEDAGOGY**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **10**

**1. week**

Lecture: Basic concepts of pedagogy

**2. week**

Lecture: Principles of pedagogical activity

**3. week**

Lecture: Theories and trends in pedagogy

**4. week**

Lecture: Elements of pedagogical influence

**5. week**

Lecture: Values and aims. Process of pedagogical influence

**6. week**

Lecture: Fields of personality development

**7. week**

Lecture: Process of education postoperative nursing tasks; aseptic and hygienic environment

**8. week**

Lecture: Process of teaching and learning

**9. week**

Lecture: Edifying conduct

**10. week**

Lecture: Methodology (basics, influencing factors, methods, differentiation)

**11. week**

Lecture: Scenes of pedagogical activity (family, school, boarding schools, etc.)

**12. week**

Lecture: Key participants and their communication

**13. week**

Lecture: Consultation

**14. week**

Lecture: Theoretical and practical issues of planning

**Requirements**

Attendance at lectures is strongly recommended since the examination topics are equal to the lectured topics.

Subject: **BASICS OF SOCIOLOGY**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **10**

**1. week**

Lecture: Introduction to sociology and to the module

**2. week**

Lecture: Definition of health; gender and health

**3. week**

Lecture: Social class and health; ethnicity and health

**4. week**

Lecture: Families and changing family relationships

**5. week**

Lecture: Social forces, health and illness

**6. week**

Lecture: The social distribution of illness

**7. week**

Lecture: The experience of illness, social contexts

**8. week**

Lecture: Disability and chronic illness

**9. week**

Lecture: Mental health and mental illness

**10. week**

Lecture: The profession of medicine

**11. week**

Lecture: Other health care providers

**12. week**

Lecture: Patients and practitioners

**13. week**

Lecture: Main scopes of social policy in general and in Hungary I

**14. week**

Lecture: Main scopes of social policy in general and in Hungary II

### Requirements

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics.

Subject: **PROFESSIONAL HUNGARIAN LANGUAGE II.**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Practical: **42**

**6. week**

Isméltés, Emlékszel?

**7. week**

Testrészek, Tünetek

**8. week**

Tünetek, Gyógyszerek

**9. week**

Klinikák és szakorvosok

**10. week**

Lassítsunk egy kicsit! Összefoglalás

**11. week**

Zárthelyi dolgozat

Szoktál kanapészfölni?, Jó és rossz szokások

**12. week**

Tessék mondani

**13. week**

Anamnézis

**14. week**

Összefoglalás

**14. week**

Zárthelyi dolgozat; Szóbeli vizsga

Subject: **PHILOSOPHY**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **10**

**1. week**

Lecture: Martin Heidegger: What is Metaphysics?

**2. week**

Lecture: Martin Heidegger: What is Metaphysics?

**3. week**

Lecture: Rudolf Carnap: The Elimination of Metaphysics Through Logical Analysis of Language

**4. week**

Lecture: Rudolf Carnap: The Elimination of Metaphysics Through Logical Analysis of Language

**5. week**

Lecture: The Philosophical Questions of Health and Disease. Part 1

**6. week**



Lecture: The Philosophical Questions of Health and Disease. Part 2

**7. week**

Lecture: The Philosophical Questions of Health and Disease. Part 3

**8. week**

Lecture: The Philosophical Questions of Health and Disease. Part 4

### Requirements

The attendance at lectures is strongly recommended, because the exam covers the lectured topics.

Subject: **PHARMACOLOGY**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **20**

**1. week**

Lecture: Introduction to general pharmacology (molecular aspects, excitation, contraction and secretion)

**2. week**

Lecture: Introduction to general pharmacology: pharmacokinetics and pharmacodynamics

**3. week**

Lecture: Chemical mediators and the autonomic nervous system. Cholinergic transmission. Effects of drugs on cholinergic transmission

**4. week**

Lecture: Noradrenergic transmission and other peripheral mediators

**5. week**

Lecture: The heart. Drugs that affect cardiac function

**6. week**

Lecture: The vascular system. Atherosclerosis and lipoprotein metabolism

**7. week**

Lecture: Respiratory pharmacology. The kidney

**8. week**

Lecture: Drugs used in the treatment of infections

**9. week**

Lecture: Pharmacology of gastrointestinal system. Blood sugar and diabetes mellitus

**10. week**

Lecture: Endocrine drugs

**11. week**

Lecture: Pharmacology of CNS drugs (transmitters and modulators, neurodegenerative disorders, general anaesthetic agents, anxiolytic and hypnotic drugs)

**12. week**

Lecture: Pharmacology of CNS Drugs (antipsychotic drugs, drugs used in affective disorders, antiepileptic drugs, CNS stimulants and psychotomimetic drugs)

**13. week**

Lecture: Analgesic drugs, local anaesthetics, anti-inflammatory drugs

**14. week**

Lecture: Muscle relaxants

**Requirements**

Prerequisites: Pathology

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. During the semester two obligatory test is required to fulfil. You have to take ESE during the examination period.

Subject: **II. Block practice (Obstetrics and Gynaecology 30 hours; Kinesiology 90 hours)**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Practical: **90**

Subject: **EPIDEMIOLOGY OF COMMUNICABLE AND NON-COMMUNICABLE DISEASES I.**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **20**

Seminar: **20**

Subject: **NEUROLOGY FOR PHYSIOTHERAPISTS I**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **10**

Seminar: **10**

**1. week**

Lecture: Case history. The anatomical and physiological basis of neurology. Procedures in neurological diagnostics.

Seminar: Discussion of the lectured topics

**2. week**

Lecture: The signs of meningeal irritation. Cranial nerves.

Seminar: Discussion of the lectured topics

**3. week**

Lecture: The structure and pathology of the motor system.

Seminar: Discussion of the lectured topics

**4. week**

Lecture: The structure and pathology of the sensory system.

Seminar: Discussion of the lectured topics

**5. week**

Lecture: Normal and abnormal reflexes, the structure and pathology of coordination.

Seminar: Discussion of the lectured topics

**6. week**

Lecture: Cerebrovascular diseases.

Seminar: Discussion of the lectured topics

**7. week**

Lecture: Epilepsies. The typical pathological signs of cortical lobe lesions.

Seminar: Discussion of the lectured topics

**8. week**

Lecture: Dementias.

Seminar: Discussion of the lectured topics

**9. week**

Lecture: Parkinson's disease and other movement disorders.

Seminar: Discussion of the lectured topics

**10. week**

Lecture: Multiple sclerosis, infections of the central nervous system.

Seminar: Discussion of the lectured topics

11th week

Lecture: Sleep disturbances.

Seminar: Discussion of the lectured topics

**12. week**

Lecture: Tumours of the central and peripheral nervous system.

Seminar: Discussion of the lectured topics

**13. week**

Lecture: The pathology of spinal cord.

Seminar: Discussion of the lectured topics

**14. week**

Lecture: Injuries of the central nervous system.

Seminar: Discussion of the lectured topics

**Requirements**

Prerequisites: Pathology, Mobilization-Manual Techniques II

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. The attendance at practices is compulsory. The signature of the Lecture Book may be refused if one has more than 4-hour absences from the practical hours.

The ESE grade will be constructed from the results of clinical knowledge and theoretical and practical physiotherapeutic assessments. The scores of the modules may be improved selectively.

Subject: **ORTHOPAEDICS FOR PHYSIOTHERAPISTS**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **10**

Seminar: **10**

**1. week**

Lecture: Frequency, pathology and diagnosis, conservative and operative treatment of congenital/developmental dysplasia, dislocation of the hip (DDH, CDH)

**2. week**

Lecture: Perthes' disease, transient synovitis of the hip joint. Slipped capital femoral epiphysis.

Coxa vara

**3. week**

Lecture: Osteoarthritis of the hip. Aseptic necrosis of the femoral head. Replacement of the hip joint

**4. week**

Lecture: Functional anatomy of the foot. Congenital deformities and diseases of the foot

**5. 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

**6. week**

Lecture: Diseases of the neck and upper extremities

**7. 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

**8. week**

Lecture: Bone infection. Acute and chronic osteomyelitis. Suppurative arthritis

**9. week**

Lecture: Postural kyphosis. Scoliosis and its treatment

**10. week**

Lecture: Bone tumours and tumour-like lesions

Seminar: Introduction to e-learning module. Requirements.

**11. week**

Seminar: Most common orthopaedic diseases of the spine and hip joint. Basic concepts, anatomy, biomechanics. Video presentation – hip joint replacement, surgical correction of scoliosis.

Presentation of the most commonly used prosthesis and implants. X-ray presentation. Discussion of the lectured topics.

**12. week**

Seminar: Most common orthopedic diseases of the upper limb, knee joint and leg. Basic concepts, anatomy, biomechanics. Video presentation – shoulder and knee arthroscopy, anterior cruciate ligament replacement, knee joint replacement, surgical correction of foot deformities. Presentation of the most commonly used prosthesis. X-ray presentation. Discussion of the lectured topics.

**13. week**

Seminar: Discussion of findings: The significance of limb lengthening after total hip replacement

**14. week**

Seminar: Discussion of findings: The range of movement after total knee replacement

**Requirements**

Prerequisites: Biomechanics, Principles of Kinesiology

The attendance at lectures is strongly suggested, the attendance at seminars is compulsory. If you have more than 4-hour absence at seminars (consultations) or do not show activity in the e-learning module, the signature will be refused.

E-learning program:

It is compulsory to join the e-learning program. This program provides an opportunity for students to deepen their understanding of Orthopedics. The e-learning module is designated as seminar in the curriculum, it means that the participation in the e-learning activity and in the consultations is compulsory to everybody.

At the end of semester, you take a written ESE. The grade will be defined as the average of your e-learning scores and the exam scores according to the scale below

0-54%: fail (1)

55-64%: pass (2)

65-74%: satisfactory (3)

75-84%: good (4)

85-100%: excellent (5)

If your score in the examination is less than 55% there is no further calculation, the grade is fail (1).

Subject: **PHYSIOLOGY III.**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **20**

Subject: **RHEUMATOLOGY FOR PHYSIOTHERAPISTS I.**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **10**

Seminar: **10**

**1. week**

lecture: Introduction to rheumatology: classification of diseases; social and economic relations of the rheumatology; history taking and physical examinations

**2. week**

lecture: Osteoarthritis, spondylosis, low back pain

**3. week**

lecture: Soft tissue rheumatism, regional pain syndromes, compression syndromes

**4. week**

lecture: Metabolic bone diseases, osteoporosis

**5. week**

lecture: Crystal arthropathies

**6. week**

lecture: Rheumatoid arthritis: clinical symptoms, diagnosis, therapy

**7. week**

lecture: Juvenile idiopathic arthritis, Felty syndrome, Caplan syndrome

**8. week**

lecture: Spondyloarthropathies: ankylosing spondylitis, psoriatic arthritis

**9. week**

lecture: Infectious and reactive arthritides

**10. week**

lecture: Introduction to immuno-pathology and autoimmunity. Autoimmune diseases

**11. week**

seminar: Degeneration

**12. week**

seminar: Bone diseases, gout

**13. week**

seminar: Arthritis

**14. week**

seminar: Therapy, anti-inflammatory drugs, immunosuppression

**Requirements**

Prerequisites: Basics of Internal Medicine, Principles of Kinesiology

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. Attendance at seminars is compulsory. If you missed more than 2 seminars, the signature may be refused. You have to take ESE during the examination period.

Subject: **OBSTETRICS AND GYNAECOLOGY FOR PHYSIOTHERAPISTS**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **20**

Practical: **10**

**1. week**

Lecture: (C) Diagnostic methods in gynecology. Physiological and abnormal menstrual cycle. Gynecological infections. Therapeutic principles

**2. week**

Lecture: (C) Pathological pregnancy, abortion

**3. week**

Lecture: (C) Process of the birth; life-threatening states in the obstetrics

**4. week**

Lecture: (C) Disorders of menstruation; family planning, contraception

Practical: (C) Clinical demonstration: pre-and postoperative patient care

**5. week**

Lecture: (C) Gynaecological inflammations; benignant gynaecological tumours

Practical: (C) Clinical demonstration: pre-and postoperative patient care

**6. week**

Lecture: (C) Malignant tumours

Practical: (C) Clinical demonstration: pre-and postoperative patient care

**7. week**

Lecture: (C) Surgical interventions

Practical: (C) Clinical demonstration: visit in the delivery room, puerperal patient care

**8. week**

Lecture: (C) Mid-semester examination (PT) Anatomy of pelvic floor, incontinence

Practical: (PT) Pre- and postoperative physiotherapy in gynecology

**9. week**

Lecture: (PT) Stages of preparation for delivery; significance of team work, tasks of the members in the team. Structure of the pregnancy training, alternative birth

Practical: (PT) Special breathing exercises in gynecology

**10. week**

Lecture: (PT) Synchronization of the stage of pregnancy and the training; relax methods, significance of the stretching exercises, exercises in early postpartum period, structure of the baby-mother training

Practical: (PT) Special exercises in prepartum period

**11. week**

Lecture: (PT) Significance of the physiotherapy in gynecology; principles and structure of postoperative exercises

Practical: (PT) Complex training during pregnancy

**12. week**

Lecture: (PT) Principles and structure of postoperative exercises

Practical: (PT) Puerperal training, mother-baby exercises

**13. week**

Lecture: (PT) Physiotherapeutic possibilities in the treatment of gynecology diseases

Practical: (PT) Physiotherapy in menopause

**14. week**

Lecture: (PT) Osteoporosis: possibilities of the physiotherapists for intervention

Practical: (PT) Physiotherapy in postmenopausal period

### **Requirements**

Prerequisites: Basics of Internal Medicine, Principles of Kinesiology

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. Attendance at practical hours is compulsory. If you have more than 6-hour absence the signature in the Lecture Book will be refused.

Subject: **TRAUMATOLOGY FOR PHYSIOTHERAPISTS**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **30**

#### **1. week**

Lecture: (1) The place of traumatology in medicine. Epidemiology of injuries, significance to the national economy. Classification of injuries. Closed and open mechanical injuries. Progression of wound healing. Classification of wounds. Methods of wound care. (2) Closed and open soft tissue injuries. Contusion, compression skin necrosis, subcutaneous hematoma. Closed tendon and muscle injuries. Joint sprains and dislocations. Basic principles of plastic surgery. Methods of ligament replacement and bone grafting

#### **2. week**

Lecture: (3-4) Progression of bone healing (biological, biomechanical factors). Occurrence and recognition of fractures. Classification of closed and open fractures. Basic principles of conservative fracture treatment. Indications of osteosynthesis. The role of the AO (ASIF) in the treatment of operative treatment. Advantages and disadvantages of operative treatment. Biological osteosynthesis

#### **3. week**

Lecture: (5-6) Multiple and combined injuries. Treatment tactics of serious injuries. Life-saving, first-aid, transport. Basic principles of clinical treatment of seriously injured patients.

Traumatological hemorrhagic shock. Shock treatment. Point systems for determination of seriousness of patient condition

#### **4. week**

Lecture: (7) Types of bleeding. Temporary stoppage of bleeding. Treatment of open and closed vessel injuries. Nerve injuries. Morphology and physiology of nerve regeneration. Basic principles of treatment of peripheral nerve injuries. Injuries of the brachial plexus. Treatment of nerve damage (tunnel syndromes). (8) Specific injuries to growing bones and their principles of treatment.

Common injury combinations and characteristic injuries in childhood. Early and late complications

#### **5. week**

Lecture: (9) Craniocerebral injuries. Fractures of the skull. Recognition and treatment of intracranial bleeding. Maxillo-facial injuries. (10) Classification and diagnosis of spinal injuries. Fractures of the vertebrae with and without neurological damage. Conservative and operative fracture treatment. Physical therapy, follow-up and rehabilitation of spinal injuries

#### **6. week**

Lecture: (11) Chest injuries. Rib fractures. Penetrating chest injuries. Pneumothorax, haemothorax. Lung contusion. Open injuries of the lungs. Injuries of the heart and pericardium. Cardiac tamponade. Chest drainage and thoracotomy. (12) Closed and open injuries of the abdominal cavity. Diagnosis and operative treatment of parenchymal organs. Rupture of the diaphragm.

Thoracoabdominal injuries. Injuries of retroperitoneal organs. Urogenital injuries

#### **7. week**

Lecture: (13) Fractures of the forearm and region of the elbow. Supracondylar fractures.

Intraarticular fractures of the distal upper arm. Stable and unstable elbow dislocations. Fractures of the radial head and neck. Fractures of the olecranon. Fractures of the forearm diaphysis. Monteggia and Galeazzi fractures. (14) Soft-tissue injuries of the shoulder. Dislocations of the clavicle. Shoulder dislocations. Fractures of the clavicle, scapula and proximal part of the upper arm. Injuries of the rotator cuff. Adhesive and restrictive capsulitis. Chronic shoulder instability. Fractures of the humerus diaphysis

**8. week**

Lecture: (15) Fractures of the distal forearm. Fracture in loco typico of the radius (Colles' fracture). Fractures of the distal radius. Fractures of the scaphoid bone. Perilunar dislocation. Fractures of the metacarpal bones and phalanges. Follow-up and physiotherapy of hand injuries. (16) Basic principles of hand surgery. Types of tendon and nerve injuries. Primary suture and secondary replacement. Carpal instability. Septic complications of hand injuries. Revascularization and replantation

**9. week**

Lecture: (17-18) Pathomechanism and classification of pelvic fractures. Diagnostic tools. Conservative and operative treatment. Fractures of the acetabulum. Dislocation of the hip

**10. week**

Lecture: (19) Causes of the occurrence of fractures of the femur neck, characteristics of fractures in older patients. Garden classification. Methods of operative treatment. Principles and possibilities of prosthesis implantation. Per- and subtrochanteric fractures. Diagnosis and operative treatment of these fractures. (20) Fractures of the distal femur. Characteristics of intraarticular fractures. Patellar fracture. Rupture of the quadriceps tendon

**11. week**

Lecture: (21-22) Closed and open diaphysis fractures of the femur and lower leg. Methods of intramedullary stabilization. Plate osteosynthesis. External fixator. Classification, diagnosis and treatment of fractures of the tibial condyle

**12. week**

Lecture: (23-24) Biomechanics of the knee. Mechanisms of knee injuries. Meniscus injuries. Diagnosis and treatment of ligament injuries of the knee. Hemarthrosis. Osteochondritis dissecans. The role of arthroscopy in diagnosis and treatment

**13. week**

Lecture: (25) Pilon fractures of the tibia. Ligament injuries of the ankle. Classification, diagnosis and treatment of ankle fractures. (26) Fractures of the talus and calcaneus. Subtalar dislocation. Fractures of the bones of the foot and metatarsals

**14. week**

Lecture: (27-28) Recognition and treatment of posttraumatic pathological states. Compartment syndromes (especially of the lower leg). Immobility damage, fracture illness. Sudeck dystrophy. Delayed union and non-union (pseudoarthrosis). Post-traumatic arthritis. Wound infections. Purulent arthritis. Osteitis, osteomyelitis. Gas gangrene. Early recognition and treatment of infections

**Requirements**

Prerequisite: Principles of Kinesiology

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. You have to take ESE during the examination period.



Subject: **BIOETHICS**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **10**

**1. week**

Lecture: The emergence of bioethics; the basic features of this discipline

**2. week**

Lecture: The nature of ethical decision making in clinical context

**3. week**

Lecture: The principles of modern bioethics

**4. week**

Lecture: Paternalism and anti-paternalism in modern bioethics

**5. week**

Lecture: Patients' rights (in Hungary and in other countries)

**6. week**

Lecture: Informed consent; informing the patients in a new communicative environment. The ethical aspects of living with disabilities

**7. week**

Lecture: The Hippocratic tradition in health care ethics

**8. week**

Lecture: End-of-life decisions

**9. week**

Lecture: Basic questions in contemporary research ethics

**10. week**

Lecture: Ethics of new biotechnologies

**11. week**

Lecture: The ethical aspects of physiotherapeutic practice

**12. week**

Lecture: Ethics and medical anthropology of disability

**13. week**

Lecture: Ethics of nursing

**14. week**

Lecture: Basic questions in public health ethics

**Requirements**

Attendance in the lectures is required. Usable understanding of the core theoretical concepts and conceptions is required as well as the knowledge on the actual patients' rights regulation.

Subject: **INFANT CARE AND PAEDIATRICS FOR PHYSIOTHERAPISTS**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **10**

Seminar: **10**

Practical: **20**

**1. week**

Lecture: (C) Introduction to pediatrics. Genetic disease. Congenital disorders.

Practical: (PT): Physiotherapy in pediatrics, general treatments

**2. week**

Lecture: (C) The embryo and the newborn. Perinatal events in healthy mature neonates. Care of the newborn. The infant feeding, development and growth, care. Natural and artificial feeding.

Psychomotor development and mental retardation. Premature disorders (harmful consequences of oxygen therapy, BPD, ROP)

Practical:

(C) Demonstration practice (PT) Physical examination in pediatrics. Coordination and sensory training for nursing school and elementary school children

**3. week**

Lecture: (C) Diseases of the respiratory system. Bronchial asthma. Congenital heart defect.

Condition after heart surgery

Practical: (C) Demonstration practice (PT) Principles of the neurohabilitation; conductive pedagogy

**4. week**

Lecture: (C) The bones, joints and skeletal system disorders. Haemophilia. Bone tumours. Kidney diseases

Practical:

(C) Demonstration practice (PT) Examination and treatment of the movement system disorders, developmental anomalies and acquired disorders of the upper limb

**5. week**

Lecture: (C) Mucoviscidosis. Obesitas

Practical: (C) Demonstration practice (PT) Tools for treatment in chronic pulmonary diseases in childhood (cystic fibrosis, bronchial asthma)

**6. week**

Lecture: (C) Diabetes mellitus. Consultation

Practical: (C) Demonstration practice (PT): Examination and treatment of the movement system disorders, developmental anomalies and acquired disorders of the lower limb

**7. week**

Lecture: (C) Consultation

Practical:

(PT) Examination and treatment of the movement system disorders, developmental anomalies and acquired disorders of the lower limb

**8. week**

Lecture: (C) Mid-term exam

Practical:

(PT) Examination, symptoms, general characteristics of the movement therapy. Movement therapy of the neuromuscular diseases

**9. week**

Practical: (PT) Complex rehabilitation of CP. Special manual techniques

10th week

Practical:

Bobath method. Special manual techniques

**11. week**

Practical: (PT) Bone dysplasia and developmental anomalies

**12. week**

Practical: (PT) Orofacial training. Sensory integration therapy

**13. week**

Practical:

(PT) Adapted physical education; adapted sport rehabilitation

**14. week**

Practical: (PT) Importance of the cooperation between professionals (physiotherapist, conductor, somatopedagogue, etc.) involved in the therapeutic process

**Requirements**

Prerequisites: Principles of Kinesiology, Neurology for Physiotherapists I

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. The attendance at practices is compulsory. The signature of the Lecture Book may be refused if one has more than 6-hour absences from the practical hours

Subject: **INFANT CARE AND PAEDIATRICS CLINICAL PRACTICE**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Practical: **80**

**1. week**

Practical: Infantile cerebral palsy; congenital diseases (e.g. myelomeningocele); respiratory diseases in childhood; metabolic syndromes; orthopaedic diseases in childhood; neurological injuries in childhood; other paediatric diseases

**Requirements**

Prerequisite: Infant Care and Pediatrics for Physiotherapists I-II

To take part in the clinical practice in pediatrics is a criterion for the Certificate of Completion (absolutorium). You accept a signature in the Lecture Book, if you fulfil the requirements detailed in the Certification of Clinical Practices.

Educational objective: Students learn the special profile of the department; special methods of examination and therapy learn to communicate in a professional environment, as well as with patients and their relatives. Skills to be acquired: problem identification, analysis, examination with and without supervision, preparation and implementation of treatment plans, assessment of patients' progress, recognition of acute and life threatening conditions and acting in emergency, communication skills (with patients and health care professionals), keeping the ethical standards of the profession. The students are required to perform the examinations, making plan for physiotherapy and carry out the treatment under supervision.

Subject: **THESIS I. – BASICS OF RESEARCH METHODOLOGY**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Practical: **10**

**1. week**

Basics of research

**2. week**

Features of applied research work in the health sciences

**3. week**

Hypothesis

**4. week**

Evidence based practice

**5. week**

Evidence based databases

**6. week**

Data collection in electronic research data base

**8. week**

Analysis of applied research article

**9. week**

Analysis of review article

**10. week**

Interpretation of the results

**11. week**

Statistical analysis

**12. week**

Presentations of applied research results

**13. week**

Literature citation

**14. week**

Test

Subject: **III. BLOCK PRACTICE (Orthopaedics 30 hours, Traumatology 30 hours, Rheumatology 30 hours)**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Practical: **90**

Subject: **PHYSIOTHERAPY PRINCIPLES OF INTERNAL MEDICINE**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **10**

**1. week**

Lecture: Pulmonary diseases, differential diagnosis

**2. week**

Lecture: Respiratory interventions - passive methods, indications and contraindications

**3. week**

Lecture: Respiratory interventions - active methods, indications and contraindications

**4. week**

Lecture: Breathing exercises and training programs in pulmonary rehabilitation

**5. week**

Lecture: Therapeutic intervention in restrictive pulmonary diseases

**6. week**

Lecture: Therapeutic intervention in obstructive pulmonary diseases

**7. week**

Lecture: Manual techniques in pulmonary rehabilitation. Physiotherapy according to surgical intervention

**8. week**

Lecture: Consultation, discussion

**9. week**

Lecture: Physiotherapeutic methods, functional tests and treatment in angiology: arterial diseases

**10. week**

Lecture: Physiotherapeutic methods, functional tests and treatment in angiology: venous diseases

**11. week**

Lecture: Causes and symptoms of the lymphedema, components of the complex treatment

**12. week**

Lecture: Cardiovascular rehabilitation: movement therapy in the acute stage.

**13. week**

Lecture: Cardiovascular rehabilitation: movement therapy in the early, late and post convalescent stages.

**14. week**

Lecture: Significance of the movement therapy in the treatment of cardiovascular complications in hypertension, diabetes mellitus, and obesity

**Requirements**

Attendance at lectures is highly recommended since the lectured topics are equal to the topics in examination.

Subject: **EPIDEMIOLOGY OF COMMUNICABLE AND NON-COMMUNICABLE DISEASES II.**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **10**

Seminar: **20**

**1. week**

Vaccinations, Vaccines

**2. week**

Levels of prevention, preventive strategies

**3. week**

Emerging and re-emerging infectious diseases

**4. week**

The theoretical basis for screening programs

**5. week**

Public Health Databases

**6. week**

Health monitoring

**7. week**

Literature Research

**8. week**

Study Writing

**9. week**

Epidemiology of metabolic disorders

**10. week**

The epidemiology and prevention of accidents and musculoskeletal disorders

**11. week**

Epidemiology of liver and gastrointestinal diseases

**12. week**

Epidemiology of cancer

**13. week**

Epidemiology of chronic respiratory diseases

**1. week**

Vaccine efficacy

**2. week**

HFA database

**3. week**

Public Health Databases

**4. week**

Levels of prevention, preventive strategies

**5. week**

Screening programs

**6. week**

Epidemiology and prevention of cardiovascular diseases

**7. week**

Study design- a measurement the frequency of a non-communicable disease - a theoretical framework

**8. week**

Study design- a measurement the frequency of a non-communicable disease - presentation

**9. week**

Study design- a measurement the frequency of a non-communicable disease - presentation

**10. week**

Study design- a measurement the frequency of a non-communicable disease - presentation

**11. week**

Study design- a measurement the frequency of a non-communicable disease - presentation

**12. week**

Study design- a measurement the frequency of a non-communicable disease - presentation

**13. week**

Consultation

Subject: **PHYSIOTHERAPY OF THE MOVEMENT SYSTEM I.**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **30**

Seminar: **20**

Practical: **30**

**1. week**

Lecture:

T-lecture: Basic elements of the physiotherapy in traumatology; prevention and treatment of contractures; other physiotherapeutic interventions; position of manual therapy in traumatology; examination of patients. Functional treatment of spinal-fractured patients without neurological symptoms; treatment of a corset-wearing patient

O-lecture: Physiotherapy in orthopedics; physiological posture, analysis of the muscle chain.

Seminar: T-seminar: Group and individual training programme for the spinal-fractured, corset-wearing patients; innervation exercises; strengthening of the dorsal and abdominal muscles; balance improvement. Patient examination; pre- and postoperative physiotherapy methods

O-seminar: Examination, diagnostics, general treatment methods in orthopedics physiotherapy

**2. week**

Lecture:

T-lecture: Treatment of a patient with spinal cord injury; characteristic symptoms in special cases; special fields of the functional treatment in spinal cord injury

O-Lecture: Postural deformities: background and consequences

Seminar:

T-seminar: Training for spinal cord injured patients; rules of positioning; training in the bed; exercises for changing the position; use of the wheelchair, solution of the life situations; relief of contracture

O-seminar: Examinations; rules of exercises in the typical forms of the postural deformities.

Targeted physiotherapy for the kyphotic and lordotic spine.

**3. week**

Lecture:

T-lecture: Injuries of the elbow; complications; possibilities of the active movement in the neighbouring joints; complex functional treatment; forearm fractures; fracture of the distal radius; complications, treatment

O-lecture: Developmental disorders of the spine, complex physiotherapy.

Seminar:

T-seminar: Treatment after cancelling the corset; graded mobilization, subaquatic therapy, load-free positions; grades of the loading; mobilization of the spinal column in every direction; treatment with conservative methods.

O-seminar: Examinations; rules of exercises in the typical forms of the postural deformities.

Targeted physiotherapy for the kypholordotic spine and the flat back.

**4. week**

Lecture: O-lecture: Scoliosis – classification, types, diagnosis, general treatment

Practical:

T-practice: Functional treatment of the shoulder region; possibilities during fixation; methods for recovery of the scapulo-humeral rhythm; practice of the everyday movements; complementary therapy depending on the fracture healing. Individual training for shoulder-injured patients; load-free and loaded positions; use of instruments; paired exercises; conducted passive and active exercises

O-practice: Treatment of scoliosis at different location.

**5. week**

Lecture:

T-lecture: Individual training for shoulder-injured patients; load-free and loaded positions; use of instruments; paired exercises; conducted passive and active exercises.

O-lecture: Scoliosis: combined exercise and corset therapy, postoperative treatment

Practical:

T-practice: Functional treatment of the shoulder region; possibilities during fixation; methods for recovery of the scapulo-humeral rhythm; practice of the everyday movements; complementary therapy depending on the fracture healing

O-practice: Treatment of scoliosis at different location.

**6. week**

Lecture:

T-lecture: Injuries of the elbow; complications; possibilities of the active movement in the neighbouring joints; complex functional treatment; forearm fractures

O-lecture: Aseptic bone necrosis

Practical:

T-practice: Fracture of the distal radius; complications, treatment

O-practice: Postoperative treatment of scoliosis.

**7. week**

Lecture:

T-lecture: Group and individual training for shoulder-injured patients; load-free and loaded positions; use of instruments; paired exercises; conducted passive and active exercises

O-lecture: Developmental disorders in the neck and shoulder girdle: congenital torticollis, Klippel-Feil syndrome, scapula elevata; prosthesis in the shoulder –postoperative physiotherapy

Practical:

T-practice: Group and individual training for elbow-injured patients; requirements for the individual treatment; isometric and isotonic exercises

O-practice: Treatment of scoliosis at different location. Chest deformity

**8. week**

Lecture:

T-lecture: Physiotherapy of the hand-injured patients; special aspects of physical examinations; treatment of tendon injuries; structure of the pre- and postoperative trainings; applied medical aids; traumatic nerve injuries on the upper limb; determination of the state; aspects and methods of the treatment

O-lecture: Disorders of the shoulder; habitual luxation of the shoulder Complex physiotherapy in the brachial plexus lesion

Practical:

T-practice: Treatment of the hand injuries; semi-passive and passive methods; use of Carpenter and



Brooks splints; treatment of peripheral nerve injuries; use of selective stimulus and diadynamic currents; role of the passive mobilization

O-practice: Physiotherapy of static changes of the spine: sacralisation, lumbarisation, spondylitis, spondylololysis; points of view of the examination and of the treatment.

Physiotherapy of septic bone necrosis; Scheuermann disease, Perthes syndrome.

### **9. week**

Lecture:

T-lecture: Pelvic fractures; treatment under extension and after osteosynthesis; graded load, subaquatic training; functional treatment of the traumatic hip luxation; early and late complications, arthrosis

O-lecture: Congenital and acquired disorders of the elbow and hand, physiotherapy

Practical:

T-practice: Surgical treatment of the pelvic fractures; extension training, active training in the bed, graded mobilization

O-practice: Physiotherapy of disorders of the neck and shoulder girdle, the elbow and the wrist complex

### **10. week**

Lecture:

T-lecture: Movement therapy of the femur neck fractured patients; mobilization in the case of movement-stable or load-stable osteosynthesis

O-lecture: Postoperative physiotherapy of prosthesis in the shoulder

Practical:

T-practice: Conservative functional treatment of the hip fractures; positioning, expansion; processing the active training in the bed; education of the use of wrap

O-practice: Physiotherapy in disorders of hip joint

### **11. week**

Lecture:

T-lecture: Conservative functional treatment of the hip fractures; positioning, expansion.

O-lecture: Congenital and acquired disorders of the hip complex

Practical:

T-practice: Processing the active training in the bed; education of the use of wrap

O-practice: Postoperative physiotherapy and rehabilitation programme after total hip endoprosthesis

### **12. week**

Lecture:

T-lecture: Ankle injuries; treatment; complementary treatment of complications; physiotherapy in Achilles tendon rupture

O-lecture: ACL reconstruction

Practical:

T-practice: Knee and ankle injuries

O-practice: Postoperative physiotherapy and rehabilitation programme after total knee endoprosthesis

### **13. week**

Lecture:

T-lecture: Crural fractures; complications; treatment of a fixateur externe wearing patient;

mobilization; ankle injuries; treatment; complementary treatment of complications

O-lecture: Congenital and acquired disorders of the knee

Practical:

T-practice: Standing and gait without loading, using crutch than bar; formation of the right gait cadence; education of the use of crutch in a three-point gait

O-practice: Disorders of the foot. Pes equinovarus, pes planus exercise therapy

**14. week**

Lecture:

T-lecture: Post amputation training; stub care, prevention of contractures; phantom training; gait teaching; prostheses on the upper and lower limbs; multiple traumatisation; potential physiotherapy; active breathing exercises for chest-injured patients; interventions for rehabilitation

O-lecture: Congenital and acquired disorders of the ankle and the foot complex

Practical:

T-practice: Physiotherapy for the chest- and abdomen-injured patients; breathing exercises; improvement of circulation; general conditioning

O- practice: Postoperative sepsis. Amputation.

**Requirements**

Prerequisites: Mobilization-Manual Techniques II, Orthopedics for Physiotherapists, Traumatology for Physiotherapists

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. The attendance at practices is compulsory. The signature of the Lecture Book may be refused if one has more than 6-hour absences from the practical hours.

Subject: **NEUROLOGY FOR PHYSIOTHERAPISTS II.**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **10**

Practical: **20**

**1. week**

Lecture: Characteristics of the normal movements, general introduction to Bobath's method

Practical: (PT) Characteristics of the normal movements

**2. week**

Lecture: (PT) Central paresis and paralysis; stroke in the adult- and childhood; features, symptoms, complication

Practical: (PT) Central paresis and paralysis

**3. week**

Lecture: (PT) Poststroke movement therapy, rehabilitation

Practical: (PT) Principles of post-stroke movement therapy

**4. week**

Lecture: (PT) Types of ataxia, principles of their movement therapy

Practical: (PT) Principles of the movement therapy in ataxia

**5. week**

Lecture: (PT) Central and peripheral cranial nerve disorders; physiotherapy of central and peripheral dizziness

Practical: (PT) Improvement of balance, basic and complex exercises

**6. week**

Lecture: (PT) Muscular diseases, myopathies and myotonias

Practical: (PT) Characteristics of the movement therapy in muscular diseases

**7. week**

Lecture: (PT) Spinal Muscular Atrophy (SMA), Amyotrophic Lateral Sclerosis (ALS), Guillain-Barré syndrome, types of polyneuropathies

Practical: (PT) Possibilities for the improvement of the voluntary and automatic movements

**8. week**

Lecture: (PT) Extrapyramidal dysfunction, hyperkinesias

Practical: (PT) Proprioceptive training

**9. week**

Lecture: (PT) Examination and complex physiotherapy of the patient suffering from Parkinson's disease

Practical: (PT) Principles of the movement therapy in progressive muscular dystrophy

**10. week**

Lecture: (PT) Principles of the movement therapy of the multiple sclerosis and myasthenia gravis

Practical: (PT) Demonstration of the movement therapy for polyneuropathies with alcoholic, diabetic and autoimmune origin

**11. week**

Lecture: (PT) Symptoms and principles of physiotherapy in peripheral pareses

Practical: (PT) Use of gymnastic equipments in order to facilitate or make more difficult the exercises. Individual and group training for patients with Parkinson's disease; demonstration and practice

**12. week**

Lecture: (PT) Rehabilitation of the spine-injured patients

Practical: (PT) Complex physiotherapy of the patients with multiple sclerosis; movement therapy of the patients with myasthenia gravis

**13. week**

Lecture: (PT) Movement disorders with neuropsychiatric origin

Practical: (PT) Demonstration and practice of the facilitation techniques; improvement of the voluntary movements by coordination exercises. Individual demonstration of the facilitation techniques, some coordination and balance improving exercises

**14. week**

Lecture: (PT) Movement therapy in apraxia, agnosia and dementia

Practical: (PT) Physiotherapy of central and peripheral facial paresis; demonstration and practice of the vestibular training.

**Requirements**

Prerequisites: Electro-, balneo-, hydro- and climatotherapy, Neurology for Physiotherapists I

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. The attendance at practices is compulsory. The signature of the Lecture Book may be refused if one has more than 4-hour absences from the practical hours/topics.

Subject: **NEUROLOGY PRACTICE 80 HOURS + INFANT CARE AND PAEDIATRICS PRACTICE 80 HOURS (summer practice)**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Practical: **160**

Subject: **RADIOLOGY AND DIAGNOSTIC IMAGING FOR PHYSIOTHERAPISTS**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **10**

Subject: **RHEUMATOLOGY FOR PHYSIOTHERAPISTS II.**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **20**

Practical: **20**

Subject: **NUTRITIONAL PSYCHOLOGY**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **10**

Subject: **THESIS II.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Practical: **10**

Subject: **HEALTH PROMOTION IN PRIMARY CARE**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **10**

Subject: **ECONOMICS AND MANAGEMENT**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **20**

**1. week**

Lecture: Subject, method and the short history of Economics. The concept of economic agents

**2. week**

Lecture: National income. The market mechanisms: the analysis of demand and supply

**3. week**

Lecture: Comparative static analysis. The concept of the product-, money- and labour market

**4. week**

Lecture: The instruments of economic policy: fiscal and monetary policy

**5. week**

Lecture: The role of the Central Bank. Development of banks and the financial system I

**6. week**

Lecture: Development of banks and the financial system II. The functions of financial intermediary

**7. week**

Lecture: Current issues of the Hungarian economy

**8. week**

Lecture: Economics: Consultation.

Management: Introduction to management

**9. week**

Lecture: Strategic management. Identifying values, setting and attaining goals

**10. week**

**Lecture: Time management issues. How to delegate**

**11. week**

Lecture: How to deal with conflict - conflict management issues. Basics of quality management

**12. week**

Lecture: How to get your point across - the art of presentation. Management, leadership, and employee empowerment

**13. week**

Lecture: Performance assessment. Motivating employees and building teams

**14. week**

Lecture: Human resource management: finding and keeping the best employees; dealing with employee-management issues and relationships

### **Requirements**

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics.

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. The attendance at practices is compulsory. The signature of the Lecture Book may be refused if one has more than 4-hour absences from the practices.

Mid-term examinations and calculation of term mark

Mid-term tests in theoretical knowledge and practice exam will be processed during the semester.

The results of the midterm tests and practical examination will be averaged for evaluation of the term mark (AW5).

Subject: **INTENSIVE THERAPY FOR PHYSIOTHERAPISTS**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **10**

**1. week**

Lecture: Observation, monitoring and documentation at the intensive therapy unit. Monitoring of the brain function; renal function; laboratory diagnostics; infection control; documentation

**2. week**

Lecture: Water and electrolyte balance in normal and pathologic states

**3. week**

Lecture: Unconscious and disturbed patient; grades of the disorientation

**4. week**

Lecture: Danger of the airway obstruction, support, nursing, physiotherapy

**5. week**

Lecture: Postoperative patient care; postoperative respiratory disorders, prevention and treatment

**6. week**

Lecture: Polytraumatized patient, Multi-trauma, polytrauma.

Seminar: Equipment at the intensive therapy unit; role of the physiotherapist in the team; special aspects of the children care.

**7. week**

Lecture: Chest injuries, role of the physiotherapist in the treatment

Seminar: Task of a physiotherapist with traumatized patients.

**8. week**

Lecture: Intensive therapy of the acute coronary syndrome (ACS), patho-physiology, types and symptoms of the cardiac insufficiency.

Seminar: Indications and contra-indications of the movement therapy in the acute cardiac patients.

**9. week**

Lecture: Mobilization, physiotherapy in ACS and cardiac insufficiency

Seminar: Tasks of the physiotherapist in the early mobilization of the patients after myocardial infarct or cardiac surgery intervention.

**10. week**

Lecture: Methods of mechanical ventilation, artificial breathing strategy

Seminar: Indications and contraindications of the respiratory physiotherapy in the acute care.

Methods of the respiratory therapy, criteria for application in the acute respiratory insufficiency

### **Requirements**

Prerequisites: Physiotherapy Principles of Internal Medicine, Physiotherapy of the Movement System I.

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. Attendance at seminars is compulsory. The signature of the Lecture Book may be refused if one has more than 2-hour absences from the seminars.

Subject: **IV. BLOCK PRACTICE (Rehabilitation skills 90 hours)**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Practical: **90**

Subject: **PHYSIOTHERAPY PRINCIPLES OF THE MOVEMENT SYSTEM**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **10**

Subject: **NEUROLOGY FOR PHYSIOTHERAPISTS III.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **10**

**1. week**

Lecture: (B) Characteristics of the normal movements, general introduction to Bobath's method

(E) The basic principles of the electricity

Practical:

(B) Inspection, taking history, examination of muscular tone

(E) Taking intensity-duration curve, evaluation of the results I

**2. week**

Lecture: (B) Patient examination according to Bobath's method

(E) Aim and principles of the electrodiagnostic procedures, rules of processing

Practical: (B) Special examinations and tests

(E) Taking intensity-duration curve, evaluation of the results I

**3. week**

Lecture: (B) Hypotonia and spasticity

(E) Assessment of the degree of denervation

Practical: (B) Exercises in horizontal position, facilitation of lateral rolling, strengthening the pelvic muscles

(E) Taking intensity-duration curve, evaluation of the results II

**4. week**

Lecture: (B) Duties at the early phase of the stroke, treatment of the face

(E) Galvan and Farad tests, Pflüger's rule, measurement of the rheobase and chronaxie

Practical: (B) Facilitation of the truncal movements

(E) Examination of the muscle by electromyography (EMG) I

**5. week**

Lecture: (B) Cerebral plasticity and its role in the treatment

(E) Electrodiagnostics of the skeletal muscle

Practical: (B) Exercises in sitting position, facilitation of getting up

(E) Examination of the muscle by electromyography (EMG) II

**6. week**

Practical: (B) Exercises in upright position, tactile stimulation

Self-control Test ((E) Mid-semester test)

**7. week**

Practical: (B) Facilitation of the gait

**8. week**

Practical: Clinical demonstration  
Self-control Test ((B) Mid-semester test)

**9. week**

Practical: Clinical demonstration

**10. week**

Practical: Clinical demonstration

**11. week**

Practical: Clinical demonstration

**12. week**

Practical: Clinical demonstration

**13. week**

Practical: Clinical demonstration

**14. week**

Practical: Clinical demonstration

**Requirements**

Prerequisite: Neurology for Physiotherapists II

Attendance at lectures is strongly recommended, at practices is compulsory. If you have more than a 4-hour absence at practical hours, the signature of the Lecture Book will be refused.

The course contains also a 30-hour demonstration practice.

Subject: **REHABILITATION SKILLS**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **20**

Practical: **20**

**1. week**

Lecture: Definition of rehabilitation; history, main fields of rehabilitation; ICF

Practical: Meet with people with disabilities – free discussion

**2. week**

Lecture: Rehabilitation medicine: definitions, rehabilitation programs; basic features of the assessments

Practical: Assessment of ADL functions

**3. week**

Lecture: Medical rehabilitation: therapy approaches; team work

Practical: Practice at the Department of Rehabilitation and Physical Medicine (OT)

**4. week**

Lecture: Educational rehabilitation in childhood and for adults

Practical: Visit to a special school/ early intervention program

**5. week**



Lecture: Main features of vocational rehabilitation

Practical: Visit to an integrated workplace

**6. week**

Lecture: Social systems serving people with disabilities. Guiding international documents. Rights of people with disabilities

Practical: Visit to a daily care center

**7. week**

Lecture: Psychological approach in rehabilitation; communication and communication disorders

Practical: Preparation for mid-term examination

**8. week**

Lecture: Medical rehabilitation of persons with cardiac diseases; secondary prevention

Practical: Demonstration practice

Self-control Test (Mid-term examination)

**9. week**

Lecture: Main fields of neurological rehabilitation: TBI, SCI, post-stroke rehabilitation

Practical: Demonstration practice

**10. week**

Lecture: Rehabilitation for people with chronic neuro-musculoskeletal conditions

Practical: Demonstration practice

**11. week**

Lecture: Paediatric rehabilitation

Practical: Demonstration practice

**12. week**

Lecture: Special rehabilitation needs of elderly people (OP, fractures, etc.) and persons after amputation

Practical: Demonstration practice

**13. week**

Lecture: Pulmonary rehabilitation

Practical: Demonstration practice

**14. week**

Lecture: Psychiatric rehabilitation

Practical: Demonstration practice

**Requirements**

Prerequisites: Physiotherapy of the Movement System I, Rheumatology for Physiotherapists II, Neurology for Physiotherapists II

Attendance at lectures is highly recommended, since the topics in examination cover the lectured topics. The attendance at practices is compulsory. The signature of the Lecture Book may be refused if one has more than 4-hour absences at the seminars or practical hours.

Subject: **CARDIOPULMONARY RESUSCITATION (CPR)**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Practical: **10**

Subject: **INTERNAL MEDICINE CLINICAL PRACTICE I. (Respiratory physiotherapy 80 hours)**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Practical: **80**

Content:

Lecture: Peripheral arterial diseases; venous circulatory disorders; acute myocardial infarct; post-infarct state; other diseases in cardiovascular rehabilitation; intensive therapy in cardiology; out-patient training

### **Requirements**

Prerequisite: Internal Medicine for Physiotherapists III

Educational objective: Students learn the special profile of the department; special methods of examination and therapy learn to communicate in a professional environment, as well as with patients and their relatives. Skills to be acquired: problem identification, analysis, examination with and without supervision, preparation and implementation of treatment plans, assessment of patients' progress, recognition of acute and life-threatening conditions and acting in emergency, communication skills (with patients and health care professionals), keeping the ethical standards of the profession.

Requirements: The students are required to perform the examinations, making plan for physiotherapy and carry out the treatment under supervision.

Subject: **INTERNAL MEDICINE CLINICAL PRACTICE II. (Cardiovascular rehabilitation 80 hours)**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Practical: **80**

Subject: **NEUROLOGY CLINICAL PRACTICE**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Practical: **60**

Content:

Practical: Central paresis; peripheral paresis; sclerosis multiplex; Parkinson's syndrome; muscular disorders; other neurological diseases

### **Requirements**

Prerequisite: Neurology for Physiotherapists II

Educational objective: Students learn the special profile of the department; special methods of examination and therapy, learn to communicate in a professional environment, as well as with patients and their relatives. Skills to be acquired: problem identification, analysis, examination with and without supervision, preparation and implementation of treatment plans, assessment of patients' progress, recognition of acute and life-threatening conditions and acting in emergency, communication skills (with patients and health care professionals), keeping the ethical standards of the profession.

Requirements: The students are required to perform the examinations, making plan for physiotherapy and carry out the treatment under supervision.

Subject: **ORTHOPAEDICS CLINICAL PRACTICE**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Practical: **80**

#### **Content:**

Lecture: Rheumatoid arthritis; ankylosing spondylitis; osteoporosis; soft tissue rheumatism, fibromyalgia; other rheumatoid diseases

### **Requirements**

Prerequisite: Rheumatology for Physiotherapists II

Educational objective: Students learn the special profile of the department; special methods of examination and therapy learn to communicate in a professional environment, as well as with patients and their relatives. Skills to be acquired: problem identification, analysis, examination with and without supervision, preparation and implementation of treatment plans, assessment of patients' progress, recognition of acute and life-threatening conditions and acting in emergency, communication skills (with patients and health care professionals), keeping the ethical standards of the profession.

Requirements: The students are required to perform the examinations, making plan for physiotherapy and carry out the treatment under supervision.

Subject: **REHABILITATION CLINICAL PRACTICE**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Practical: **80**

#### **Content:**

Practical: Rehabilitation in cranio-cerebral injuries; injuries of spinal cord; post-amputation state; other diseases requiring rehabilitation therapy

Requirements

Prerequisite: Rehabilitation

Educational objective: Students learn the special profile of the department; special methods of examination and therapy learn to communicate in a professional environment, as well as with patients and their relatives. Skills to be acquired: problem identification, analysis, examination with and without supervision, preparation and implementation of treatment plans, assessment of patients' progress, recognition of acute and life-threatening conditions and acting in emergency, communication skills (with patients and health care professionals), keeping the ethical standards of the profession.

Requirements: The students are required to perform the examinations, making plan for physiotherapy and carry out the treatment under supervision.

Subject: **RHEUMATOLOGY CLINICAL PRACTICE**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Practical: **80**

Content:

Practical: Orthopedic diseases of spine; orthopaedic diseases of upper extremities; orthopaedic diseases of lower extremities; pre- and postoperative physiotherapy

**Requirements**

Prerequisite: Physiotherapy of the Movement System II - PT in Orthopaedics and Traumatology

Educational objective: Students learn the special profile of the department; special methods of examination and therapy learn to communicate in a professional environment, as well as with patients and their relatives. Skills to be acquired: problem identification, analysis, examination with and without supervision, preparation and implementation of treatment plans, assessment of patients' progress, recognition of acute and life-threatening conditions and acting in emergency, communication skills (with patients and health care professionals), keeping the ethical standards of the profession.

Requirements: The students are required to perform the examinations, making plan for physiotherapy and carry out the treatment under supervision.

Subject: **TRAUMATOLOGY CLINICAL PRACTICE**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Practical: **80**

**Content:**

Practical: Injuries of spine; injuries of upper extremities; injuries of lower extremities; poly-traumatisation; intensive therapy in traumatology

**Requirements**

Prerequisite: Physiotherapy of the Movement System II – PT in Orthopaedics and Traumatology

Educational objective: Students learn the special profile of the department; special methods of examination and therapy learn to communicate in a professional environment, as well as with patients and their relatives. Skills to be acquired: problem identification, analysis, examination with and without supervision, preparation and implementation of treatment plans, assessment of patients' progress, recognition of acute and life-threatening conditions and acting in emergency, communication skills (with patients and health care professionals), keeping the ethical standards of the profession.

Requirements: The students are required to perform the examinations, making plan for physiotherapy and carry out the treatment under supervision.

Subject: **THESIS III.**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Practical: **80**

**1. session**

Analysis and discussion of the results on the basis of scientific literature, writing the Thesis

**2. session**

**3. Sample for defence presentation**

**Requirements**

Prerequisite: Thesis II

Evaluation and discussion of the results, writing the Thesis.

**CHAPTER 13**  
**LIST OF TEXTBOOKS**

**Philosophy:**

Gaardner, J.: *Sophie's World: A Novel About the History of Philosophy*.

Reprint edition. Farrar, Straus and Giroux, 2007. ISBN: 0-5223-5934-8.

Additional Reading: Dawson, A. (ed): *Public Health Ethics: Key Concepts and Issues in Policy and Practice*. New York, NY. Cambridge University Press, 2011. ISBN: 978-0521689366.

**Medical Latin:**

Répás László: *Basics of Medical Terminology, Latin and Greek Origins I* Répás László, 2016.

Martin, E.: *Oxford Concise Medical Dictionary*. 9th. Oxford University Press, 2015. ISBN: 978-0199-6878-17.

**Microbiology:**

Levinson, W.: *Review of Medical Microbiology and Immunology*. 14th edition. McGraw Hill, 2016. ISBN: 0-0718-4574-7.

**First Aid:**

Kindersley D.: *First Aid Manual*. 10th edition. Dorling Kindersley Publishers Ltd, 2011. ISBN: 9781-4053-6214-6.

Van de Velde S, et al: *European first aid guidelines*. *Resuscitation*, 72:240-51.2007.

St. John Ambulance, St. Andrew's Ambulance Association, British Red Cross Society: *First Aid Manual: The Step by Step Guide for Everyone*. 9th edition. Penguin, 2009. ISBN: 1-405-33537-8.

Betlehem, J.: *First Things to Be Done in Emergencies – Providing First Aid for Health Professionals*. URL: [http://www.tankonyvtar.hu/hu/tartalom/tamop425/0061\\_first-things-angol/adatok.html](http://www.tankonyvtar.hu/hu/tartalom/tamop425/0061_first-things-angol/adatok.html)

**Basics of Sociology:**

Weitz, R.: *The Sociology of Health, Illness, and Health Care: A Critical Approach*. 6th. Wadsworth Publishing, 2012. ISBN: 1-1118-2879-2.

Denny, E., Earle, S.: *Sociology for Nurses*. 2nd edition. Polity Press, 2009. ISBN: 0-7456-4625-5.

**Health Informatics I:**

Handbooks of MS Office applications, Internet sources.

**Basics of Pedagogy:**

Glanz, K., Rimer, B., Viswanath, K.: *Health Behavior and Health Education: Theory, Research, and Practice*. 4th edition. Jossey-Bass, 2008. ISBN: 0-7879-9614-9.

Modeste, N., Tamayose, T., Marshak. H.H.: *Dictionary of Public Health Promotion and Education: Terms and Concepts*. 2nd edition. Jossey-Bass, 2004. ISBN: 0-7879-6919-2.

**Communication:**

Groenman, N. H., Slevin, O. D., Buckenham, M.: *Social and behavioral sciences for nurses*.  
Campion Press Limited, 1992.

Segerstrale, U., Molnár, P.: *Nonverbal Communication: Where Nature Meets Culture*. 1st edition.

Psychology Press, 1997. ISBN: 0-8058-2179-1.

### **Kinesiology I:**

Levangie, P. K., Norkin, C. C.: Joint Structure and Function. A Comprehensive Analysis. 5th edition. FA Davis Co, 2011. ISBN: 9780-8036-2362-0.

Neumann, D. A.: Kinesiology of the Musculoskeletal System: Foundations for Physical Rehabilitation. 2nd edition. Mosby Co, 2009. ISBN: 0-3230-3989-8.

Clarkson, H. M.: Musculoskeletal Assessment: Joint Range of Motion and Manual Muscle Strength. 3rd edition. Lippincott Williams & Wilkins, 2012. ISBN: 1-6091-3816-3.

Magee, D.J.: Orthopedic Physical Assessment. 7th edition. Elsevier Health Sciences, 2014. ISBN: 978-1-4557-0977-9.

### **Health Informatics II:**

Handbooks of MS Office applications, Internet sources.

### **Electro-, balneo-, hydro-, and climatotherapy:**

Cameron M. H.: Physical Agents in Rehabilitation: From Research to Practice. 4th edition. Saunders, 2012. ISBN: 1-4557-2848-9.

Watson T.: Electrotherapy. Evidence Based Practice. 12th edition. Churchill Livingstone, 2008. ISBN: 0-443-10179-5.

Robertson V., Ward, A., Low, J., Read, A.: Electrotherapy Explained: Principles and Practice. 4th edition. Butterworth-Heinemann, 2006. ISBN: 0-7506-8843-2.

Hayes K. W., Hall, K.: Manual for Physical Agents. 6th edition. Pearson, 2011. ISBN: 0-1360-7215-1.

### **Economics and Management:**

Samuelson, P. A., Nordhaus, W. D.: Economics. 19th edition. McGraw-Hill, 2009. ISBN: 0-0735-1129-3.

Morden, T: Principles of Management. Ashgate Pub Ltd, 2004. ISBN: 0-7546-1984-2.

Allen, D.: Getting Things Done: The Art of Stress-Free Productivity. Revised edition. Piatkus, 2015. ISBN: 0-3494-0894-7.

MGMT5: What's Inside: A Student Tested, Faculty-Approved Approach to Learning Principles of Management. Cengage Learning, 2012. ISBN: 1-1331-9090-1.

### **Hungarian Language I:**

Gerő Ildikó-Kovács Judit: Színesen magyarul. 2017.

### **Kinesiology II:**

Levangie, P. K., Norkin, C. C. : Joint Structure and Function. A Comprehensive Analysis. 5th edition. FA Davis Co, 2011. ISBN: 9780-8036-2362-0.

Neumann, D. A. : Kinesiology of the Musculoskeletal System: Foundations for Physical Rehabilitation. 2nd edition. Mosby Co, 2009. ISBN: 0-3230-3989-8.

Clarkson, H. M.: Musculoskeletal Assessment: Joint Range of Motion and Manual Muscle Strength. 3rd edition. Lippincott Williams & Wilkins, 2012. ISBN: 1-6091-3816-3.

Magee, D.J.: Orthopedic Physical Assessment. 7th edition. Elsevier Health Sciences, 2014. ISBN: 978-1-4557-0977-9.

### **Physiology:**

Koeppen, B. M., Stanton, B. A.: Berne & Levy Physiology. 7th edition. Elsevier, 2017. ISBN: 9-

78032339394-2.

Hall, J. E.: Guyton and Hall Textbook of Medical Physiology. 13rd edition. Saunders, 2015. ISBN: 1-4557-7005-1.

### **Philosophy:**

Gardner, J.: Sophie's World: A Novel About the History of Philosophy. Reprint edition. Farrar, Straus and Giroux, 2007. ISBN: 0-5223-5934-8.

Dawson, A.: Public Health Ethics: Key Concepts and Issues in Policy and Practice. 1st edition. Cambridge University Press, 2011. ISBN: 0-5216-8936-8.

### **Hungarian Language II:**

Gyórfy Erzsébet, Ph.D.: Hogy s mint? I. 2013.

### **Mobilization-Manual Techniques I:**

Kaltenborn F. M.: Manual Mobilization of the Joints: Vol I The Extremities . 8th edition. Orthopedic Physical Therapy Products, 2014. ISBN: 8-2705-4201-6.

Kaltenborn F. M., Evjenth, O., Kaltenborg, T. B., Morgan, D., Wollowitz, E.: Manual Mobilization of the Joints: The Spine Vol 2. 6th edition. Norli, 2012. ISBN: 8-2705-4200-8.

Evjenth O., Hamberg, J.: Muscle stretching in Manual Therapy. 6th edition. Alfa Rehab, 2003. ISBN: 9-1859-3402-X.

Adler S. S., Beckers, D., Buck, M.: PNF in practice. 4th edition. Springer Science & Business Media, 2013. ISBN: 3-6423-4988-9.

Clay J. H., D. M. Pounds: Basic Clinical Massage Therapy: Integrating Anatomy and Treatment 3rd edition. Lippincott Williams & Wilkins, 2008.

Clay J. H., Allen, L., Pounds, D. M.: Clay & Pounds' Basic Clinical Massage Integrating Anatomy and Treatment. 3rd, illustrated edition. Lippincott Williams & Wilkins, 2015. ISBN: 1-4511-8546-4.

Lederman, E.: Therapeutic Stretching. 1st edition. Churchill Livingstone, 2014. ISBN: 978-0-7020-4318-5.

Lederman, E.: Therapeutic Stretching. 1st edition. Churchill Livingstone, 2014. ISBN: 978-0-7020-4318-5.

### **Applied Training Methods:**

Ehrman, J. K., Gordon, P. M., Visich, P. S., Keteyian, S. J.: Clinical Exercise Physiology. 3rd edition. Human Kinetics Europe Ltd, 2013. ISBN: 1-4504-1280-7.

Wilmore, J. H., Kenney, W. L.: Physiology of Sport and Exercise. 6th edition. Human Kinetics Europe Ltd, 2015. ISBN: 1-4504-7767-.

Powers, K., Howley, E.T.: Exercise Physiology: Theory and Application to Fitness and Performance. 8th edition. McGraw-Hill Education, 2011. ISBN: 0-0780-2253-3.

### **Kinesiology Practice:**

Kissner, C., Colby, L. A.: Therapeutic Exercises – Foundation and Techniques. 6th edition. F.A. Davis Company, 2012. ISBN: 0-8036-2574-X.

### **Pathology:**

Damjanov, I: Pathology for the Health Professions. 4th edition. Elsevier Health Sciences, 2013. ISBN: 0-3232-7705-5.

### **Professional Hungarian Language I:**

Fodor Marianna-Rozman Katalin: Beszélék magyarul?! II.. 2017. ISBN: 978-963-12-7760-9.



**Basics of Dietetics:**

Barker H. M.: Nutrition and Dietetics for Health Care. 10th. Churchill Livingstone, 2002. ISBN: 0-443-07021-0.

Webster-Gandy J., Madden, A. Holdsworth, M.: Oxford Handbook of Nutrition and Dietetics. 2nd edition. Oxford University Press, 2011. ISBN: 0-1995-8582-2.

Geissler C., Powers, H. J.: Fundamentals of Human Nutrition: For Students and Practitioners in the Health Sciences. 1st edition. Elsevier Health Sciences, 2009. ISBN: 0-443-06972-7.

**Principles of kinesiology:**

Levangie, P. K., Norkin, C. C.: Joint Structure and Function. A Comprehensive Analysis. 5th edition. FA Davis Co, 2011. ISBN: 9780-8036-2362-0.

Neumann, D. A.: Kinesiology of the Musculoskeletal System: Foundations for Physical Rehabilitation. 2nd edition. Mosby Co, 2009. ISBN: 0-3230-3989-8.

Clarkson, H. M.: Musculoskeletal Assessment: Joint Range of Motion and Manual Muscle Strength. 3rd edition. Lippincott Williams & Wilkins, 2012. ISBN: 1-6091-3816-3.

Magee, D.J.: Orthopedic Physical Assessment. 7th edition. Elsevier Health Sciences, 2014. ISBN: 978-1-4557-0977-9.

**Basics of research methodology:**

Keshav, S.: How to Read a Paper. URL: <http://ccr.sigcomm.org/online/files/p83-keshavA.pdf>

Ashby, M.: How to Write a Paper. URL: <http://www-mech.eng.cam.ac.uk/mmd/ashby-paper-V6.pdf>

**Principles of Health Sciences:**

Moore K.L., Dalley, A.F., Agur, A. M. R.: Clinically Oriented Anatomy. 6th edition. Lippincott Williams & Wilkins, 2009. ISBN: 978-1-60547-652-0.

Koepfen, B. M., Stanton, B. A.: Berne & Levy Physiology. 7th edition. Elsevier, 2017. ISBN: 9-78032339394-2.

Hall, J. E.: Guyton and Hall Textbook of Medical Physiology. 13rd edition. Saunders, 2015. ISBN: 1-4557-7005-1.

**Health Care Law:**

Montgomery, J.: Health Care Law. 3rd edition. OUP Oxford, 2012. ISBN: 0-1992-7448-7.

Dimond, B. C. : Legal Aspects of Physiotherapy. 2nd edition. Wiley-Blackwell, 2009. ISBN: 978-1-4051-7615-6.

Hall, M. A., Bobinski, M. A., Orentlicher, D.: Bioethics and Public Health Law. 3rd edition. Aspen Publishers, 2013. ISBN: 1-4548-0535-8.

WHO: Euro Observer: The Health Policy Bulletin of the European Observatory on Health Systems and policies.

URL: <http://www.euro.who.int/en/who-we-are/partners/observatory>

**Mobilization-Manual Techniques II:**

Kaltenborn F. M., Evjenth, O., Kaltenborg, T. B., Morgan, D., Wollowitz, E.: Manual Mobilization of the Joints: The Spine Vol 2. 6th edition. Norli, 2012. ISBN: 8-2705-4200-8.

Kaltenborn F. M.: Manual Mobilization of the Joints: Vol I The Extremities. 8th edition. Orthopedic Physical Therapy Products, 2014. ISBN: 8-2705-4201-6.

Adler S. S., Beckers, D., Buck, M.: PNF in practice. 4th edition. Springer Science & Business Media, 2013. ISBN: 3-6423-4988-9.

Sanderson, M.: Soft Tissue Release: A Practical Handbook for Physical Therapists. 3rd edition.

Lotus Pub, 2012. ISBN: 1-9053-6737-6.

Edmond, S. L.: Joint Mobilization/Manipulation: Extremity and Spinal Techniques. 3rd edition. Mosby, 2016. ISBN: 0-3232-9469-3.

### **Rheumatology for Physiotherapists I:**

Firestein, G. S., Budd, R. C., Gabriel, S. E., McInnes, I. B., O'Dell, J. R.: Kelley's Textbook of Rheumatology. 9th. Saunders, 2013. ISBN: 1-4377-1738-1.

### **Traumatology for Physiotherapists:**

Dandy D. J., Edwards, D. J.: Essential Orthopaedics and Trauma. 5th edition. Churchill Livingstone, 2009. ISBN: 978-0-443-06718-1.

### **Pharmacology:**

Katzung, B. G.: Basic and Clinical Pharmacology. 13th edition. McGraw-Hill Education, 2014. ISBN: 0-0718-2505-3.

Trevor, A. J., Katzung B. G., Masters S. B. : Katzung & Trevor's Pharmacology: Examination & Board Review. 11th edition. McGraw-Hill Education, 2015. ISBN: 0-0718-2635-1.

### **Preventive Medicine and Public Health I:**

Donaldson, R.J., Scally, G.: Essential Public Health Medicine. 3rd Revised edition. Kluwer Academic Publishers, 2009. ISBN: 978-184619-209-8.

Porta, M.: A dictionary of epidemiology. 5th edition. Oxford University Press, 2008. ISBN: 0-1953-1450-6.

Rothman, K. J.: Epidemiology: An Introduction. 2nd edition. Oxford University Press, 2012. ISBN: 0-1997-5455-1.

### **Orthopedics for Physiotherapists:**

Szendrői M.: Orthopedics. 1st edition. Semmelweis, 2008. ISBN: 9789-6396-5693-2.

Atkinson K., Coutts, F. J., Hassenkamp, A. M.: Physiotherapy in Orthopedics: A Problem Solving Approach. 2nd edition. Churchill Livingstone, 2005. ISBN: 978-0-443-07406-6.

### **Professional Hungarian Language II:**

Fodor Marianna-Rozman Katalin: Beszélek magyarul?! II. 2017. ISBN: 978-963-12-7760-9.

### **Obstetrics and Gynecology for Physiotherapists:**

Monga, A., Dobbs, S. P.: Gynecology by Ten Teachers. 19th edition. Hodder Arnold, 2011. ISBN: 0-3409-8354-X.

Baker, P. N., Kenny, L.: Obstetrics by Ten Teachers. 19th edition. Hodder Arnold, 2011. ISBN: 0-3409-8353-1.

Bo, K., Berghmans, B., Morkved, S., Van Kampen, M. : Evidence-Based Physical Therapy for the Pelvic Floor: Bridging Science and Clinical Practice. 2nd edition. Churchill Livingstone, 2014. ISBN: 978-070-204-443-4.

Haslam, J., Laycock, J.: Therapeutic Management of Incontinence and Pelvic Pain: Pelvic Organ Disorders. 2nd edition. Springer, 2010. ISBN: 1-8462-8661-1.

### **Internal Medicine for Physiotherapists:**

Frownfelter D., Dean, E.: Cardiovascular and Pulmonary Physical Therapy: Evidence and Practice 5th edition. Mosby, 2012. ISBN: 0-3230-5913-9.

DeTurk, W. E., Cahalin, L. P.: Cardiovascular and Pulmonary Physical Therapy: An Evidence-based

Approach.2nd edition. McGraw-Hill Medical, 2010. ISBN: 0-0715-9812-X.

Main, E., Denehy, E.: Cardiorespiratory Physiotherapy: Adults and Paediatrics.5th edition. Elsevier, 2016. ISBN: 0-7020-4731-7.

### **Neurology for physiotherapists I:**

Davies, P. M. : Steps to Follow: The Comprehensive Treatment of Patients with Hemiplegia.2nd edition. Springer, 2013. ISBN: 3-5406-0720-X.

Stokes M.: Physical Management for Neurological Conditions .3rd edition. Churchill Livingstone, 2011. ISBN: 0-723-43560-X.

Umphred, D. A., Burton, G., Lazaro, R. T., Roller, M.: Neurological Rehabilitation.6th edition. Mosby, 2012. ISBN: 0-3230-7586-X.

### **Psychiatry I:**

Everett, T., Donaghy, M., Feaver, S.: Interventions for Mental Health: An Evidence Based Approach for Physiotherapists and Occupational Therapists.2nd edition. Butterworth-Heinemann Ltd, 2003. ISBN: 0-7506-4965-8.

Kaplan, H. I., Sadock, B. J.: Synopsis of Psychiatry.11th edition. Williams & Wilkins, 2014. ISBN: 1-6091-3971-2.

### **Rheumatology for Physiotherapists II:**

Firestein, G. S., Budd, R. C., Gabriel, S. E., McInnes, I. B., O'Dell, J. R.: Kelley's Textbook of Rheumatology. 9th. Saunders, 2013. ISBN: 1-4377-1738-1.

### **Preventive Medicine and Public Health II:**

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**CHAPTER 14**  
**TITLES OF THESIS**

**Attila Nagy M.D., PhD**

The prevalence of diabetes in a given area  
Study design for diabetes monitoring

**Gábor Bányai-Márton, MA**

Thesis and TDK:  
History of international health organizations  
Bioterrorism and global health security

**Klára Bíró, D.MD., PhD**

Thesis and TDK:  
Increasing expectations among healthcare consumers  
Challenges for healthcare managers

**Judit Zsuga, M.D. , PhD**

Thesis and TDK  
Workplace stress in health care  
Performance and workplace stress

**Klára Boruzs, MA, PhD.**

Thesis and TDK:  
Drug utilization in the world  
The pharmaceutical industry's operation from viewpoint of the management  
Drug utilization in the world  
The pharmaceutical industry's operation from viewpoint of the management

**Balázs Lukács, MSc, PhD.**

Effect of physical activity on cardiovascular health in young adults  
Falls in the elderly: risk factors and prevention

**Anita Spisákné Balázs, PhD.**

Assesment and treatment options for postural problems in school-age children  
The role of pelvic floor muscle training during childbirth and postnatal recovery  
Epidemiology, diagnosis and treatment of breast cancer  
Study on the eating habits of secondary school students

**Csilla Tatai, MSc**

Eating disorders and the psychological aspects of nutrition  
Mental disorders  
Quality of life in chronic illnesses

**Gergő József Szöllősi, MSc**

Influenza vaccination coverage in Hungary based on the European Health Interview Survey  
Investigation of the influencing factors of chronic kidney disease in Hungary based on the European Health Interview Survey



Investigation of the influencing factors of obesity

**Emilia Zsanda, MSc**

Evaluating and comparing fashion diets to healthy eating

**Éva Csepregi, MSc**

Assessment of ratio of spinal problems and improvement of posture and spinal mobility in young college students

**Andrea Hunyadi, MSc, PhD**

Development of eye-hand coordination with ball among preschool children

Development of balance and coordination skills in preschool age

Development of movement coordination among hearing-impaired children

Examination of hip joint movement and the effect of intense training among 13-14-year old children

The practice of proprioceptive training in the treatment of pes planus and its effect on posture among primary school students

**Ágnes Tóth, MSc, PhD**

Celiac disease and its causes

Nutritional consequences of celiac disease

**László Kardos, MD, PhD**

Cutoff optimization of classification systems by misclassification cost minimization (for students with a strong inclination towards mathematics and computer programming)

**Róbert Bata, MSc**

The processing of health related databases