BULLETIN

UNIVERSITY OF DEBRECEN

ACADEMIC YEAR 2021/2022

FACULTY OF DENTISTRY

Coordinating Center for International Education

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CHAPTER 1
WELCOME FROM THE DEAN

It is my pleasure to greet the new members of the University of Debrecen, the students of the Faculty of Dentistry. I hope you will enjoy your stay in our country, in our town and at our University. Please keep in mind that education is based on a mutual trust and a very close partnership. On behalf of me and the whole staff I assure you that we will do our best to provide you all the latest theoretical and practical knowledge to make you a successful dentist. In return, you have to make every effort to study efficiently and demonstrate the highest quality clinical knowledge and expertise, ethical behaviour and respect towards your teachers, patients and fellow students during your training. The five years will give you graduate training programs that maximize your dental knowledge. This bulletin is to guide you through your five-year studies. It contains essential information about the educational programs, the course, content and description, the description of the general and special requirements for graduation at our University. However, we reserve the right of modification, eg. in case of the timetable or choosing the place of the lessons according to the current/latest rules and regulations and the decisions of the Senate of the University of Debrecen and the Faculty Council of the Faculty of Dentistry. We expect you to respect your lecturers, student mates, patients and always show an ethical behaviour worthy of a prospective doctor.

Last but not least, I would like to draw your attention to the sport and leisure opportunities provided by the University of Debrecen, we hope that the years spent in the country's second largest city are going to give you beautiful memories.
I encourage you to read this booklet carefully, and become a unique and competent dentist of your country.

Best wishes: the Dean

CHAPTER 2
INTRODUCTION

The Faculty of Dentistry is part of the University of Debrecen and is located in the main campus, only 15 minutes from the city center of Debrecen. Debrecen is situated in the eastern part of the country. Hungary is a small, central European country with an area of 93.036 ksqm;. The River Danube divides the country into two: the western part is hilly and the eastern part is mostly flat. The capital is Budapest (1.837.000). The population of Hungary is 10.092.000. (For more information please visit: www.hungary.hu) With the population of 250.000, this historic city, Debrecen, is the second largest in the country. It is a real university town with over 32.000 students. The history of higher education dates back as far as the sixteenth century, when the center of science, art and education, the Reformed College was established. This served as a base for the foundation of the University. The University was completed in 1932, in a unique campus form situated in a beautiful forest called Great Forest.(see more about the university and the city at www.debrecen.hu. and www.med.unideb.hu). History of the Faculty The Faculty of Dentistry is one of the youngest faculties at the University of Debrecen, however, dental education dates back as far as 1935. At that time it was integrated into the course of the General Medical training program. Though operating under unfavorable conditions, - there was no separate building available-, the School of Dentistry gained considerable reputation over the years both in Hungary and abroad. The first Dentistry students began studying in the academic year 1976-77. The increasing demand to supply North-East Hungary with dentists made it necessary to set up a self-contained dentist training program and a separate, modern 2000 sqm building was designated for this purpose. Completed in 1981, it provided suitable conditions for high-quality work with 40 dental units, a lecture hall, a library, a dental and a phantom lab. It became the second building dedicated entirely to Dentistry in the country. The school was subdivided into six units: restorative-, prosthetic-, pediatric dentistry, orthodontics and periodontology. Dental surgery (678 sqm) remained in the original building after the required reconstructions. The year 2000-2001 brought about important changes in the life of the Dental Institute: the increasing number of Hungarian students and the introduction of dental training for foreign students in English made extension necessary. In 2003 the Faculty of Dentistry came into being at the University of Debrecen. It is a very important result that the Dentistry program could transform into a faculty at all, since this was the second independent faculty of Dentistry ever established in Hungary, created 50 years after the one in Budapest. In the year 2004, after the Dental Institute became Faculty, a new 2-story, 2100 sqm building opened its door, with 32 dental units in 8 consulting rooms. The big lecture hall can host 100 people and there are three seminar rooms which can seat 50 students each. Parallel to the construction of the new building, reconstruction works took place in the former one. 40 old dental units were replaced and in the phantom lab 36 well-equipped working places were created. The Faculty offers not only undergraduate but postgraduate programs designed to produce specialist practitioners in six disciplines and also offers research training programs (PhD) to produce research scholars of international standing. Specialist postgraduate training is available in the discipline of: restorative and prosthetic dentistry, orthodontics, pediatric dentistry, periodontics, dento-alveolar oral surgery, and maxillofacial oral surgery. The Faculty is responsible for the continuous training of 700 dentists in the region and also attracts numerous applicants from all over the country. To provide equal rights to the disabled and handicapped patients and to maintain good oral health a new wing is designed for treating these special-need patients. The ever increasing number of Hungarian and foreign students made it necessary to extend the working area and facilities. These were the main reasons of the new construction and reconstruction, which started in the year of 2010. By the time of 2012 a brand new building with 40 dental units will a wait the students who would like to start their education, a new dento-alveolar and maxillofacial surgery will provide the latest technology for curing patents and

among them the disabled ones. In 2020 the Fantom laboratory has been renewed and equipped with 40 up to date fantom units and digital education aids. These developments assure the highest quality of education, research and treatment. The Faculty has established collaborative links with a number of universities located in Finland, England, Taiwan, Turkey, Sweden, Romania, and Ukraine.

CHAPTER 3
ORGANIZATION STRUCTURE OF THE UNIVERSITY OF DEBRECEN

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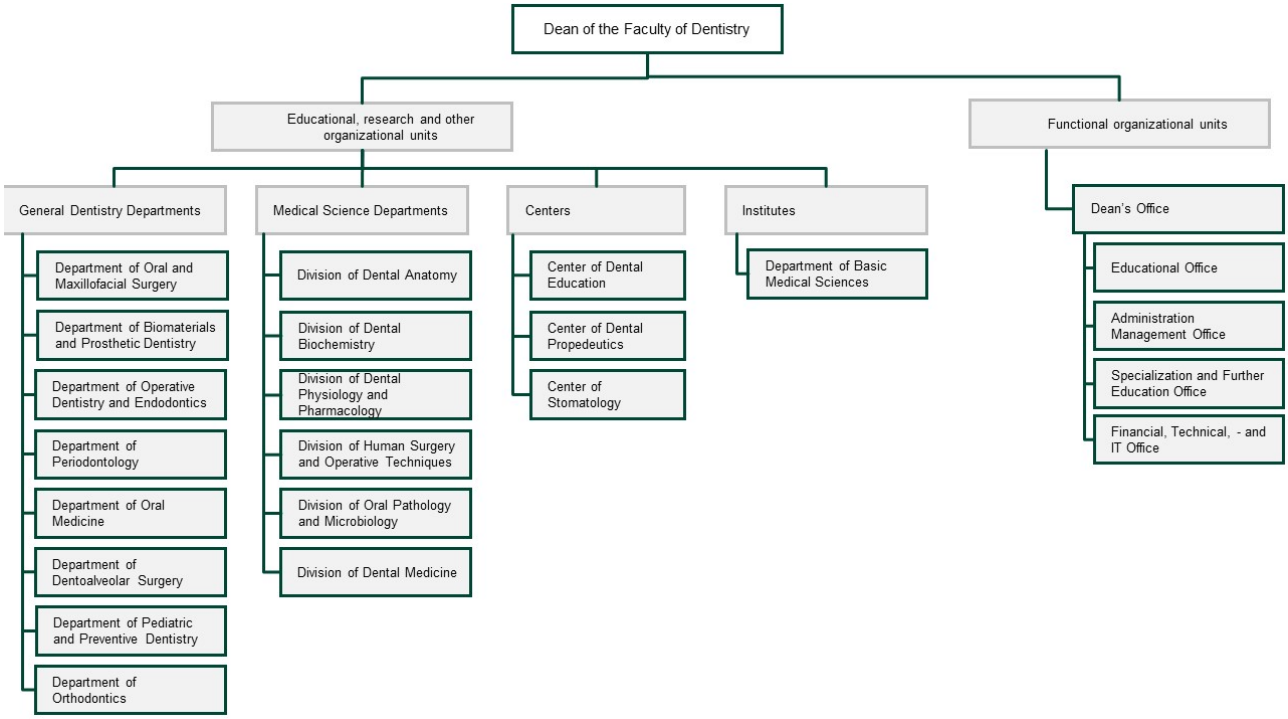
Dean of the Faculty of Dentistry
Educational, research and other organizational units
Functional organizational units
General Dentistry Departments
Department of Oral and Maxillofacial Surgery
Department of Biomaterials and Prosthetic Dentistry
Department of Operative Dentistry and Endodontics
Department of Periodontology
Department of Oral Medicine
Department of Dentoalveolar Surgery
Department of Pediatric and Preventive Dentistry
Department of Orthodontics
Medical Science Departments
Division of Dental Anatomy
Division of Dental Biochemistry
Division of Dental Physiology and Pharmacology
Division of Human Surgery and Operative Techniques
Division of Oral Pathology and Microbiology
Division of Dental Medicine
Centers
Center of Dental Education
Center of Dental Propedeutics
Center of Stomatology
Institutes
Department of Basic Medical Sciences
Dean's Office
Educational Office
Administration Management Office
Specialization and Further Education Office
Financial, Technical, - and IT Office

CHAPTER 4
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		Márton Suta D.M.D.
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	Ms.	Judit Török D.M.D.
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Assistant Lecturer	Ms. Krisztina Köröskényi M.Sc., Ph.D.
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Manager Assistant	Ms.	Márta Hajdu M.A.
Marketing Coordinator	Ms.	Eszter Balázsy M.Sc.
	Ms.	Dóra Mónus M.A.
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Agent Coordinator	Ms.	Katalin Tatár-Györe M.A.
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.	Enikő Sallai M.Sc. (Tuition fee, Health Insurance)
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	Ms.	Klára Matesz M.D.,Ph.D.,D.Sc.
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		Attila Oláh M.Sc., Ph.D.
	Ms.	Melinda Paholcsek M.Sc., Ph.D.
		Balázs Pál M.D.,Ph.D.
	Ms.	Éva Rácz M.Sc., Ph.D.

	Ms. Beáta Soltész M.Sc., Ph.D.
	Lajos Széles M.Sc., Ph.D.
	Ms. Melinda Szilágyi-Bónizs M.Sc., Ph.D.
	Ms. Krisztina Szirák M.Sc., Ph.D.
	Ms. Mónika Sztretye M.Sc., Ph.D.
	Ms. Andrea Telek M.Sc., Ph.D.
	István Balázs Tóth M.Sc., Ph.D.
	Ms. Angelika Varga M.Sc., Ph.D.
	Ervin Wolf M.Sc., Ph.D.
	Ms. Róza Zákány M.D., Ph.D.

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	Ms. Enikő Nizsalóczki M.Sc.
	György Panyi M.D., Ph.D., D.Sc.
	Ferenc Papp M.Sc., Ph.D.
	G. Tibor Szántó M.Sc., Ph.D.
	János Szöllősi M.Sc., Ph.D., D.Sc., M.H.A.Sc.
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CHAPTER 7
FACULTY OF MEDICINE - DEPARTMENTS OF BASIC SCIENCES

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CHAPTER 9
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CHAPTER 10
UNIVERSITY CALENDAR

CRASH COURSE OF HUNGARIAN LANGUAGE: August 23 – September 3, 2021
OPENING CEREMONY: September 5, 2021

1st SEMESTER

Year	Course	Examination Period
Basic Medicine Course	September 6 – December 10, 2021 (14 weeks)	December 13, 2021 – January 28, 2022 (7 weeks)
1st year Dentistry 2nd year Dentistry 3rd year Dentistry 4th year Dentistry 5th year Dentistry	September 6 – December 10, 2021 (14 weeks)	December 13, 2021 – January 28, 2022 (7 weeks)

2nd SEMESTER

Year	Course	Examination Period
Basic Medicine Course	February 7 – May 13, 2022 (14 weeks)	May 16 – June 10, 2022 (4 weeks)
Basic Medicine Course II.	January 10 – June 17, 2022 (23 weeks)	June 20 – July 8, 2022 (3 weeks)
1st year Dentistry 2nd year Dentistry 3rd year Dentistry 4th year Dentistry	February 7 – May 13, 2022 (14 weeks)	May 16 – July 1, 2022 (7 weeks)
5th year Dentistry	February 7 – April 29, 2022 (12 weeks)	May 2 – June 10, 2022 (6 weeks)

SUMMER PRACTICE

Year	Date in 2022
2nd year Dentistry	July 4 – July 29, 2022 or August 1 – August 26, 2022 (4 weeks)
3rd year Dentistry	July 4 – July 15, 2022 or July 18 – July 29, 2022 (2 weeks)
4th year Dentistry	July 4 – July 29, 2022 or August 1 – August 26, 2022 (4 weeks)

CHAPTER 11
GENERAL INFORMATION

The student handbook (bulletin) has been designed to help the students to find their way in educational matters. It lists all the courses, credit points, protocols, guidelines, and information. The faculty reserves the right to add or cancel courses, change the times or locations, revise course requirements and schedules.
The rules and regulations can be found in detailed form in the syllabus "Rules and regulations for English program students". Student enrolled at the University of Debrecen must accept the University rules and requirements.

The Faculty is committed to provide the best learning and working environment to all students without discrimination, harassment on the ground of sex, race, disability, religion and belief or national origin. The dental curriculum is special and unique because students perform treatments on patients before getting their doctoral diploma. For the patient safety students must be able to meet the following standards:
To treat patient successfully and safely the student must have sufficient motor skill to work with hand and electric instruments. The student must be able to perform palpitation, percussion, auscultation and other diagnostic procedures. The student must have reliable gross and fine muscular movements, senses of touch and vision. The student requires the capability to operate all the dental equipments, both high and low speed hand pieces.
The student must be able to take an accurate dental and medical history from the patient. The student must be able to analyze and interpret x-ray and other graphic images which are necessary for the proper diagnosis. Student must be able to perform a visual and tactile dental examination including the observation of the shape, colour and abnormalities both extra and intra orally. The students must be able to discuss problems, treatment with the patients, gather and exchange information, give directions during treatment and must be able to give advice to the patients.
The student must be able to communicate in oral and in written form and must have the ability to write a patient chart.
Student must be able to speak, analyze, synthesize, and integrate and must be able to take oral and written examinations, too. A student must be able to tolerate intellectually and physically the workloads, and to function effectively under stress. The student must have positive personal qualities such as respect, understanding, and concern for others and also must perform a professional doctoral behavior.
The Faculty believes that only respect, courtesy and understanding can create and maintain an effective learning and working atmosphere. Interaction based on mutual respect enhances the educational possibilities. Dishonest, unethical, unprofessional behavior, cheating that interferes with teaching, administration or patient care is not tolerated by the Faculty.
For proper treatment, infection control and overall hygiene the students must achieve and consistently demonstrate acceptable level of general personal care standards and should dress professionally. A long white laboratory coat must be worn during practical classes. The white coat must be clean and ironed and must not be worn outside the clinical treatment areas. The name badge must be worn when undertaking clinical practical lessons. Budges must be worn in a prominent position where it is clearly visible. Caps, head gears should not be used during patient treatment. Hair should be clean, long-hair should be pinned or held back, so it won't disturb vision, or cause accident. Excessive use of makeup and perfume/aftershave must be avoided. Fingers and fingernails should be clean, trimmed; colored lacquer should not be used during patient treatment. Rings that may compromise clinical protective barriers should not be worn in clinics. Lockers are provided for the protection of students' personal belongings. These should not be kept in operation rooms or

laboratories. The Faculty however, cannot accept responsibility for loss or theft of property. The cleanliness of the preclinical laboratories is the responsibility of students. When a student completes his or her use of a support area, it should be left in acceptable condition for the next student's use. It is expected that student will exercise care when using school equipment. All equipment failure should be reported immediately. Students must always act in the best interest of the patient. Each student must exhibit professional courtesy toward faculty, supporting staff, fellow students, patients and their relatives.
All members of the faculty and administration are available to consult with students on personal and professional matters but only at given hours. Consulting hours can be found on the main, the departmental and the Dean's office information boards.

General description of graduate training

The education at the faculty of dentistry takes five year which is divided into 10 semesters. The duration of each semester is 15 weeks with the exception of the last semester, which lasts 12 weeks. An academic year consists of two semesters: the fall and spring semesters. No student can be admitted later than 10 days after opening of an academic semester. The requirement for participation through attendance is a critical part of education. The attendance policy is established by the course directory for each course and published in the Bulletin. Excessive absence may result in failing the course. Absence in access of 20% of the total hours in any dental course will result that the student cannot complete the semester. There is no possibility to compensate the missed practical lessons. The faculty uses the credit system accepted all over the world. The credit sum that the student must achieve by the end of the fifth year is 300 points, comprised of compulsory (80%), required elective (15%) and freely chosen subjects (5%). The students must take into consideration that precondition for the selection of one certain subject might be the successful completion of another. The credit system allows the student to have an individualized learning program. In order to maintain continuity in the curriculum, an absence from the program should not extend more than a week. To get the credit points the student must take required final examination of the course. An absence from an examination will be counted as a grade of 1 (fail).
To get the D.D. S diploma the students must complete the prescribed curriculum, pass the necessary examinations, and receive the required 300 credit points, write and defend their thesis and have a successful State Dental Examination part I (written) and Part II (oral). Failure to take the written examination means that part II (oral) can not be taken until the student passes the part I.

Courses are categorized into 4 modules (basic, general and preclinical dentistry and general medical and clinical dentistry) as defined by the qualification requirements. Students must complete a certain percentage of the total credit number in each module as prescribed by the Rules and Regulations.
Students must earn 285 credits out of the 300 by completing the compulsory, required elective subjects.

Subjects of the basic module:		**General and dental preclinical modules:**	
Biophysics		Basic dentistry modules	
Biostatistics		Odontology	
Medical Chemistry		Preventive Dentistry I.	
Oral Anatomy, Histology, Embryology I- II.		Introduction to prosthodontics I-VI.	
Molecular biology		Restorative Dentistry Propedeutics (Cariology, Endodontics)	
Cell Biology		Oral Biology	
First Aid and Reanimation		Introduction to Dental Radiology	
Biochemistry I-II.		Oral Surgery Propedeutics	
Dental Physiology I-II.		Dosimetry, Radiation Health Effects	
Neurobiology		Periodontology propedeutics	
Psychology		Pediatric Dentistry Propedeutics	
General Pathology, Organ and Oral Pathology			
Clinical Biochemistry I-II.			
Immunology			
Surgery			
Basic Surgical Techniques			
Bioethics			
Dental Microbiology			

General medical modules		**Clinical dentistry modules**	
Internal medicine I-II		Pediatric Dentistry I-IV	
Dermatology		Periodontology I-III.	

Otolaryngology		Prosthetic Dentistry I-IV.	
Dental Pharmacology I-II.		Oral Surgery I-IV	
Preventive Medicine		Restorative Dentistry I-IV.	
		Orthodontics I-II.	
Emergency Medicine		Oral Medicine	
Pediatrics		Pediatric Dentistry Propedeutics	
Neurology		Preventive Dentistry II.	
Forensic Medicine			

DEGREE REQUIREMENTS

1. Completion of the Physical Education courses as prescribed by the Curriculum.
2. Completion of the summer practices.
3. Final comprehensive exam of General Pathology, Organ and Oral Pathology and one of the 2 special Pathology required elective courses for dental students.
4. Successful thesis defence.
5. Successful completion of Medical Hungarian exam.

Compulsory final exams for degree	**Important exams for qualification of degree**
Oral Anatomy, Histology, Embryology II.	Biophysics
Biochemistry II.	Medical Chemistry
Dental Physiology II.	Oral Anatomy, Histology and Embryology I.
Pediatric Dentistry II.	Molecular Biology
Orthodontics II.	Cell Biology
Restorative Dentistry IV. (Cariology and Endodontics)	Neurobiology
Periodontology III.	Dental Microbiology
Prosthetic Dentistry IV.	Clinical Biochemistry II.
Oral Surgery IV.	Preventive Medicine
Organ and Oral Pathology	Emergency Medicine
Dental Pharmacology II.	Otolaryngology
Internal Medicine II.	Medical Hungarian II.
Introduction to Prosthodontics IV.	

CHAPTER 12
ACADEMIC PROGRAM FOR THE BASIC MEDICINE COURSE

Basic Medicine Course (BMC, Premedical Studies)
Duration of studies: 1 year (2 semesters)

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

Class Behavior

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

Requirements

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

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

The knowledge of students will be tested 4 times during each semester using a written test system by **Self Control Tests (SCT).** The first semester is ended with an **End of Semester Examination** (ESE) covering the topics of all lectures and seminars of the first semester. Three dates will be set for the ESE during the winter examination period. Unsuccessful students may repeat the ESE twice (B and C chances). Students repeating the course must successfully pass the first semester either with exemption or at least with a score of 55% of ESE, otherwise their studies will be terminated. The ESE is not compulsory for non-repeater students and even who fail may continue their study in the second semester, however, they lose their chance to receive bonus points.

Exam exemptions and bonus point policy are to improve the students' performance on SCTs and give them a chance to get exemption of the FE (described below) even with SCT scores lower than 40% in the first semester. Exact details of the exemption of ESE:
- one's average score of the three best first semester SCTs is at least 60%, AND
- (s)he successfully completed all the SCTs at least with 40% score, AND
- (s)he has a maximum of 3 seminar absences for each subject in the first semester.

The course ends with a **Final Exam (FE)** covering the whole material of the first and second semesters. A minimum of four FE dates will be set during the summer examination period. Unsuccessful students may repeat the FE twice (B and C chances, and the latter ends up with an oral examination part). Exemption from FE is offered for students who achieve excellent academic performance during their studies on the following base:
- the average score of the six best SCTs (out of 8) of the two semesters is at least 60%, AND
- passed all the SCTs with at least 40%, AND
- (s)he has a maximum of 3 seminar absences for each subject per semester.

OR
- the average of the ESE score taken 3 times plus the scores of the 3 best SCTs in the 2nd semester is at least 60%, AND
- passed all the SCTs with at least 40%, AND
- (s)he has a maximum of 3 seminar absences for a given subject per semester.

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

The average of the ESE score three times and the best 3 2nd semester SCTs **OR** the average of the best 6 SCTs	Bonus points (%)
40.00-43.99	1
44.00-47.99	2
48.00-51.99	3
52.00-55.99	4
56.00-59.99	5

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

Percentage (%)	**Mark**
0 - 54.99:	fail (1)
55.00 - 59.99:	pass (2)
60.00 - 74.99:	satisfactory (3)
75.00 - 84.99:	good (4)
85.00 - 100:	excellent (5)

Absence for any reason counts as 0%.

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

Subject: **INTRODUCTION TO BIOLOGY I.**
Year, Semester: Basic Medicine Course, 1st

Number of teaching hours:
Lecture: **56**
Seminar: **28**

1st week:
Lecture:
The chemistry of life 1
Proteins, carbohydrates and lipids 1.
Proteins, carbohydrates and lipids 2.
Proteins, carbohydrates and lipids 3.

2nd week:
Lecture:
Proteins, carbohydrates and lipids 4.
Nucleic acids
Cells: the working units of life 1.Prokaryotes*
Cells: the working units of life 2.

3rd week:
Lecture:
Cells: the working units of life 3.
Cells: the working units of life 4.
Cells: the working units of life 5.
Cell membranes 1.

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

5th week:
Lecture:
Energy, enzymes and metabolism 2.
Energy, enzymes and metabolism 3.
Energy, enzymes and metabolism 4.
Pathways that harvest chemical energy 1.

6th week:
Lecture:
Pathways that harvest chemical energy 2
Pathways that harvest chemical energy 3.
Pathways that harvest chemical energy 4.
Pathways that harvest chemical energy 5.

7th week:
Lecture:
Cellular signaling and communication 1.
Cellular signaling and communication 2.
Cell cycle and cell division 1.
Cell cycle and cell division 2.

8th week:
Lecture:
Cell cycle and cell division 2.
Cell cycle and cell division 2.
Inheritance, genes and chromosomes 1.
Inheritance, genes and chromosomes 2.

9th week:
Lecture:
Inheritance, genes and chromosomes 3.
Inheritance, genes and chromosomes 4.
Inheritance, genes and chromosomes 5.
Inheritance, genes and chromosomes 6.

10th week:
Lecture:
Inheritance, genes and chromosomes /Pop. Gen 7
DNA and its role in heredity 1.
DNA and its role in heredity 2.
DNA and its role in heredity 3.

11th week:
Lecture:
From DNA to protein: gene expression 1.
From DNA to protein: gene expression 2.
From DNA to protein: gene expression 3.
From DNA to protein: gene expression 4.

12th week:
Lecture:
From DNA to protein: gene expression 4.
From DNA to protein: gene expression 5.
Gene mutation and molecular medicine 1.
Gene mutation and molecular medicine 2.

13th week:
Lecture:
Gene mutation and molecular medicine 3.
Gene mutation and molecular medicine 4.

Regulation of gene expression 1. (Prokaryotic reg.)
Regulation of gene expression 2. (Eukaryotic reg.)

14th **week:**

Lecture:
Regulation of gene expression 3.(Eukaryotic reg.)
Regulation of gene expression 4. .(Eukaryotic reg.)
The mechanism of evolution 1.
The mechanism of evolution 2.

Contact person: Dr. András Penyige, Associate Professor, Department of Human Genetics
Recommended book: Sadava-Hillis-Heller-Berenbaum: Life, Sinauer-Macmillam

Subject: **INTRODUCTION TO BIOLOGY II.**
Year, Semester: Basic Medicine Course, 2nd
Number of teaching hours:
Lecture: **42**
Seminar: **28**

1st **week:**
Lecture:
Tissues, Organs and Organ Systems 1.
Tissues, Organs and Organ Systems 2.
Tissues, Organs and Organ Systems 3.

2nd **week:**
Lecture:
Homeostasis and cellular physiology.
Temperature Regulation.
Blood, a fluid tissue 1.

3rd **week:**
Lecture:
Blood, a fluid tissue 2.
Circulation1.
Circulation 2.

4th **week:**
Lecture:
Circulation 3.
Circulation 4. The lymphatic system.
Natural Defenses against Disease 1.

5th **week:**
Lecture:
Natural Defenses against Disease 2.
Natural Defenses against Disease 3.
Nutrition, Digestion and Absorption 1.

6th **week:**
Lecture:
Nutrition, Digestion and Absorption 2.
Nutrition, Digestion and Absorption 3.
Nutrition, Digestion and Absorption 4.

7th **week:**
Lecture:
Respiratory system 1.
Respiratory system 2.
Salt and Water Balance and Nitrogen Excretion 1.

8th **week:**
Lecture:
Salt and Water Balance and Nitrogen Excretion 2.
Hormones 1.
Hormones 2.

9th **week:**
Lecture:
Hormones 3.
Hormones 4.
Hormones 5.

10th **week:**
Lecture:
Neurons and Nervous system 1.
Neurons and Nervous system 2.
Neurons and Nervous system 3.

11th **week:**

Lecture:
Neurons and Nervous system 4.
Neurons and Nervous system 5.
Sensory systems 1.

12th **week:**
Lecture:
Sensory systems 2.
Musculoskeletal Systems 1.
Musculoskeletal Systems 2.

13th **week:**
Lecture:
Musculoskeletal Systems 3.
Reproduction and Development 1.
Reproduction and Development 2.

14th **week:**
Lecture:
Reproduction and Development 3.
Reproduction and Development 4.

Contact person: Dr. Norbert Szentandrássy, Department of Physiology
Recommended book: Sadava, Hills, Heller, Berenbaum: Life (10th edition)

Subject: **INTRODUCTION TO PHYSICS I.**
Year, Semester: Basic Medicine Course, 1st
Number of teaching hours:
Lecture:56
Seminar: 28

1st **week:**
Lecture:
Introduction, requirements. Standards of length, mass, time. Significant figures. Prefixes. Conversion of units. Coordinate systems, trigonometry.
Radians, vectors and scalars, geometry, equation solving, problem solving, graphing. Functions, calculator usage

2nd **week:**
Lecture:
Motion in one dimension, displacement, velocity, acceleration, motion diagrams.
Freely falling objects.

3rd **week:**
Lecture:
Vectors and their properties. Components of vectors. Displacement, velocity and acceleration in two dimensions.
Motion in two dimensions. Projectile motion.

4th **week:**
Lecture:
The laws of motion. Newton's First, Second and Third Law.
Applications of Newton's Laws. Forces of friction.

5th **week:**
Lecture:
Energy. Work. Kinetic energy and the work-energy theorem. Gravitational potential energy. Spring potential energy. System and energy conservation. Power. Work done by varying forces.

6th **week:**
Lecture:
Momentum and impulse. Conservation of momentum. Collisions. Elastic and inelastic collisions.
Angular speed and angular acceleration. Rotational motion under constant angular acceleration.

7th **week:**
Lecture:
Centripetal acceleration. Newtonian gravitation. Kepler's laws.
Torque and the two conditions for equilibrium. The center of gravity.

8th **week:**
Lecture:

Rotational kinetic energy. Angular momentum. States of matter. Deformation of solids. The Youngs's, shear and bulk modulus. Density and pressure. Variation of pressure with depth. Pressure measurements.

9th week:
Lecture:
Buoyant forces and Archimedes's principle. Fluids in motion.
HP equation, Circulation, blood pressure measurement, transport phenomena, diffusion, osmosis, calculations with cont. eq + HP eq.

10th week:
Lecture:
Temperature and the zeroth law of thermodynamics. Thermometers and temperature scales. Thermal expansion of solids and fluids. Macroscopic description of an ideal gas. The kinetic theory of gases.
Energy in thermal processes. Heat and internal energy.

11th week:
Lecture:
Specific heat. Calorimetry. Latent heat and phase change.
The first law of thermodynamics.The second law of thermodynamics. Entropy. Refrigerators and heat pumps.

12th week:
Lecture:
Elastic potential energy. Hook's law. Simple harmonic motion. Motion of a pendulum. Waves. Frequency, amplitude and wavelength. Interference of waves. Reflection of waves

13th week:
Lecture:
Sound. Energy and intensity of sound waves. Doppler effect
Ultrasound. Shock waves, standing waves. The ear and the principles of hearing.

14th week:
Lecture:
Interactive seminar and preparation for the ESE.

Contact person: Dr. Zoltán Varga, Associate Professor, Department of Biophysics
Recommended book: Serway-Vuille: College Physics, Brooks/Cole

Subject: **INTRODUCTION TO PHYSICS II.**
Year, Semester: Basic Medicine Course, 2nd
Number of teaching hours:
Lecture: **56**
Seminar: **28**

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

2nd week:
Lecture:
Electrical energy and capacitance. The parallel plate capacitor. Combinations of capacitors. Energy stored in capacitors. Capacitors with dielectric.

3rd week:
Lecture:
Electric current. Current and voltage measurements in circuits. Resistance and Ohm's law. Resistivity, temperature variation of resistance. Semiconductors and superconductors. Electrical activity of the heart. Defibrillators.

4th week:
Lecture:
Direct current circuits. Resistors in parallel and series. Kirchhoff's rules and complex DC circuits. RC circuits. Conduction of electrical

signals by neurons.

5th week:
Lecture:
Magnetism. Magnetic field. Earth's magnetic field. Magnetic force on current carrying conductors. Toque on current loop and electric motors. Magnetic field of a long straight wire and Ampere's law. Magnetic field

6th week:
Lecture:
Induced emf and magnetic flux. Faraday's law of induction. Motional emf. Lenz's law. Generators. Self-inductance RL circuits.

7th week:
Lecture:
Alternating current. Resistors, capacitors and inductors in AC circuits. The transformer. Properties of electromagnetic waves. The spectrum of electromagnetic waves.

8th week:
Lecture:
The nature of light. Reflection, refraction and dispersion. Prisms. The rainbow. Huygen's principle. Total internal reflection and its medical applications.

9th week:
Lecture:
Lenses and mirrors. Flat mirrors. Images formed by spherical mirrors. Thin lenses. Images formed by lenses. Lens aberrations.

10th week:
Lecture:
Wave optics. Conditions for interference, polarization of light. Diffraction. The camera, the simple magnifier, the compound microscope, the telescope and the eye.

11th week:
Lecture:
Quantum physics. Blackbody radiation. Photoelectric effect. Particle theory of light. The production and attenuation of X-ray. Characteristic X-ray.

12th week:
Lecture:
Atomic physics. Early model of the atom. Quantum mechanics and the hydrogen atom. The spin magnetic quantum numbers. Lasers and holography.

13th week:
Lecture:
Some properties of the nuclei. Binding energy. Radioactivity, the decay processes. Medical application of radioactivity. Nuclear reactions. Nuclear fission and fusion. Positron and other antiparticles.

14th week:
Lecture:
Preparation for the final exam.

Contact person: Dr. György Panyi, Full Professor, Department of Biophysics
Recommended book: Serway-Vuille: College Physics, Brooks/Cole

Subject: **INTRODUCTION TO MEDICAL CHEMISTRY I.**
Year, Semester: Basic Medicine Course, 1st
Number of teaching hours:
Lecture: **56**
Seminar: **28**

1st week:
Lecture:
Introduction to Chemistry. Symbols of the elements. Physical and chemical properties The SI system of measurement

2nd week:
Lecture:

The atomic theory. Structure of the atom, nuclear arithmetic
Mixtures and chemical compounds. Chemical formulas. Naming chemical compounds.

3rd week:
Lecture:
Atomic, molecular and molar mass relationships. Percent composition and empirical/molecular formulas. Chemical equations, stoichiometry

4th week:
Lecture:
Summary of general chemistry 1
Test #1

5th week:
Lecture:
The electromagnetic spectrum. Atomic spectra. The Bohr model of hydrogen atom. The quantum mechanical model of the atom.
Electron configurations and the periodic table. Classification of the elements

6th week:
Lecture:
Periodic properties
Chemical bonds: metallic, ionic, and covalent bond. Electron-dot structures

7th week:
Lecture:
VSEPR and valence bond theory
Intermolecular forces

8th week:
Lecture:
Summary of general chemistry 2
Test #2

9th week:
Lecture:
The gaseous state
Liquid and solid state, phase changes. The chemistry of water

10th week:
Lecture:
Solutions. Electrolytes and nonelectrolytes
Chemical equilibrium

11th week:
Lecture:
Summary of general chemistry 3
Test #3

12th week:
Lecture:
Acids and bases 1
Acids and bases 2

13th week:
Lecture:
Thermochemistry: internal energy and state functions. Enthalpy. Hess's law
Redox reactions. Activity series of the elements. Galvanic cells

14th week:
Lecture:
Summary of general chemistry 4
Test #4

Subject: **INTRODUCTION TO MEDICAL CHEMISTRY II.**
Year, Semester: Basic Medicine Course, 2nd
Number of teaching hours:
Lecture: **56**
Seminar: **28**

1st week:
Lecture:
The main-group elements. s-, p-, d-block metals
Nonmetals: hydrogen, halogens and noble gases

2nd week:
Lecture:
Nonmetals: oxygen and sulfur
Nonmetals: nitrogen, phosphorus and carbon

3rd week:
Lecture:

Test #5
Covalent bonding in organic compounds.
Classification of organic compounds

4th week:
Lecture:
Alkanes. Nomenclature and isomerism of alkanes
Reactions of alkanes. Cycloalkanes

5th week:
Lecture:
Unsaturated hydrocarbons
Aromatic compound: structure and properties

6th week:
Lecture:
Heteroaromatic compounds. Reactions of benzene and its derivatives
Organic halogen compounds

7th week:
Lecture:
Summary of organic chemistry 1
Test #6

8th week:
Lecture:
Alcohols and phenols
Ethers, thioethers.

9th week:
Lecture:
Organic sulfur compounds
Aldehydes, ketones and quinones

10th week:
Lecture:
Nitrogen containing organic compounds: aliphatic amines
Nitrogen containing organic compounds: heterocyclic nitrogen compounds. Amines of biological importance

11th week:
Lecture:
Summary of organic chemistry 2
Test #7

12th week:
Lecture:
Carboxylic acids
Substituted carboxylic acids. Carboxylic acid derivatives: esters and amides

13th week:
Lecture:
Carboxylic acid derivatives: halides and anhydrides; salts and detergents
Stereochemistry

14th week:
Lecture:
Summary of organic chemistry 3
Test #8

Contact person: Dr. Endre Kókai, Department of Medical Chemistry
Recommended books: McMurry, Fay: Chemistry (7th edition)
Erdődi, Csortos: Organic chemistry for premedical students (2010)

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

1st week:
Practical: 1. lecke, 2. lecke I. rész

2nd week:
Practical: 2. lecke II. rész

3rd week:
Practical: 3. lecke

4th week:
Practical: 4. lecke, 5. lecke I. rész

5th week:
Practical: 5. lecke II. rész, 6. lecke I. rész

6th week:
Practical: 6. lecke II. rész, 7. lecke (Összefoglaló) + midterm test
Self Control Test

7th week:
Practical: 8. lecke

8th week:
Practical: 9. lecke

9th week:
Practical: 10. lecke

10th week:
Practical: 11. lecke, 12. lecke

11th week:
Practical: 13. lecke

12th week:
Practical: 14. lecke (Összefoglalás) + end term test
Oral exam

Reading materials:
Gerő Ildikó-Kovács Judit: Színesen magyarul.
2017.

CHAPTER 13
ACADEMIC PROGRAM FOR THE SHORT BASIC MEDICINE COURSE

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

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

Class Behavior

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

Requirements

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

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

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

Exemption from FE is offered for students who achieve excellent academic performance during their studies under the following circumstances:
- the average score of the five best SCTs (out of 6) is at least 60%, AND
- passed all the SCTs with at least 40%, AND

- (s)he has a maximum of 6 seminar absences for a given subject.

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

The the average of the best 6 SCTs	Bonus points (%)
40.00-43.99	1
44.00-47.99	2
48.00-51.99	3
52.00-55.99	4
56.00-59.99	5

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

Percentage (%)	**Mark**
0 - 54.99:	fail (1)
55.00 - 59.99:	pass (2)
60.00 - 74.99:	satisfactory (3)
75.00 - 84.99:	good (4)
85.00 - 100:	excellent (5)

Absence for any reason counts as 0%.

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

Subject: **INTRODUCTION TO BIOLOGY**
Year, Semester: Intensive Basic Medicine Course
Number of teaching hours:
Lecture: **92**
Seminar: **92**

1st week:
Lecture: Small molecules and the chemistry of life 1.
Small molecules and the chemistry of life 2.
Proteins, carbohydrates and lipids 1.
Proteins, carbohydrates and lipids 2.

2nd week:
Lecture: Proteins, carbohydrates and lipids 3.
Nucleic acids and the origin of life.
Cells: the working units of life 1.
Cells: the working units of life 2.

3rd week:
Lecture: Cells: the working units of life 3.
Cells: the working units of life 4.
Bacterial cell structure
Cell membranes 1.

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

5th week:
Lecture: Pathways that harvest chemical energy 1.
Pathways that harvest chemical energy 2.

Pathways that harvest chemical energy 3.
The cell cycle and cell division 1.

6th week:
Lecture: The cell cycle and cell division 2.
The cell cycle and cell division 3.
The cell cycle and cell division 4.
Inheritance, genes and chromosomes 1.

7th week:
Lecture: Inheritance, genes and chromosomes 2.
Inheritance, genes and chromosomes 3.
Inheritance, genes and chromosomes 4.
Inheritance, genes and chromosomes 5.

8th week:
Lecture: DNA and its role in heredity 1.
DNA and its role in heredity 2.
DNA and its role in heredity 3.
DNA and its role in heredity 4.

9th week:
Lecture: From DNA to protein: gene expression 1.
From DNA to protein: gene expression 2.
From DNA to protein: gene expression 3.
From DNA to protein: gene expression 4.

10th week:
Lecture: Gene mutation and molecular medicine 1.
Gene mutation and molecular medicine 2.
Gene mutation and molecular medicine 3.
Gene mutation and molecular medicine 4.

11th week:
Lecture: Regulation of gene expression 1.
Regulation of gene expression 2.
Regulation of gene expression 3.
Regulation of gene expression 4.

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

13th week:
Lecture: Tissues, organs and organ systems 1-4.

14th week:
Lecture: Homeostasis and cellular physiology.
Temperature Regulation.
Blood, a fluid tissue 1-2.

15th week:
Lecture: Circulation 1-3. Lymphatic system.

16th week:
Lecture: Self control test.
Immunology: gene expression and natural defenses 1.
Immunology: gene expression and natural defenses 2.
Nutrition, Digestion and Absorption 1.

17th week:
Lecture: Nutrition, Digestion and Absorption 2.
Energy balance, vitamins and minerals.
Respiratory system 1-2.

18th week:
Lecture: Salt and Water Balance Nitrogen Excretion 1-2.
Hormones 1-2.

19th week:
Lecture: Hormones 3-4.
Self Control Test
Neurons and Nervous system 1.

20th week:
Lecture: Neurons and Nervous system 2-5.

21st week:
Lecture: Sensory systems 1-2.
Effectors: Musculoskeletal Systems 1-2.

22nd week:
Lecture: Musculoskeletal Systems 3.
Reproduction and Development 1-2.
Reproduction and Development 3-4.

23rd week:

Lecture: Self Control Test

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

Subject: **INTRODUCTION TO BIOPHYSICS**
Year, Semester: Intensive Basic Medicine Course
Number of teaching hours:
Lecture: 92
Seminar: 138

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

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

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

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

5th **week:**
Lecture 9-10: Momentum and impulse. Conservation of momentum. Collisions. Elastic and inelastic collisions**.**
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6th **week:**
Lecture 11-12: Angular speed and angular acceleration. Rotational motion under constant angular acceleration. Centripetal acceleration. Newtonian gravitation. Kepler's laws.

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

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

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

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

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

12th **week:**
Lecture 23-24: Waves. Frequency, amplitude and

wavelength. Interference of waves. Reflection of waves. Sound. Energy and intensity of sound waves. Shock waves, standing waves, standing waves. Doppler effect. The ear and the principles of hearing.

13th **week:**
Lecture 26-27: Properties of electric charges. Insulators and conductors. Coulomb's law. Electric field. Electric field lines. Electric flux and Gauss's law.

14th **week:**
Lecture 28-29: Electrical energy and capacitance. The parallel plate capacitor. Combinations of capacitors. Energy stored in capacitors. Capacitors with dielectric.

15th **week:**
Lecture 30-31: Electric current. Current and voltage measurements in circuits. Resistance and Ohm's law. Resistivity, temperature variation of resistance. Semiconductors and superconductors. Electrical activity of the heart. Defibrillators.

16th **week:**
Lecture 32-33: Direct current circuits. Resistors in parallel and series. Kirchhoff's rules and complex DC circuits. RC circuits. Conduction of electrical signals by neurons.

17th **week:**
Lecture 34-35: Magnetism. Magnetic field. Earth's magnetic field. Magnetic force on current carrying conductors. Torque on a current loop and electric motors. Magnetic field of a long straight wire and Ampere's law. Magnetic field between two parallel conductors. Magnetic field of loops and solenoids.

18th **week:**
Lecture 36-37: Induced emf and magnetic flux. Faraday's law of induction. Motional emf. Lenz's law. Generators. Self-inductance RL circuits.

19th week:
Lecture 38-39: Alternating current. Resistors, capacitors and inductors in AC circuits. The transformer. Properties of electromagnetic waves. The spectrum of electromagnetic waves.

20th **week:**
Lecture 40-41: The nature of light. Reflection, refraction and dispersion. Prisms. The rainbow. Huygen's principle. Total internal reflection and its medical applications.

21st **week:**
Lecture 42-43: Lenses and mirrors. Flat mirrors. Images formed by spherical mirrors. Thin lenses. Images formed by lenses. Lens aberrations. Wave optics. Conditions for interference, polarization of light. Diffraction. The camera, the simple magnifier, the compound microscope, the telescope and the eye.

23rd **week**
Lecture 44-45: Quantum physics. Blackbody radiation, photoelectric effect, generation of X-ray.
Some properties of the nuclei. Binding energy. Radioactivity, the decay processes. Medical application of radioactivity.

Academic advisor: Dr. Attila Jenei, Department of Biophysics and Cell Biology
Recommended book: Serway, Vuille: College Physics (11th edition)

Subject: **INTRODUCTION TO MEDICAL CHEMISTRY**
Year, Semester: Intensive Basic Medicine Course
Number of teaching hours:
Lecture: 92
Seminar: 92

1st **week:**

Lecture:

Introduction to Chemistry. Symbols of the elements. Physical and chemical properties
The SI system of measurement

2nd week:
Lecture:
The atomic theory. Structure of the atom, nuclear arithmetic
Mixtures and chemical compounds. Chemical formulas. Naming chemical compounds

3rd week:
Lecture:
Atomic, molecular and molar mass relationships
Percent composition and empirical/molecular formulas. Chemical equations, stoichiometry

4th week:
Lecture:
Summary of general chemistry 1
Test #1

5th week:
Lecture:
The electromagnetic spectrum. Atomic spectra. The Bohr model of hydrogen atom. The quantum mechanical model of the atom.
Electron configurations and the periodic table. Classification of the elements

6th week:
Lecture:
Periodic properties
Chemical bonds: metallic, ionic, and covalent bond. Electron-dot structures

7th week:
Lecture:
VSEPR and valence bond theory
Intermolecular forces

8th week:
Lecture:
The gaseous state
Liquid and solid state, phase changes. The chemistry of water

9th week:
Lecture:
Solutions. Electrolytes and nonelectrolytes
Summary of general chemistry 2
Test #2

10th week:
Lecture:
Chemical equilibrium
Acids and bases 1

11th week:
Lecture:
Acids and bases 2
Thermochemistry: internal energy and state functions. Enthalpy. Hess's law

12th week:
Lecture:
Redox reactions. Activity series of the elements. Galvanic cells
Summary of general chemistry 3
Test #3

13th week:
Lecture:
The main-group elements. s-, p-, d-block metals
Nonmetals: hydrogen, halogens and noble gases

14th week:
Lecture:
Nonmetals: oxygen and sulfur
Nonmetals: nitrogen, phosphorus and carbon

15th week:
Lecture:
Covalent bonding in organic compounds. Classification of organic compounds.
Alkanes. Nomenclature and isomerism of alkanes
Reactions of alkanes. Cycloalkanes

16th week:
Lecture:
Unsaturated hydrocarbons
Summary of organic chemistry 1
Test #4

17th week:
Lecture:
Aromatic compounds: structure and properties
Heteroaromatic compounds. Reactions of benzene and its derivatives

18th **week:**
Lecture:
Organic halogen compounds
Alcohols and phenols

19th **week:**
Lecture:
Ethers, thioethers. Organic sulfur compounds
Aldehydes, ketones and quinones

20th **week:**
Lecture:
Summary of organic chemistry 2
Test #5
Nitrogen containing organic compounds 1: aliphatic amines

21st **week:**
Lecture:
Nitrogen containing organic compounds 2: heterocyclic nitrogen compounds. Amines of biological importance
Carboxylic acids

22nd **week:**
Lecture:
Substituted carboxylic acids. Carboxylic acid derivatives 1: esters and amides
Carboxylic acid derivatives 2: halides and anhydrides; salts and detergents

23rd **week:**
Lecture:
Stereochemistry
Summary of organic chemistry 3
Test #6

Contact person: Dr. Krisztina Tar, Department of Medical Chemistry
Recommended books: McMurry, Fay: Chemistry (7th edition)
Erdődi, Csortos: Organic chemistry for premedical students (2010)

CHAPTER 14
ACADEMIC PROGRAM FOR CREDIT SYSTEM

ACADEMIC PROGRAM FOR CREDIT SYSTEM

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

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

The general principles of the credit system are the following:

1. Students can be given their degree if, having met other criteria as well, they have collected 300 credits during their studies. Considering the recommended curriculum, this can be achieved in five years.

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

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

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

5. Students accumulate the required amount of credits by passing exams on compulsory, required elective and freely chosen subjects. Completion of every single compulsory credit course is one of the essential prerequisites of getting a degree. Courses belonging to the required elective courses are closely related to the basic subjects, but the information provided here is more detailed, and includes material not dealt with in the frame of the compulsory courses. Students do not need to

take all required elective courses, but they should select some of them wisely to accumulate the predetermined amount of credits from this pool. Finally, a certain amount of credits should be obtained by selecting from the freely chosen courses, which are usually not related to the basic (and thus mandatory) subjects, but they offer a different type of knowledge.

6. 80, 15 and 5 percent of the total of 300 credits should be accumulated by completing the compulsory, required elective and freely chosen courses, respectively.

7. According to the qualification requirements, professional (compulsory and required elective) courses fall into three modules. The basic module provides the theoretical basis of medicine, and ensures that the necessary practical skills are developed. The preclinical module lays down the foundations of clinical knowledge, while in the clinical module the students are taught clinical medicine, and they attend practical classes to ensure proper command of the medical procedures. The credits accumulated in the different modules for compulsory and required courses should show the following distribution: basic module: 80-100, preclinical module: 45-59, clinical module: 25-31, and dental clinical module 90-100 credits.

8. The pilot curricula show the recommended pacing of compulsory courses. If these courses are carefully supplemented with credits obtained from the necessary number of required elective and freely chosen courses, students can successfully accumulate the credits required for their degree within 10 semesters.

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

10. There are 12 compulsory final examinations in the curriculum; therefore one final exam is worth at least 10 credits.

11. The diploma work is worth 20 credits.

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

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

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

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

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

The model curriculum on the following pages applies to those students who started their studies on Dentistry Program in the academic year 2021/22.

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

Compulsory courses for the 1. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Basics of behavioural sciences	FOPSZ06D1	20			AW5	2	None
1	Biophysics Lecture	FOBIF09D1	26	26		ESE*	3	None
1	Biophysics Practical	FOBIF10D1			16	AW5	2	None
1	Biostatistics	FOBST04D1		28		ESE	2	None
1	Hungarian Crash Course	FOG261008			36	AW5	0	None
1	Hungarian Language I/1.	FOHUN01D1-K1			24	AW5	2	none
1	Medical Chemistry Lecture	FOKEM09D1	39	56		ESE*	6	None
1	Medical Chemistry Practical	FOKEM10D1			39	AW5	3	None
1	Odontology	FOODO02D1	14		28	ESE	4	None

Compulsory courses for the 1. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Cell Biology Lecture	FOSEJ09D2	28	28		ESE*	4	None
2	Cell Biology Practical	FOSEJ10D2			20	AW5	2	None
2	First aid and reanimation	FOELS06D2	6		15	AW5	1	None
2	Hungarian Language I/2.	FOHUN02D2-K1			28	AW5	2	Hungarian Language I/1.
2	Molecular Biology Lecture	FOMBI09D2	42	14		ESE*	4	None
2	Molecular Biology Practical	FOMBI10D2			10	AW5	2	None
2	Oral Anatomy, Histology and Embryology I. Lecture	FOANA15D2	28	28		ESE*	4	None
2	Oral Anatomy, Histology and Embryology I. Practical	FOANA16D2			28	AW5	3	None
2	Preventive Dentistry I.	FOPRE02D2		14		AW5	2	Odontology

Compulsory courses for the 2. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Biochemistry I. Lecture	FOBIK17D3	42	14		ESE	5	Medical Chemistry Lecture, Molecular Biology Lecture
1	Biochemistry I. Practical	FOBIK18D3			30	AW5	2	Medical Chemistry Lecture, Molecular Biology Lecture
1	Dental Physiology I. Lecture	FOELE17D3	45	28		ESE	5	Oral Anatomy, Histology and Embryology I. Lecture, Biophysics Lecture
1	Dental Physiology I. Practical	FOELE18D3			42	AW5	2	Oral Anatomy, Histology and Embryology I. Lecture, Biophysics Lecture
1	Hungarian Language II/1.	FOHUN03D3-K1			28	AW5	2	Hungarian Language I/2., Hungarian Crash course
1	Introduction to Prosthodontics I.: Dental Materials	FOFPO31D3	14		28	ESE	3	Biophysics Lecture, Medical Chemistry Lecture
1	Oral Anatomy, Histology and Embryology II. Lecture	FOANA17D3	56	28		FE	6	Cell Biology Lecture, Oral Anatomy, Histology and Embryology I. Lecture
1	Oral Anatomy, Histology and Embryology II. Practical	FOANA18D3			56	AW5	4	Cell Biology Lecture, Oral Anatomy, Histology and Embryology I. Lecture

Compulsory courses for the 2. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Biochemistry II.	FOBIK08D4	48	22		FE	6	Biochemistry I. Lecture
2	Dental Physiology II.	FOELE08D44	30	26		FE	7	Oral Anatomy, Histology Embryology II. Lecture, Dental Physiology I. Lecture
2	Hungarian Language II/2.	FOHUN04D4-K1			28	AW5	2	Hungarian Language II/1.
2	Introduction to Prosthodontics II.: Introduction to the Fixed Prosthodontics	FOFPO33D4	14		28	ESE	3	Introduction to Prosthodontics I.: Dental Materials, Odontology, Oral Anatomy, Histology and Embryology II. Lecture
2	Neurobiology Lecture	FONEB09D4	52	2		ESE*	4	Dental Physiology I. Lecture
2	Neurobiology Practical	FONEB10D4			38	AW5	4	Dental Physiology I. Lecture
2	Summer chairside practice for 1st and 2nd year dental student	FO_NYGY_CHAIRSIDE			120	SIGN	0	has to be completed before the 3rd year

Compulsory courses for the 3. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Clinical Biochemistry I.	FOKBK07D5	8		6	AW5	1	Dental Physiology II.
1	Dental Microbiology	FOMIK06D5	28		28	ESE*	4	Cell Biology Lecture, Oral Anatomy, Histology and Embryology II. Lecture
1	Dosimetry, Radiation Health Effects	FODOZ02D6		24		ESE	2	Biophysics Lecture
1	General Pathology	FOPAT11D5	28	14	28	ESE	4	Oral Anatomy, Histology and Embryology II. Lecture, Neurobiology Lecture
1	Immunology	FOIMM06D5		28		ESE	2	Biochemistry II., Cell Biology Lecture, Dental Physiology II.
1	Introduction to Prosthodontics III.: Propedeutics of Total and Partial Removable Dentures	FOFPO34D52	14		37	ESE	2	Introduction to Prosthodontics I.: Dental Materials, Introduction to Prosthodontics II.: Introduction to Fixed Prosthodontics
1	Medical Hungarian I.	FOHUN05D5			28	AW5	2	Hungarian language II/2.
1	Odontotechnology I.	FOFPO41D62	10		37	AW5	2	Introduction to Prosthodontics I.: Dental Materials, Introduction to Prosthodontics II.: Introduction to the Fixed Prosthodontics
1	Oral Biology	FOORA02D5	14	14		ESE	2	Odontology, Dental Physiology II., Oral Anatomy, Histology and Embryology II. Lecture
1	Periodontology Propedeutics I.	FOPAR10D5	2		8	AW5	1	Odontology, Dental Physiology II.
1	Restorative Dentistry Propedeutics I. (Cariology)	FOCAR02D5	14		56	AW5	4	Odontology, Dental Physiology II., Oral Anatomy, Histology and Embryology II. Lecture

Compulsory courses for the 3. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	3rd year Summer Practice for Dentistry Students	FO_NYGY_3RD YEAR			60	SIGN	0	has to be completed before the 4th year
2	Basic Surgical Techniques	FOMUT05D6	5	7	6	AW5	1	Oral Anatomy, Histology and Embryology II. Lecture, Dental Physiology II.
2	Bioethics	FOETI04D6	6	9		AW5	1	None
2	Clinical Biochemistry II.	FOKBK08D6	11		6	ESE*	1	Clinical Biochemistry I.
2	Introduction to Dental Radiology	FORAD04D6	18	23		ESE	3	Biophysics Lecture, General Pathology, Oral Biology
2	Introduction to Prosthodontics IV.: Propedeutics of Fixed Prosthodontics	FOFPO35D52	14		37	FE	2	Introduction to Prosthodontics III.: Propedeutics of Total and Partial Removable Dentures; Odontotechnology I., Odontotechnology II. exam has to be completed before exam registration
2	Medical Hungarian II.	FOHUN06D6			28	FE	2	Hungarian Language I.
2	Medical Psychology	FOPSZ12D6	10		10	ESE	2	Basics of Behavioural Sciences
2	Odontotechnology II.	FOFPO37D52	10		37	AW5	2	Introd. to Prosthodontics III.: Propedeutics of Total and Partial Removable Dentures, Odontotechnology I.
2	Oral Surgery Propedeutics	FOSZS02D6	14		28	ESE	2	Oral Anatomy, Histology and Embryology II. Lecture, Biochemistry II., Odontology
2	Organ and Oral Pathology	FOPAT12D6	50	14	14	FE	5	General Pathology
2	Periodontology Propedeutics II.	FOPAR12D6	2		15	AW5	1	Periodontology Propedeutics I.
2	Restorative Dentistry Propedeutics II. (Endodontics)	FOEND02D6	14		56	ESE	4	Restorative Dentistry Propedeutics I. (Cariology), Oral Biology

Compulsory courses for the 4. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Complex Dentistry I.	FOKOMP02D7	5		105	AW5	7	Oral Surg. Prop., Restorative Dent. Prop. II.(Endodontics), Introduction to Prosthodontics IV.: Prop.of Fixed Prosthodontics, Period. Prop.II.
1	Dental Pharmacology I.	FOGYO07D7	30	14		ESE	2	Organ and Oral Pathology, Biochemistry II., Dental Physiology II.
1	Dermatology	FOBOR06D7	14			ESE	1	Organ and Oral Pathology
1	Internal Medicine I.	FOBEL19D7	14		14	ESE	2	Dental Physiology II., Organ and Oral Pathology, Biochemistry II.
1	Oral Surgery I.	FOSZS14D7	14		10	ESE	1	Organ and Oral Pathology, Oral Surgery Propedeutics, 3rd year summer practice
1	Orthodontics I.	FOFSZ06D7	15		15	AW5	1	Restorative Dentistry Propedeutics II. (Endodontics), Introduction to Prosthodontics IV.: Propedeutics of Fixed Prosthodontics
1	Otolaryngology	FOFUL06D7		14		ESE*	1	Organ and Oral Pathology
1	Periodontology I.	FOPAR14D7	14		10	ESE	1	Organ and Oral Pathology, Oral Biology, Biochemistry II.
1	Preventive Dentistry II.	FOPRE04D7		14		AW5	1	Preventive Dentistry I., Restorative Dentistry Propedeutics II. (Endodontics)
1	Preventive Medicine and Public Health	FOMEG06D7	28	24	4	ESE*	3	Dental Microbiology, Organ and Oral Pathology
1	Prosthetic Dentistry I.	FOFPO14D7	14		10	ESE	1	Intro. to Prosthodontics IV.: Prop. of Fixed Prosthodontics, Rest. Dent. Prop II. together with Restorative Dentistry I. (Cariology)
1	Restorative Dentistry	FOKON02D7	14		10	ESE	1	Rest. Dent. Prop. II.

	I. (Cariology)							(Endodontics), Intro. to Prosthodontics IV.: Prop. of Fixed Prosthodontics together with Prosthetic Dentistry I.
1	Surgery	FOSEB06D5	14			ESE	1	Oral Surgery Propedeutics

Compulsory courses for the 4. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Complex Dentistry II.	FOKOMP04D8	5		105	AW5	7	Complex Dentistry I., Dosimetry, Radiation Health Effects, Introduction to Dental Radiology
2	Complex summer practice for dental student	FO_NYGY_COMPLEX			120	SIGN	0	has to be completed before the 5th year
2	Dental Pharmacology II.	FOGYO08D8	30	14		FE	3	Dental Pharmacology I.
2	Digital Dentistry	FODIF02D9	14		14	AW5	2	Introduction to Prosthodontics IV.: Propedeutics of Fixed Prosthodontics, Introduction to Dental Radiology
2	Emergency Medicine	FOOXY06D8	22		22	ESE*	2	Organ and Oral Pathology, First Aid and Reanimation
2	Internal Medicine II.	FOBEL20D8	28		28	FE	3	Internal Medicine I.
2	Oral Surgery II.	FOSZS16D8	14		10	ESE	1	Oral surgery I.
2	Orthodontics II.	FOFSZ02D8	15	1	15	FE	2	Orthodontics I.
2	Pediatric Dentistry Propedeutics	FOGYF10D8		5	10	ESE	1	Preventive Dentistry II., Orthodontics I.
2	Periodontology II.	FOPAR16D8	14		10	ESE	2	Periodontology I.
2	Prosthetic Dentistry II.	FOFPO16D8	14		10	ESE	2	Prosthetic Dentistry I.
2	Restorative Dentistry II. (Endodontics)	FOKON10D8	14		10	ESE	2	Restorative Dentistry I. (Cariology)

Compulsory courses for the 5. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Complex Dentistry III.	FOKOMP11D9	5		280	AW5	12	Complex Dentistry II.
1	Forensic Medicine	FOIGA06D9	14		14	ESE	1	Organ and Oral Pathology
1	Neurology	FONEU06D9	10		10	ESE	1	Organ and Oral Pathology, Neurobiology Lecture, Internal Medicine II.
1	Oral Medicine	FOOME02D99	14		10	ESE	1	Organ and Oral Pathology, Dental Pharmacology II.
1	Oral Surgery III.	FOSZS18D9	14		10	ESE	1	Oral Surgery II.
1	Pediatric Dentistry I.	FOGYF06D99	14		15	AW5	2	Orthodontics II., Pediatric Dentistry Propedeutics
1	Pediatrics	FOGYE06D9	14		14	ESE	2	Organ and Oral Pathology, Dental Pharmacology II., Internal Medicine II.
1	Prosthetic Dentistry III.	FOFPO18D9	14		10	ESE	1	Prosthetic Dentistry II., Digital Dentistry
1	Psychiatry	FOELM08D9	5		5	ESE	1	Medical Psychology, Neurobiology Lecture
1	Restorative Dentistry III. (Cariology and Endodontics)	FOKON06D9	14		10	ESE	1	Restorative Dentistry II (Endodontics), Complex Dentistry II.

Compulsory courses for the 5. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Complex Dentistry IV.	FOKOMP12D10	5		240	AW5	8	Complex Dentistry III.
2	Oral Surgery IV.	FOSZS20D10	12		10	FE	3	Oral Surgery III.
2	Pediatric Dentistry II.	FOGYEF04D10	12		15	FE	4	Pediatric Dentistry I.
2	Periodontology III.	FOPAR18D10	12		10	FE	3	Periodontology II, Oral Medicine
2	Prosthetic Dentistry IV.	FOFPO20D10	12		10	FE	3	Prosthetic Dentistry III.
2	Restorative Dentistry IV. (Cariology and Endodontics)	FOKON08D10	12		10	FE	3	Restorative Dentistry III. (Cariology and Endodontics), Complex Dentistry III.

Required elective courses for the 1. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Communication Skills	FOKOM44D1-K2			20	AW5	2	None
1	Library System	FOKON46D1			10	AW5	1	None

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Computer Science	FOINF46D1			28	AW5	2	None
2	Latin Language	FOLAT44D2			28	AW5	2	None
2	Medical Genetics	FOGEN04D2	30		26	AW5	2	None
2	Medical Genomics	FOGEN44D2	12		2	AW5	1	None

Required elective courses for the 2. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	History of Dentistry, Prosthetic Dentistry Compulsory Elective I.	FOFPO42D6	14			AW5	2	Odontology

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Modern biophysical methods in biology and medicine	FOMOD42D4	24			AW5	2	Biophysics Lecture, Cell Biology Lecture
2	Modern Techniques Allowing the Investigation of Physiological Phenomena	FOKOR42D4	30			AW5	2	Dental Physiology I. Lecture
2	Problem Based Learning in Physiology	FOPEL42D4			28	AW5	3	Dental Physiology I. Lecture
2	The regulatory role of the cell membrane in physiological and pathological conditions	FOSEM42D4	20			AW5	2	Dental Physiology I. Lecture

Required elective courses for the 3. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Cariology elective I. (Fundamentals of Cariology)	FOCAR43D5		14		AW5	1	Odontology, Introduction to Prosthodontics I.: Dental Materials, Introduction to Prosthodontics II.: Introduction to the Fixed Prosthodontics
1	Medical Anthropology	FOANT44D6		15		AW5	2	none

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	4-hand Treatment	FO4KEZD6		10		AW5	1	Restorative Dentistry Propedeutics I. (Cariology), Introduction to Prosthodontics IV.: Propedeutics and Technology of Total and Partial Removable Dentures
2	Clinical Gerontology	FOKLG44D6	30			AW5	3	Dental Physiology II., Immunology
2	Clinical Physiology	FOKFI08D6	14	20		AW5	2	General Pathology, Dental Physiology II.
2	Clinicopathologic cases demonstration	FOKLP42D6	20			AW5	2	General Pathology
2	Medical Sociology	FOSZO04D6	8	7		ESE	2	None
2	Oralpathologic cases demonstration	FOORP42D6	20			AW5	2	General Pathology

Required elective courses for the 4. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Behavioural Medicine	FOMAG43D7	10			AW5	1	Medical Psychology
1	Endodontics elective I.	FOENDE42D8		14		AW5	1	Restorative Dentistry Propedeutics II (End.).,Preventive Dentistry I.
1	Oral Surgery Elective I. Extraction Practice	FOSZS42D7			14	AW5	1	Oral Surgery Propedeutics, 3rd year summer practice, Oral Surgery I. parallel registration or previous fulfillment
1	Radiotherapy in the clinical practice	FOSUG42D7		14		AW5	2	Biophysics Lecture, Introduction to Dental Radiology
1	Thesis consultation I.	FODIP45D7		75		AW5	5	None

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Cariology elective II. (Diet and nutrition in oral health)	FOCAR44D7		14		AW5	1	Restorative Dentistry I. (Cariology)
2	Implantology - Basics of Oral Implantology	FOIMP42D10		14		AW5	1	Oral Surgery I., Prosthetic Dentistry I.
2	Thesis consultation II.	FODIP46D8		75		AW5	5	None

Required elective courses for the 5. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Endodontics elective II. (Microscope in dental practice)	FOEND44D9		14		AW5	1	Restorative Dentistry II. (End.)
1	Esthetic Dentistry	FOEPO42D6		14		AW5	1	Prosthetic Dentistry II.
1	Thesis consultation III.	FODIP47D9		75		AW5	5	None

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Cariology elective III. (Esthetics in restorative dentistry)	FOCAR46D10		12		AW5	1	Restorative Dentistry III. (Cariology and Endodontics)
2	Cone Beam CT in Prosthetic Dentistry	FOCBCTD11		12		AW5	1	Introduction to Dental Radiology, Oral Surgery III., Prosthetic Dentistry III.
2	Pediatric Dentistry Elective	FOGFE44D9		12		AW5	1	Pediatric Dentistry I.
2	Praxis management	FOPRA42D10	12			AW5	1	Prosthetic Dentistry III., Restorative Dentistry III. (Cariology and Endodontics)
2	Thesis consultation IV.	FODIP48D10		75		AW5	5	None

Freely Chosen Courses

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Department of Biomaterials and Prosthetic Dentistry	Advanced Dental Materials	FOADM01D10	1	1	14	AW5	Complex Dentistry II.	
Department of Biomaterials and Prosthetic Dentistry	Molecular Biological Research Methods in Dentistry	FOMBRD04	1	2	14	AW5	Molecular Biology	
Department of Biomaterials and Prosthetic Dentistry	Tissue Engineering and Regeneration in Dentistry	FOSZOVTERV02	1	2	14	AW5	Complex III. practice	József Bakó M.Sc., Ph.D.
Department of Biomaterials and Prosthetic Dentistry	Stem cells and their applicability in dentistry	FOOSS02	1	2	15	AW5	Cell Biology	
Department of Biomaterials and Prosthetic Dentistry	Dental implant system	FOIMPS02D8	1	2	12	AW5	Implantology	
Department of Anatomy, Histology and Embryology	Investigation of the embryonic cell-and tissue differentation	AOG1011003	2	1	26	AW5	Oral Anatomy, Histology, Embriology I., Cell Biology, Molecular Biology, Biophysics	Róza Zákány M.D., Ph.D.
Department of Anatomy, Histology and Embryology	Computer Human Anatomy (CHA) and Clinical oriented anatomy of Head and Neck	AOG1010204	1	2	16	AW5	None	András Stelescu M.D.
Department of Basic Medical Sciences	Selected Topics in Cell Biology	FOG157403-K1	2	2	24	AW5	Cell Biology	
Department of Behavioural Sciences	Inborn Sociality - Socialized Individuality: A New Concept	AOG358902-K8	2	-	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences	The Basic Problems of Medicine	AOG358601	1	1	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Department of Behavioural Sciences	Madness and Psychiatry (Philosophical Approach)	AOG359602	1	2	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Department of Behavioural Sciences	Theory of Psychoanalysis and Its Influence on the Concept of Human Being in Medicine	AOG359501-K8	1	1	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Department of Behavioural Sciences	Psychic Trauma	AOG3511102-K1	1	2	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Department of Behavioural Sciences	Theoretical and Methodological Questions of Patient Satisfaction Studies	AOG359308	1	2	15	AW5	None	Bence Döbrőssy M.A.
Department of Behavioural Sciences	Yoga and Meditation I.	AOG3512001-K1	1	1	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences	Intercultural Health Care	AOG3511605-K1	2	2	30	AW5	None	Bence Döbrőssy M.A.
Department of Behavioural Sciences	Yoga and Meditation II.	AOG3510401-K1	2	-	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Biochemistry and Molecular Biology	Biochemistry of Apoptosis	AOG167406	1	-	20	AW5	Biochemistry II.	Zsuzsa Szondy M.D., Ph.D., D.Sc.
Department of Biochemistry and Molecular Biology	Retroviral Biochemistry	AOG167506	1	2	20	AW5	Molecular Biology	József Tőzsér M.Sc., Ph.D., D.Sc.
Department of Dermatology	Plastic and reconstructive surgery	FOPLSURG01	1	2	15	AW5	None	István Juhász M.D., Ph.D., C.Sc.
Department of Foreign Languages	Hungarian Language Elective General II.	AOG269102-K1	2	2	28	AW5	Hungarian Crash Course	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective General I.	AOG268901-K1	2	1	28	AW5	Hungarian Crash Course	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective - Medical I.	AOG26108A1-K1	2	1	28	AW5	Completion of 3rd year Medical Hungarian Final exam	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective - Medical II.	AOG26108A2-K1	2	2	28	AW5	Hungarian Language Elective Medical I.	Katalin Rozman M.A.
Department of Foreign Languages	Latin Medical Terminology I.	AOG2611002	1	2	30	AW5	Latin language	Katalin Rozman M.A.

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Department of Foreign Languages	Elective Hungarian for Dentistry Students	FOHUNELECT01	2	1-2	28	AW5	Medical Hungarian II.	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective General III.	AOG269203	2	1	28	AW5	Hungarian Language I/2.	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective General IV.	AOG269304	2	2	28	AW5	Hungarian Language II/1.	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective General V.	AOG269605	2	1	28	AW5	Hungarian Language II/2.	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective General VI.	AOG269706	2	2	28	AW5	Hungarian Language III/1., Medical Hungarian I.	Katalin Rozman M.A.
Department of Internal Medicine	Inflammatory bowel diseases: clinical, therapeutical and immunological aspects	AOG148709	1	1	16	AW5	Internal Medicine I.	Zoltán Csiki M.D., Ph.D.
Department of Medical Microbiology	Tumor viruses and oncogenes	AOG427804	1	2	12	AW5	Dental Microbiology	György Veress M.Sc., Ph.D.
Department of Medical Microbiology	Interpretive Clinical Bacteriology and Virology	AOG428108	1	2	14	AW5	Dental Microbiology	József Kónya M.D., Ph.D., D.Sc.
Department of Medical Microbiology	Fingerprinting of pathogens, methods in epidemiological tracing.	FOG429605	2	2	21	AW5	Dental Microbiology	Gábor Kardos M.D., Ph.D.
Department of Medical Microbiology	Travel and infectious diseases, imported infections	FOG429707	2	2	21	AW5	Dental Microbiology	Gábor Kardos M.D., Ph.D.
Department of Medical Microbiology	Infections spreading from animals to humans.	FOG429807	2	2	21	AW5	Dental Microbiology	Krisztina Szarka M.Sc., Ph.D.
Department of Medical Microbiology	Introduction to Medical Mycology	AOG4210207	1	1-2	14	AW5	Dental Microbiology	László Majoros M.D., Ph.D.
Department of Medical Microbiology	Clinical Mycology	AOG4210107	1	1-2	12	AW5	Dental Microbiology	László Majoros M.D., Ph.D.
Department of Medical Microbiology	Antimicrobial agents in dentistry	AOG4291206	1	1	12	AW5	successful first semester exam of Medical Microbiology	László Majoros M.D., Ph.D.
Department of Pathology	Neurodegenerativ diseases	AOG457207	1	1	20	AW5	Pathology II.	Péter Molnár M.D., D.Sc.

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Department of Pediatric and Preventive Dentistry	Dental developmental and structural diseases and their treatments	FOFEJLRELL02	1	1	15	AW5	Orthodontics II., Preventive Dentistry II.	Judit Nemes D.M.D., Ph.D.
Department of Pediatric and Preventive Dentistry	Trauma management in childhood and in adolescence	FOTRAMAN02	1	1	15	AW5	Orthodontics II., Preventive Dentistry II.	Judit Nemes D.M.D., Ph.D.
Department of Pulmonology	Asthma bronchiale	AOG587707	1	1	8	AW5	Pathology II.	László Brugós M.D., Ph.D.
Department of Pulmonology	Lung cancer	AOG587607	1	1	10	AW5	Pathology II.	Andrea Fodor M.D.
Division of Biophysics	Physical foundations of biophysics	AOG157303	1	1	24	AW5	None	Péter Hajdu M.Sc., Ph.D.
Division of Cardiology	Echocardiography	AOG317307	1	1	18	AW5	Internal Medicine I., Clinical Physiology	Ida Hegedűs M.D., Ph.D.
Division of Clinical Laboratory Science	Platelet Function and Platelet Function Disorders	AOG632006	1	2	12	AW5	Clinical Biochemistry	Zsuzsanna Bereczky M.D., Dr. habil., Ph.D.
Division of Rheumatology	Reumatology: Research and Clinical	AOG149108	1	2	10	AW5	Internal Medicine II. (Immunology and Rheumatology)	Zoltán Szekanecz M.D., Ph.D., D.Sc.

CHAPTER 15
SUMMER PRACTICE

Summer chairside practice for 1st and 2nd year dental student

Objectives of the practice: to get acquainted with the tasks of the dental nurse
- Parts of the dental surgery, methods of cleaning up the surgery.
- The dental unit. Cleaning and disinfecting the unit.
- The tasks of the dental nurse.
- Instruments and materials used in dental treatment.
- Instruments used by the dental nurse.
- Cleaning, disinfecting and maintaining the instruments.
- Preparing the instruments and materials before dental treatment.
- The task of the dental nurse during treatment.
- Administrative tasks.

The practice can be fulfilled either after the 1st or after the 2nd year in any dental surgery in Hungary or abroad.
A certificate about fulfilling the practice is necessary, signed by the summer-practice tutor.

Dento-alveolar summer practice for 3rd year students

- Taking anamnesis
- Patient examination
- Inspection
- Palpation
- Percussion
- Taking status
- Performance of infiltration and nerve block anaesthesia
- Simple tooth-removal
- Post extraction advices
- Taking out the sutures
- Postoperative treatment of intraoral wounds

Complex summer practice for 4th year dental students

Prerequisites:

Cariology I
Endodontics I
Prothetic dentistry I
Prosthetic dentistry II
Oral surgery I
Oral surgery II

Aim of practice: to practice basic dental treatments according to the patient's needs.
- Anamnestic data
- Patient examination

- Inspection
- Palpation
- Percussion
- Dental status
- Diagnosis
- Treatment plan
- Carry out basic treatment procedures
- Local anaesthesia
- Theoretical knowledge and manual abilities in the fields of conservative dentistry and endodontics
- Theoretical fields of crown- and bridgework, indications and contraindications, improving manual abilities; Total and partial dentures: theory and practice, indications and contraindications, clinical and
laboratory phases
- Basics in gnatology: anatomy of the TMJ, theoretical and practical aspects of the pathology of the TMJ
- Basics in dental technology

CHAPTER 16
ACADEMIC PROGRAM FOR THE 1ST YEAR

Department of Basic Medical Sciences

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

1st week:
Lecture: Introduction to Behavioural Sciences

2nd week:
Lecture: Basics of Bioethics

3rd week:
Lecture: Basics of Medical Anthropology

4th week:
Lecture: Basics of Medical Sociology

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

6th week:
Lecture: Basics of Medical Psychology II.: Emotions and Motivations

7th week:
Lecture: Basics of Medical Psychology III.: Learning and Memory

8th week:
Lecture: Basics of Medical Psychology IV.: Personality and Psychological Disorders

9th week:
Lecture: Basics of Medical Psychology V.: Social Influence and Social Cognition

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

Requirements

Medical psychology course objectives: The aim of the course is to familiarize the students with the most important psychological aspects of health and illness, the psychological characteristic of medical profession as well as the healing/caring process. The main schools of psychology are also introduced. The course is meant to give basic knowledge for the purpose of understanding the phenomena of motivation, memory, socialization as far as they are relevant for future medical doctors. This means the first steps toward more specialised courses like medical psychology and behavioural medicine as well as electives to be introduced in the third and fourth academic years.

First year students should pass “End of Semester Examination” (ESE) at the end of the semester. The Department of Behavioural Sciences will adhere to the requirements of the General Academic Regulations and Rules of Examinations. The student must be present at the examination at the designated time. (He/she must explain the reason for any absence from the examination to the Departmental Adviser within 1 days of the day of examination.)

Subject: **BIOPHYSICS LECTURE**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: **26**
Seminar: **26**

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

2nd week:
Lecture: 3. Molecular spectra, Jablonski diagram, fluorescence, fluorescence applications.
4. Sedimentation and electrophoresis. Mass spectrometry.
Seminar: Material related to Lectures 1 and 2.

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

4th week:
Lecture: 7. Physical properties of sound, ultrasound. Doppler effect. Medical and biological applications of ultrasound.
8. Nuclear physics. Nuclear binding energy, radioactivity, law of radioactive decay, radioactive series.
Seminar: Material related to lectures 5-6.

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

6th week:
Lecture: 11. Experimental, diagnostic and therapeutic application of isotopes. Accelerators.
12. Basic principles of nuclear magnetic resonance, NMR spectroscopy in biology and medicine.
Seminar: Material related to lectures 9-10.

7th week:
Lecture: 13. Principles of tomographic methods. X-ray absorption CT. PET.
14. Magnetic resonance imaging (MRI). Gamma camera, SPECT.
Seminar: Material related to lectures 11 and 12.

8th week:
Lecture: 15. Chemical potential. Brownian motion. Diffusion at the molecular level, statistical interpretation. Fick's laws. Osmosis.
16. The structure of biological membranes. Membrane transport.
Seminar: Material related to lectures 13 and 14.

9th week:
Lecture: 17. Thermodynamic equilibrium potentials (Nernst, Donnan). Diffusion potential, Goldman-Hodgkin-Katz equation.
18. Resting potential, action potential, and electrical excitability. Measurement of membrane potential.
Seminar: Material related to lectures 15 and 16.

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

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

12th week:
Lecture: 23. Biomechanics.
24. Fluid mechanics, blood circulation.
Seminar: Material related to lectures 21 and 22.

13th week:
Lecture: 25. Biophysics of respiration.
26. Flow cytometry. Confocal laser scanning microscopy.
Seminar: Material related to lectures 23 and 24.

14th week:
Lecture: 27. Modern microscopic techniques (atomic force microscopy, super resolution microscopy). (not compulsory)
28. Research in the Institute. (not compulsory)

Requirements

Subject: BIOPHYSICS LECTURE
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: 26
Seminar: 26
Subject code: FOBIF05T1
ECTS Credit: 3
Department: Department of Biophysics and Cell Biology, Biophysics Division
Semester recommended to take: 1st year 1st semester.
Semester for the regular course: 1st.
Prerequisites of the course: No prerequisites.
Course coordinator: Prof. Dr. Péter Nagy
Study advisor: Dr. Andrea Dóczy-Bodnár
Teaching staff: Prof. Dr. Péter Nagy and the members of the Department
Educational manager: Enikő Nizsalóczki
E-mail: biophysedu@med.unideb.hu
Office hours: The location and time of office hours are posted on the website.

Aim of the course:
The course is aimed at providing the necessary theoretical background for the understanding the physical principles applied in biology and medicine, and for the description of the physical processes in living organisms. The course introduces students to biophysical techniques facilitating (1) the understanding of the pathomechanism of diseases; (2) understanding the physical background of diagnostic tools (e.g. ECG, MRI, PET) and therapeutic approaches; (3) development of novel diagnostic and therapeutic tools: (4) understanding the functioning of cells, tissues and organs at the molecular level in order to provide a solid background for Physiology, Clinical Physiology and Radiology.

Short description of the course:
Students will be introduced to the quantitative description of the physical basis of selected topics in biology and medicine.

Structure of the course:
Introduction to natural sciences (e.g. basic principles of atomic and nuclear physics)
Medical physics (e.g. physical principles of diagnostic and therapeutic procedures)

Molecular biophysics (e.g. diffusion, membrane biophysics)
Organ biophysics (e.g. vision, hearing, circulation)

Compulsory reading:

- Educational material (lecture slides, textual explanations of lectures ("booklet") and exercises) uploaded to the educational website (e-Learning site) of the Department;
- Medical Biophysics textbook (3rd revised edition, Editors: S. Damjanovich, J. Fidy, J. Szöllősi, Medicina, Budapest, 2019, ISBN: 978-963-226-127-0).

Web page of the Department: http://biophys.med.unideb.hu/en and the link to the Moodle (e-Learning) within.

Exam: Written exam during the exam period after the 1st semester of the academic year Students who attended the course and were granted with signature in a previous semester can take the exam in the 2nd semester as well, in the frame of the exam course (see Requirements, point 9).

Requirements

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

2. Seminars: Attendance to seminars is compulsory, however, a student may miss maximum 7 (seven) seminars. Students may attend the seminars according to their group assignment only. In the seminars, students are encouraged to ask questions related to the topic of the lectures discussed (see timetable of lectures and seminars). Students can earn bonus points on the seminars, counted into the result of the final exam, in the following two ways:

- Students may sign up for one short interactive presentation during the semester about the topic of the seminar (7-12 minutes; max. 2 students/seminar). The talks are graded on a scale of 0-3. This grade counts toward the bonus points earned during the semester. One student may sign up for one presentation. The grade of the presentation cannot be improved. The topic list, the requirements and the criteria for evaluation are posted on the web page of the Department on the first week of the semester.
- · On each seminar (except for the 1st one) students will write a short electronic test about the topic of the seminar. Taking this electronic test is only possible with the installed tablets available in the seminar room, i.e., students cannot take the test with their own devices. The test on a certain week can only be taken once. During the semester, 13 such tests will be written, and the average of the best 10 quizzes will be calculated (Q_{ave}), based on which students will be given bonus points according to the following table:
  - 10p – $Q_{ave} \supset 3$;90%
  - 9p – 90% > $Q_{ave} \supset 3$; 80%
  - 8p – 80% > $Q_{ave} \supset 3$; 70%
  - 7p – 70% > $Q_{ave} \supset 3$; 60%
  - 6p – 60% > $Q_{ave} \supset 3$; 50%
  - 5p – 50% > $Q_{ave} \supset 3$; 40%

o 4p – 40% > Q_{ave}⊃3; 30% If a student makes up for a missed seminar with another group, taking the seminar quiz is not guaranteed, it is subject to the availability of tablets installed in the seminar room.

3. Exemptions: Requests for exemptions must be turned in to the Educational Office. The Department of Biophysics and Cell Biology does not accept such applications.

4. Conditions for the signature:
* 7 or fewer absences from seminars;
* Biophysics Practical course is completed successfully (i.e. the student passed the course).

5. Self-control tests: There will be 2 self-control tests (SCT) during the semester. Topics and dates of the SCTs are provided on the departmental web site in the first week of the semester. None of the SCTs is obligatory. The type of the questions will be similar to those on the final exam (FE). The SCTs will include five minimum requirement questions as well corresponding to the SCT topics plus the physics background questions. Each SCT will be graded (0-100 %, 0% for absence) and the results of the two SCTs will be averaged (X_{ave}). The missed test is counted as 0% in the calculation of the average. Missed SCTs cannot be made up at a later time.

Based on the written self-control tests students may obtain the following bonus points and exceptions from the final exam:
(i) if X_{ave} is at least 66 points, the student is exempted from part I of the Biophysics final exam (minimum requirement questions, see point 6);
(ii) according to X_{ave} students may earn SCT bonus points counted to the FE result are as follows:
X_{ave} – SCT bonus points
0-34.99 – 0p
35-49.99 – 5p
50-54.99 – 6p
55-60.99 – 7p
61-65.99 – 8p
66-72.99 – 9p
73-78.99 – 10p
79 and above – 11p
85 and above – see point iii below

(iii) if X_{ave} is at least 85, the student is eligible for a grade-offering oral exam conducted at the end of the semester, where – based on his/her performance – grades 4 or 5 can be offered. Topics of the oral exam only include the lectures that were not included in the two SCTs. If the student does not show up in the oral exam or his/her performance is not sufficient on the grade-offering exam, no grades are offered and the student should take the regular written FE during the exam period.

6. Final Examination (FE): Students have three chances (A, B, C) for passing the Biophysics final exam in the winter exam period after the semester in which the course was taken (or in the summer exam period for students registered for the exam course, see point 9).

The FE consists of 2 parts:

Part I – Minimum requirement questions. It consists of a written quiz of 20 minimum requirement questions. One must pass this part to have the written test (part II.) evaluated. Minimum requirement questions and the answers thereto are provided on the website of the Department in the

1st week of the semester. 16 out of 20 have to be answered correctly in order to pass this part. Exemption from this part of the FE is discussed in point 5. This part is evaluated as pass or fail, once passed it is valid for further exam chances (B- or C-chance) of the FE. The result of the minimum requirement questions is not counted into the result of the written test (part II. of the FE).

Part II – Written exam. It consists of essays, fill-in-the-missing-phrase type questions, relation analysis and various simple test and multiple-choice questions etc. Part II will only be evaluated if part I is passed. The total bonus points for the semester are calculated in the following way:

- T: SCT bonus points (0-11)
- Q: bonus points based on the average of the 10 best seminar quizzes (0-10)
- P: seminar presentation bonus points (0-3)

The total number of bonus points (T+Q+P) will be added to the score of the written exam ONLY IF a minimum score of 45% is achieved in part II of the FE. Additional exemptions are in point 5.

Evaluation of the FE: Grade is calculated based on the sum of written exam score + bonus points (T+Q+P; see conditions for the bonus points above)

Grade	
fail (1)	0 - 54.99
pass (2)	55 - 64.99
satisfactory (3)	65 - 74.99
good (4)	75 - 84.99
excellent (5)	85 -

Rules for C-chance exams:
C-chance exams are conducted by a committee. Exemptions regarding Part I of the FE gained in the given semester apply to the C-chance as well. The evaluation process of the C-chance exam differs from the regular procedure (A- and B-chance) in the following aspects:

- Part II is evaluated even if Part I is failed.
- If either Part I or Part II is failed, an oral exam is conducted.
- If the student passes all two parts of the FE (either based on exemptions or the C-chance written results), the grade will be determined by the result of part II.

Dates, sites and detailed instructions for SCTs and the FE will be announced on the educational web site (e-Learning).

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

- Calculators built into wireless phones
- Calculators with paper tape or models that make noise

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

8. Information for repeaters:
- attendance to seminars is compulsory (see point 2)
- all exemptions and bonuses obtained during the failed semester (self-control tests, exemption from minimals) are lost
- according to the relevant rules (point 5) self-control tests may be written and exemptions may be obtained again
- in the case of schedule collisions with 2nd year classes we ask students to choose the 2nd year groups such that conflicts with the 1st year subjects can be avoided.

9. Information for Exam Course students:
Only those students may register for the exam course:
* who attended the Biophysics Lecture course in a previous semester and were granted with signature (for conditions of the signature, see point 4);
* OR – in the case of students who took Biophysics before the academic year of 2018/19 – completed the practical part of the unified Biophysics course successfully (i.e. completed all the labs and passed the practical exam).

Exam topics: all the material covered in the semester immediately preceding the semester in which the exam course is taken.

Bonus points collected for SCTs, seminar quizzes and seminar presentations are valid for the exam course taken **in the same academic year**. If an exemption from writing part I of the Biophysics final exam (minimum requirement questions) has been obtained based on the SCT averages, this exemption is also valid for the exam course taken in the same academic year. Every other student must write the minimum requirement questions, even those who passed this part of the exam in a previous exam period. If a student passes the minimum requirement questions in the exam course, he/she will be exempted from taking this part again in the same exam period. Otherwise, the structure of the final exam and its evaluation are the same as described in point 6. Rules for calculator usage, described in point 7, also apply.
For further information, check the web site of the Department (https://biophys.med.unideb.hu/) and the link to the Moodle (e-Learning) within.

Subject: **BIOPHYSICS PRACTICAL**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Practical: **16**

3rd week: **Practical:** Measurement of Nuclear Radiation	and Determination of Attenuation Coefficient.

4th week:
Practical: Measurement of Nuclear Radiation and Determination of Attenuation Coefficient.

5th week:
Practical: Light Microscopy and Fluorescence Microscopy.

6th week:
Practical: Light Microscopy and Fluorescence Microscopy.

7th week:
Practical: Optical Measurements.

8th week:
Practical: Optical Measurements.

9th week:
Practical: Computer Tomography Modelling and Blood Pressure Measurement.

10th week:
Practical: Computer Tomography Modelling and Blood Pressure Measurement.

13th week:
Practical: Spare lab.

14th week:
Practical: Lab exam (only for students where the final score is below 4.0, see Requirements 7/3.)

Requirements

Department: Department of Biophysics and Cell Biology, Division of Biophysics
Semester recommended for taking the subject: 1st year, 1st semester
Semester for the regular course: 1st
Prerequisites of the course: No prerequisites
Course coordinator: Dr. Andrea Dóczy-Bodnár
Coordinator of Practicals: Dr. Zsolt Fazekas
Educational manager: Enikő Nizsalóczki (e-mail: biophysedu@med.unideb.hu)

1. Aims of the course: Demonstration of some of the methods discussed in the Biophysics theoretical course, performing some simple experiments relevant to these topics, and introduction to designing, performing and evaluating experiments.

2. Structure of the course:
- Introduction to the practicals
- Completion of labs

3. Compulsory reading: material posted on the eLearning page of the course.

4. Recommended reading:
-Medical Biophysics (3rd edition, Editors: S. Damjanovich, J. Fidy, J. Szöllősi, Medicina, Budapest, 2019, ISBN: 978-963-226-127-0)
-Biophysics laboratory manual

5. Educational website: biophys.med.unideb.hu and the eLearning page of the course (on https://elearning.med.unideb.hu/).

6. Evaluation: Practical grades on a five-point scale.

7. Requirements:

7/1. Attendance to labs and recording all results in a separate logbook are compulsory. Students may attend the practicals according to their group assignment only. Students write a short quiz before each lab topic. At least 2.5 of 5 points (Quiz Grade, QG) must be earned in this test in order to be eligible for doing the lab. The written quiz is composed of true/false, multiple choice and simple calculation problems. Students earning less than 2.5 points need to repeat the lab.

7/2. Evaluation of labs: At the end of each lab the teacher grades the performance of the student on a scale between 0-5 (lab grade, LG). Getting 0 means that the lab is not accepted and it has to be repeated. Details of how to write lab logbooks and of the evaluation system can be found on the eLearning page of the course.

7/3. Determination of the end-semester practical grade (PG): Students will be graded on a five-point scale based on the score of the written quizzes (QG) and the lab grades (LG). At the end of the semester both the scores of the written quizzes and those of the lab grades will be summed and averaged. The final practical grade will be determined as follows:

QG_average+LG_average	End-semester practical grade (PG)
4.00-5.49	pass (2)
5.50-6.99	satisfactory (3)
7.00-8.49	good (4)
8.50-10.00	excellent (5)

Students, who completed all the labs (i.e. LG>0 for all labs) but their QG_average+LG_average score is not enough (i.e. less than 4.0) to pass should take a lab exam on the 14th week. The lab exam covers the materials of all labs and evaluated on a pass-fail basis (so students passing the lab exam will finish the course with PG=2, otherwise fail). It is not possible to repeat or improve the practical exam.

If the labs are not fully completed by the end of week 13 (i.e. during the regular and spare labs), the signature for the course is denied. If the course is not completed successfully (denied signature or failed lab exam) the signature for the Biophysics Lecture course is denied as well.

7/4. Making up missed labs: Maximum two labs (missed for any reasons) can be made up during the week assigned to spare practicals. Students must register for the make-up labs on the eLearning page of the course. Only one occasion will be available for making up a certain lab. A given lab can be repeated/made up only once.

8. Information for repeaters:

8/1. Repeaters should attend and must complete all the labs. Points 7/1 – 7/4 apply to repeaters completely.

8/2. The following special rules apply to those repeater students who took the unified (theory+practicals) biophysics course before the academic year of 2018/19.

-These students have to be registered for the biophysics courses (lecture, seminar, practice) with the "old" code (AOBIF02T1) by the Educational Office.

-Students who completed all the labs and passed the lab exam will receive exemption from repeating them upon request. Such exemption requests have to be submitted online through the

eLearning page of the course by the end of week 2.
-Students with incomplete labs or failed lab exam must attend and complete all labs during the semester. Points 7/1 – 7/4 apply completely for the completion and evaluation of the labs, with the exception that students completed the labs successfully will get a signature only (required for taking the theoretical part of Biophysics Final Exam).

9. Exam course: No exam course is available.
Further information is available on the web page of the Department of Biophysics and Cell Biology (biophys.med.unideb.hu) and on the e-Learnig page of the course. The above information is subject to change if unforeseen circumstances arise. These changes will be posted on the website.

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

1st week:
Lecture: 1. Introduction. Functions. Set theory.

2nd week:
Lecture: 2.Conditional probability. Independent events
3. Descriptive statistics (measure of center and spread; percentile, quartile). Histograms, box and whisker plot.
Seminar: Conditional probability. Independent events. Bayes's theorem.

3rd week:
Lecture: 4. Probability distributions (discrete, continuous), Binomial and Poisson distributions.
Seminar: Descriptive statistics.

4th week:
Lecture: 5.Normal distribution and standard normal distribution.
Seminar: Discrete distributions (probability distribution and distribution function). Binomial and Poisson distributions.

5th week:
Lecture: 6.Sampling, representative sample, unbiased estimation. Central limit theorem. Standard error of the mean.
Seminar: Normal distribution and standard normal distribution,

6th week:
Lecture: 7.Hypothesis testing, Level of significance, type I and type II errors. p value. Confidence interval. z-test, one sample t-test.

Seminar: Sampling, representative sample, unbiased estimation. Central limit theorem. Standard error of the mean.

7th week:
Lecture: 8.Statistical tests (paired and unpaired t-test, F test).
Seminar: Hypothesis testing, Level of significance, type I and type II errors. p value. z-test, one sample t-test.

8th week:
Lecture: 9.Clinical implications of conditional probability (sensitivity, specificity, positive and negative predictive values). ROC curve. Analysis of discrete random variables. Chi-squared test. Epidemiologic investigations: relative risk, odds ratio. Kaplan-Meier curve.
Seminar: Statistical tests (paired and unpaired t-test, F test).

9th week:
Lecture: 10. Summary
Seminar: Clinical implications of conditional probability (sensitivity, specificity, positive and negative predictive values). Analysis of discrete random variables. Chi-squared test.

Epidemiologic investigations: relative risk, odds ratio; Kaplan-Meier curve.	**10th week:** **Seminar:** Summary

Requirements

1. Aim of the course:
The aim of the subject is to give an introduction to biostatistical methods, which can be used in different branches of medicine to solve biostatistical problems and to evaluate experimental results. In addition to providing a solid theoretical foundation the course will also introduce the students to the art and science of performing the simplest calculations.

2. Short description of the course:
Mathematical introduction to the biostatistics course (functions, plotting measurements data, fitting, determination of the slope, area under the curve, integration). Counting techniques. Set theory, independent events. Conditional probability, Bayes theorem. Descriptive statistics (determination of mean, median, mode, standard deviation from data set, histograms, box-and-whisker plot). Discrete and continuous random variables; cumulative distribution function, density function. Binomial, Poisson and normal distributions. Sampling, biased and unbiased estimate, central limit theorem. Hypothesis testing, statistical tests (z, t, F and chi2 tests). Clinical implications of conditional probability, epidemiologic investigations. Computational methods for statistical analysis. Test of normality. Nonparametric techniques.

3. Type of the exam:
Colloquium. The final exam can be taken during the exam period of the second semester, but only for those students whose signing of the lecture book has already been accepted.

4. Requirements for the Biostatistics course:

4.1. Lectures, seminars:
Attendance to lectures is not mandatory but strongly recommended. At the end of the lectures students write an electronic test of up to 5 minutes three times at the end of the lecture containing true-false questions, multiple choice questions, etc., related to the topics of the given/actual lecture for earning bonus points.
Seminars will be held for each group separately. During seminars the lecture topics will be discussed in more detail and sample problems will be solved. Attendance to seminars is mandatory. During the semester on three of the seminars students write a test for earning bonus points. Bonus points earned by the tests written both in the lectures and seminars are added to the test result of part B of the final exam and/or the course test (only to part B, see section 4.3).
Students who complete the colloquium at the end of the second semester as part of the examination course will not be entitled to the bonus points, even if they have already completed the course and have a valid signature (see section 4.3).

4.2. Conditions for signing the lecture book:
Signing of the lecture book is denied if there are more than 2 absences from groupwise seminars. No kind of certificates, including a medical certificate, are accepted for the absences. Making up for missed classes is not possible.

4.3. Grade-offering course test and exam:

Students will write a grade-offering course test between weeks 12-13. The structure of this test will be identical to that of the final exam.
Usually exams will be held once a week during the exam period. The exam is written. The structure of the final exam:

•part A: minimum requirement questions and short calculations (descriptive statistics, binomial and Poisson distribution, normal distribution, etc.). Maximum score of part A is 40 points.
•part B: test questions (true or false questions, multiple choice questions, fill-in questions, open-ended questions), assay questions, calculations, graphs. Maximum score of part B is 100 points.

•If the score of part A is less than 75% (30 out of 40 points), the student fails the grade-offering test or the final exam. Bonus points earned by tests written in the lectures and seminars are not added to the result of part A.

If a student passes part A (i.e. the score is larger than or equal to 75%) on an exam or the grade-offering course test, the result is valid for his/her subsequent exam chances, i.e. it does not have to be retaken.
•If the result of part A is less than 75%, part B is not evaluated (except for a C chance exam). If the student passes part A, bonus points are added to the score of part B (max 100 points). Based on this final score the following grades are offered:

- FS<60 fail
- 60≤FS<70 pass
- 70≤FS<80 satisfactory
- 80≤FS<90 good
- 90≤FS excellent

Evaluation of the grade-offering test and the final exam is identical.
A grade of 2 or better achieved on the grade-offering test is valid for the final exam.
The bonus points earned by tests written in the lectures and seminars and the exemption from retaking part A of the exam are only valid for the course in which they have been achieved, i.e. they are not valid for repeated courses or exam courses.

5. Reading materials:
Wayne W. Daniel: Biostatistics, A foundation for Analysis in the Health Sciences, John Wiley&Sons

6. Exemptions:
Requests for exemptions from the biostatistics course have to be turned in to the Credit Transfer Committee. Such requests cannot be directly turned in to the Biomathematics Division or the Department of Biophysics and Cell Biology.

7. Information for repeaters:
For repeaters the attendance on seminars is not compulsory. Credits achieved in a semester cannot be transferred to other semesters. Therefore, students repeating the course are subject to the same rules and requirements as those taking the course for the first time.

8. Rules for C-chance exams:
If the result of the written part of a C-chance exam is at least a pass (2) according to the rules pertaining to A- and B-chance exams, the grade of the C-chance exam will be what is to be offered

based on the rules of the A- and B-chance exams. Part B of the written part of a C-chance exam will be scored even if the score of part A is less than 75%. If the result of a C-chance exam is a fail (the score of part A is less than 75% or the grade of part B with the bonus points is a fail), the written part will be followed by an oral exam. In this case the grade of the C-chance exam will be determined by the result of the written test and the performance on the oral exam.

9. Rules for calculator:
Rules for calculator usage during course tests and the final examination In order to ensure a fair evaluation, to avoid disturbances in the testing room, and to protect the security of the test material the following types of calculators are NOT permitted: - calculators with built-in computer algebra systems (capable of simplifying algebraic expressions) - pocket organizers, handheld or laptop computers - any device capable of storing text. Calculators with a typewriter keypad (so-called QWERTY devices), electronic writing pads and pen-input devices are not allowed either. Calculators with letters on the keys (e.g. for entering hexadecimal numbers or variable names) are permitted as long as the keys are not arranged in QWERTY format. - calculators or other devices capable of communicating with other devices - calculators built into wireless phones - calculators with paper tape or models that make noise In general, students may use any four-function, scientific or graphing calculator except as specified above. Sharing calculators during tests is not allowed, and the test proctor will not provide a calculator.

Subject: **MEDICAL CHEMISTRY LECTURE**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: **39**
Seminar: **56**

1st week:
Lecture: Introduction to Medical Chemistry. Quantum theory and the atom. Electronic structure and the periodic table.
Types of chemical bonds. Covalent bonding and properties of molecules.
Seminar: Lectures of the week.

2nd week:
Lecture: Intermolecular forces. Solutions and colloids.
Chemical equilibrium.
Seminar: Lectures of the week.

3rd week:
Lecture: Ionic equilibria. Acids and bases: Acid base equilibria. Bronsted Lowry and Lewis theories.
Thermochemistry and thermodynamics.
Seminar: Lectures of the week.

4th week:
Lecture: Chemical kinetics.
Electrochemistry. Thermodynamics of redox reactions.
Seminar: Lectures of the week.

5th week:
Lecture: Introduction to organic chemistry. Stereochemistry.
Saturated and unsaturated hydrocarbons.
Seminar: Lectures of the week.

6th week:
Lecture: Aromatic hydrocarbons.
Organic halogen compounds. Alcohols and phenols.
Seminar: Lectures of the week.

7th week:
Lecture: Aldehydes and ketones and quinones. Ethers. Organic sulfur compounds.
Nitrogen containing organic compounds.

Nitrogen containing heterocycles.
Seminar: Lectures of the week.

8th week:
Lecture: Carboxylic acids and carboxylic acid derivatives.
Amino acids and peptides.
Seminar: Lectures of the week.

9th week:
Lecture: Proteins (Structure and classification). Proteins in action. (Function, regulation).
Seminar: Lectures of the week.

10th week:
Lecture: Carbohydrates.
Glycolysis and tricarboxylic acid cycle.
Metabolic regulation.
Seminar: Lectures of the week.

11th week:
Lecture: Lipids.

Nucleotides and nucleic acids.
Seminar: Lectures of the week.

12th week:
Lecture: Coordination chemistry. Alkaline (earth) metals.
Transition metals: iron, copper, zinc.
Seminar: Lectures of the week.

13th week:
Lecture: Non-metals: oxygen, oxygen-derived reactive intermediates, selenium, halogen. Gaseotransmitters (NO, CO, H2S) and other inorganic gases of medical relevance (N2O, NO2).
Seminar: Lectures of the week.

14th week:
Seminar: Toxic metals and nonmetals. Information on Final Exams. Research opportunities at Dept. Medical Chemistry.

Requirements

The program consists of lectures and seminars. Attendance at the lectures is essential for successful completion of the course. Attendance at seminars is recorded. Students should attend at least 80% of seminars (Max. 6 absences are allowed).
Control tests covering the topics of lectures and seminars will be written during the semester. Preparation for the tests and exams should be based on the official textbooks, lectures and seminars.
Control tests and final exams will be assessed as follows*:

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

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

one improvement exam.

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

Subject: **MEDICAL CHEMISTRY PRACTICAL**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Practical: **39**

1st week:
Practical: Laboratory and fire safety instructions.
Chemical calculations. Concentration of solutions.
Laboratory techniques: laboratory equipments, volumetric apparatus. (Micro)pipetting.

2nd week:
Practical: Quantitative analysis. Acid-base titrations: strong acid-strong base, weak acid-strong base titrations.
Introducing and using titrators.

3rd week:
Practical: Ion exchange chromatography
Paper chromatography: separation of food dyes and separation of amino acids.
Gel filtration.

4th week:
Practical: Spectrophotometry.
Photometric determination of inorganic phosphate.
Quantitative protein analysis: Biuret assay. Bradford assay.
Assay of glucose. Enzymatic determination of glucose in blood serum.

5th week:
Practical: Electrometric pH measurement.

6th week:
Practical: Reaction kinetics. Kinetic study of the saponification reaction of ethylacetate. (Effect of concentration and temperature on the rate.)

7th week:
Practical: Qualitative analysis of mono- and disaccharides.
Polarimetric analysis of carbohydrates.

8th week:
Practical: Enzyme kinetics.
Assay of catalase activity.

9th week:
Practical: Enzyme kinetics.
Assay of glycogen phosphorylase activity.

10th week:
Practical: Identification of proteins using SDS-polyacrylamide gel electrophoresis (PAGE) and Western blot.

11th week:
Practical:
Measuring superoxide anion radical production.
Assaying superoxide dismutase (SOD) activity.
Detection of radical scavenging compounds (antioxidants) with ABTS decolorization assay.

12th week:
Practical: Practical exam

Requirements

Attendance at laboratory practices is compulsory and recorded. Students should attend 100% of

laboratory practices. Missed and not accepted practices can be made up by the students on the same week or the next week (if the missed lab is still running and the laboratory teacher permits).

Evaluation is based on the results of practical control tests written during the practical classes besides the manual work. If the mark is fail (1), student should take the practical examination on the last week of the practicals. If the practical examination is not successful, (s)he cannot get the signature from the subject and cannot register for the final examination for Medical Chemistry.

Department of Foreign Languages

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

1st week:
Practical: 1st day: 1. lecke, 2. lecke I. rész (Greetings, the alphabet, numbers 0-20, colours, everyday expressions, nationalities - **2nd day**: 2. lecke II. rész, 3. lecke (languages, numbers 21-29, names of places, the days of the week, numbers 30-100, the time, *hány óra van?* - **3rd day**: 4. lecke, 5. lecke I. rész (Test Your Knowledge 1, adjectives and adverbs, verbs expressing activities 1) - **4th day:** 5. lecke II. rész, 6. lecke (times of day, *hány órakor?*, numbers 1000-1000000000, verbs expressing activities 2, everyday expressions, ordinal numbers) - **5th day:** 7. lecke, 8. lecke (Revision 1, everyday objects, food and drink, adverbs of frequency)

2nd week:
Practical: 1st day: 9. lecke, 10. lecke I. rész (Food, drink, fruit, vegetables, the menu, ordering in a restaurant, shopping in the market, the uses of *tessék*, the weather) - **2nd day:** 10. lecke II. rész, 11. lecke (the seasons and months, clothes, Test Your Knowledge 2) - **3rd day**: 12. lecke, 13. lecke I. rész (body parts, adjectives and descriptions, accessories, jobs, places) - **4th day:** 13. lecke II.rész, 14. lecke (personal details and filling in a form, family relations, revision 2) - **5th day**: End course exam. Oral exam

Requirements

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

Assessment: five grade evaluation (AW5).
Evaluation: Based on a written final test (80 %) + class participation + daily word quizzes (20 %) . Passing the oral exam is a minimal requirement for the successful completion of the Hungarian Crash Course. The oral exam consists of a role-play from a list of situations covered in the coursebook. A further minimal requirement is the knowledge of 200 words.

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

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

1st week:
Practical: Revision

2nd week:
Practical: introducing yourself, registration form, *like doing something*, *a lot – a little*, dialogue in a café, conjugation of verbs

3rd week:
Practical: regular verbs in plural, sights and buildings, buying ice-cream and refreshments, buying an entrance ticket

4th week:
Practical: different means of transport, conjugation of verbs, the ending *–val/-vel*, *something/somewhere*, the conjugation of *come / go / be*

5th week:
Practical: *this / this is / this is a / an*, orientation, shops and stores, ordering, the conjugation of *eat and drink, do you feel like?, there is no / there are no*

6th week:
Practical: Revision
Self Control Test (Mid-term test)

7th week:
Practical: understanding a chat, question words, invitation, connectives: *because, but, and, if, or*, buying a cinema ticket, *what number? which one in order?*

8th week:
Practical: timetable, *where ... to*?, the ending *–ra/-re*, *not ... but*, the future: *will be*

9th week:
Practical: *where?, -n/-on/-en/-ön*, at the market, at the bakery, at the post office

10th week:
Practical: *where .... from?, -ról/-ről, where, where ... to?,* dialogue in a taxi, buying a train ticket, prefixes: *be-, ki-, le-, fel-, vissza-*

11th week:
Practical: Revision

12th week:
Practical: End-term test
Self Control Test (Written and oral test)

Requirements

Requirements of the course:
Attendance

Attending language classes is compulsory. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions. The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time the attendance is refused.

Testing, evaluation

In each Hungarian language course, students must sit for 2 written language tests, an oral and a listening exam. Students must appear at the lecture hall at least 15 minutes before the exam. If students are late, they are not allowed to write the test.

A further minimum requirement is the knowledge of 200 words per semester divided into 10 word

quizzes. There are five word quizzes before and another five after the midterm test. If a student fails or misses any word quizzes he / she cannot take the written test. A word quiz can be postponed by a week and students can take it only with their own teacher. Students can get bonus points (5-5%) by taking two extra quizzes containing 20 sentences each, before the midterm and end term tests. The sentences are taken from the units of the coursebook.

The oral exam consists of a role-play from a list of situations covered in the coursebook. If students fail the oral exam, they fail the whole course. The results of the written tests and the oral exam are combined and averaged.

Based on the final score the grades are given as follows.

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

If the final score of the written tests is below 60, the student can take a written remedial exam once covering the whole semester's material.

Coursebook: See the website of the Department of Foreign Languages: **ilekt.med.unideb,hu.** Audio files to the course book, oral exam topics and vocabulary minimum lists are also available on the website.

Department of Operative Dentistry and Endodontics

Subject: **ODONTOLOGY**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **28**

1st week:
Lecture: Human dentitions. Nomenclature. Definitions
Practical: Introduction to the practical classes. Description of modelling materials and tools. Demonstration of the lecture's theme on skulls, dentures and teeth

2nd week:
Lecture: Dental symbolic systems. Losses of the tooth hard tissues
Practical: Carving of upper central permanent incisor from chalk

3rd week:
Lecture: Tooth identifiers. Morphology of the maxilla and mandible
Practical: Carving of lower central permanent incisor from chalk

4th week:
Lecture: Development of teeth
Practical: Carving of upper lateral permanent incisor from wax

5th week:
Lecture: Eruption of teeth
Practical: Modelling of upper central and lateral permanent incisors from plasticine

6th week:
Lecture: The permanent maxillary and mandibular incisors and canines
Practical: Modelling of lower and upper canines from plasticine

7th week:
Lecture: The maxillary and mandibular premolars
Practical: Modelling of upper 1st premolar from plasticine

8th week:
Lecture: The permanent maxillary molars
Practical: Carving of lower permanent 1st premolar from chalk

9th week:
Lecture: The permanent mandibular molars
Practical: Modelling of lower 2nd premolar from plasticine

10th week:
Lecture: The deciduous teeth
Practical: Carving of upper permanent 1st molar's crown from wax

11th week:
Lecture: The enamel
Practical: Modelling of upper 2nd molar from plasticine

12th week:
Lecture: The dentin
Practical: Modelling of lower permanent 1st molar from plasticine

13th week:
Lecture: The pulp
Practical: Modelling of lower 1st primary molar from plasticine. Practice of tooth identification

14th week:
Lecture: The periodontium
Practical: Modelling of upper 1st primary molar from plasticine. Practice of tooth identification

Requirements

Requirements for signing the lecture book:
The practices start and finish in accordance with the timetable, arriving late is not allowed.
Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
Missed classes cannot be more than 1 out of the total practice classes.
A certification is required for any absences which has to be handed to the leader of the practice course.
Missed classes cannot be made up for.
At the end of each practical, students work are evaluated with a grade.

The practice grades impact on the outcome of the end of semester exam.
Examination: at the end of the semester.
Materials for exam preparation: official lecture book, lectures and materials of the practicals.

Course exemption
With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week (email: konzervalo@unideb.hu).

Requirements for taking the subject:---

Department of Basic Medical Sciences

Subject: **CELL BIOLOGY LECTURE**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **28**
Seminar: **28**

1st week:
Lecture: 1. Introduction. Origin of life. Prokaryotes and eukaryotes
2. Cell membrane. Membrane transport
Seminar: Introduction, course requirements, safety, FAQ.

2nd week:
Lecture: 3. ABC transporters and related diseases
4. Ion channels, membrane potential.
Seminar: Material related to lectures 1-2.

3rd week:
Lecture: 5. Cell organelles. Overview of intrcellular transport processes
6. Intracellular membrane systems I: lysosome, peroxisome, endoplasmic reticulum
Seminar: Material related to lectures 3-4.

4th week:
Lecture: 7. Intracellular membrane systems II: The Golgi complex, endo- and exocytosis, protein sorting
8. Nuclear envelope. Transport through nuclear pores
Seminar: Material related to lectures 5-6.

5th week:
Lecture: 9. Cytoskeleton I: microtubules
10. Cytoskeleton II: intermedier filaments, actin cytoskeleton
Seminar: Material related to lectures 7-8.

6th week:
Lecture: 11. Cell-cell and cell-matrix contacts
12. Cellular energetics, mitochondrion
Seminar: Material related to lectures 9-10.

7th week:
Lecture: 13. Calcium homeostasis
14. Osmo-, volume and pH regulation
Seminar: Material related to lectures 11-12.

8th week:
Lecture: 15. Nucleus, Chromtatin
16. Cell division cycle
Seminar: Material related to lectures 13-14.

9th week:
Lecture: 17. Mechanics of the cell cycle
18. Regulation of the cell cycle
Seminar: Material related to lectures 15-16.

10th week:
Lecture: 19. Cell signaling I. General concepts. Nuclear receptors. G-protein coupled receptors
20. Cell signaling II. Receptor tyrosine kinases. The Ras/MAPK, PI3K/Akt and PLC/CaMK pathways
Seminar: Material related to lectures 17-18.

11th week:
Lecture: 21. Cell signaling III. Pathways to the nucleus
22. Cell-cell communication in the nervous and the immune system
Seminar: Material related to lectures 19-20.

12th week:
Lecture: 23. Cell fates. Differentiation.
24. Oncogenes, tumor cells
Seminar: Material related to lectures 21-22.

13th week:
Lecture: 25. Cell senescence, apoptosis
26. Stem cells
Seminar: Material related to lectures 23-24.

14th week:
Lecture: 27. From genes to cell function:

overview of the main regulatory mechanisms
28. Cell motility
Seminar: Material related to lectures 25-26.

Requirements

Department: Department of Biophysics and Cell Biology, Cell Biology Division
Recommended semester: 1st year 2nd semester.
Prerequisites of the course: No prerequisites.
Teaching staff: Prof. Dr. György Vereb and the members of the Department
Education manager: Enikő Nizsalóczki (e-mail: cellbioedu@med.unideb.hu)

Aims of the course: The course gives an overview of the functional anatomy of higher eukaryotic animal cells with examples of the paradigmatic molecular mechanisms. Students successfully completing the course will have acquired an active professional vocabulary minimally required for studying biochemistry, molecular biology, genetics, histology and physiology. In addition, the course aims to provide a thorough knowledge base which serves to understand the functions and dysfunctions of the human body in their broader context.

Course synopsis: Structure and constituents of eukaryotic cells, the most important cellular functions: membrane transport, vesicular transport, cell signaling, cell division (mitosis, meiosis), differentiation, cell death

Material to be studied:
Compulsory sources: 5th ed. of Essential Cell Biology (Alberts et al.,Garland Publ Inc. 2019. ISBN-13:978-0393-6803-62). Chapters 1 and 11 through 20 are studied in depth during the course. Chapters 2 through 10 contain explanations for basic molecular concepts. There is additional core material that is available only in the lectures.

Cell biology Lab Notes: the currently required, up-to-date version is available at the course home page (@ elearning.unideb.hu).

Recommended: The in depth full-text version of the course material can be found in:
Lodish et al.: MOLECULAR CELL BIOLOGY, 7th edition, W. H. Freeman, 2013, ISBN-13: 978-1-4292-3413-9; Alberts et al.: MOLECULAR BIOLOGY OF THE CELL; 6th edition, Garland Publ. Inc., 2015, ISBN 978-0-8153-4453-7;
The 4th editions of these are also available online:
http://www.ncbi.nlm.nih.gov/books/NBK21475/
http://www.ncbi.nlm.nih.gov/books/NBK21054/

Knowledge that will be examined in this course is comprised in the slides presented in the lectures. It is recommended to download these slides before the lectures and take notes on them during the lecture. Slides of central importance will be marked accordingly.

Course home page: https://biophys.med.unideb.hu/en/node/632

Signature: Signing for the course can be denied if the student has missed more than 2 seminars. Passing the course “Cell Biology Practical” is a required condition for obtaining the signature for

“Cell Biology Lecture”.

Type of exam: Final exam

Exemptions: In order to get exemption from the complete Cell Biology course, the student has to apply to the Education Office. Applications for exemption from part of the courses are handled by the Department. The deadline for such applications is Monday on the second week of education. No application will be considered after this date. The following documents have to be submitted to the Educational Advisor: 1. application with an explanation why the student thinks that he/she is eligible for an exemption; 2. certificates about the courses the student has taken; 3. a reliable description of the curriculum of the courses taken. Applicants may be interviewed before the decision is made.

Requirements:

1. Lectures: Attendance of lectures is indispensable for acquiring the knowledge required to pass, understanding which parts of the material have the highest importance, and finding the proper sources for preparing for the exam.

2. Seminars: Seminars serve to discuss the lecture material. Use them well, study the material before the seminar and arrive with your questions. Maximum two absences are permitted. Students must attend the seminars with their assigned study group. Students may sign up for one short interactive presentation during the semester. The teacher will choose the topics/questions on the spot and the presenter is required to explain the topic. This requires the in depth knowledge of all the topics presented at the lectures and studying the relevant textbook chapters. The presentations are graded on a scale of 0-5. This grade counts toward the bonus points earned during the semester.

3. Labs: Labs are done under a separate subject code and need to be passed for acquiring a signature in for this course.

4. Self-control Tests (SCT-s):
There will be at least two SCT-s. The dates and topics (covering the whole material) for SCT-s are announced in the beginning of the semester. Test and essay questions are scored on a 0-100% scale, averaged for the SCTs (=SCT_{ave}) and this average is used for offering exemptions and bonus points towards the final grade (see 5.2 and 5.4.1.). Similarly to the final exam, basic questions (on minimally required knowledge, part A) and in depth questions (part B) constitute the SCT. As opposed to the final exam, both A and B parts are evaluated in SCTs and contribute to the SCT score regardless of their value.
Writing the SCTs is not compulsory; SCTs cannot be made up for, even in the case of a justified absence. Missed SCTs contribute a score of 0 towards SCT_{ave}.
There will also be short online quizzes (SOQ) at the beginning of each seminar, covering all the material that is scheduled for discussion in the given seminar. The best 10 scores of these SOQs will be averaged (SOQ_{ave}) and converted into bonus points and used when determining offered grades (see 5.4.1).

5. Final Exam (written):

5.1. Parts of the Final Exam. The exam is a written exam of two parts (A and B).
Part A of the written test is a minimum level test. It consists of a set of 10 true-or-false questions

about basic cell biology knowledge (1 point each) and 5 questions asking for a brief description of basic terms (molecules, concepts). These terms are listed among the key-words published on the subject's website. The answers are scored on a 0-2 scale in increments of 0.5 points. The student has to score 16 or above out of the total 20 points in part A to pass. Below 16 points the grade of the exam is a fail (1) and part B is not marked. For writing Part A, 20 minutes are allocated. A successful passing of Part A (or exemption from writing Part A, see 5.4.2) is valid for B and C exams throughout the given exam period, but not in consecutive semesters.
Part B is a 90 minute complex exam, including short essays (~30% of the total score), fill-in, short answer, multiple choice, relation analysis, sketch-recognition, term-recognition, as well as simple choice and true-or-false questions.

5.2. Calculating the exam score. As per 5.1., exam score is only calculated if Part A is passed.

1. % result of Part B expressed as points, 100 points maximum. If score on Part B is greater or equal to 50%, the following bonus points are added to the score of Part B:
2. Presentation grade, 5 points maximum
3. Average % result of SCTs (SCT_{ave}):
   4 points for reaching 30%, +1 for each additional 10% reached,10 points maximum
Total:115 points maximum

N.B. Bonuses are only valid in the semester they were obtained.

5.3. Assigning grades to exam scores

Part A below 16 points: fail (1)

Exam score (see 5.2.):
below 60 points: fail (1)
60-69.9 points: pass (2)
70-79.9 points: satisfactory (3)
80-89.9 points: good (4)
reaching, and above 90 points: excellent (5)

5.4. Exemptions

5.4.1. For those who achieve SCT_{ave} >=50% at the self-control tests, a final grade offering score is calculated as follows:

1. SCT_{ave} % expressed as points, 100 points maximum
2. Presentation grade, 5 points maximum
3. Result of short online quizzes (SOQ_{ave}, of the 10 best %scores).
   4 points for reaching 30%, +1 for each additional 10%, reached 10 points maximum
Total:115 points maximum

Grades are offered as listed under "5.3. Assigning grades to exam scores". (Part A is considered to be passed in this case without writing a Part A test.)

5.4.2. Those who achieve SCT_{ave} >=66% at the self-control tests and do not accept the offered grade calculated as under 5.4.1. and therefore take the final exam, are exempted from Part A of the

written final exam during the given semester.

6. Rules for repeating the course

6.1. Repeaters taking again a regular Cell Biology course need to attend seminars and can do presentations as regulated normally (see 2.). We encourage repeaters to write the SCTs since this is the only way to receive bonuses and exemptions based on SCT_{ave} scores.

6.2. Repeaters can apply for a Cell Biology exam course in the third semester if they have taken at least one exam in the previous exam period and in that exam have passed the minimum requirements (Part A), and have scored at least 35% on Part B). The above items 1.-4. and 6.1. are irrelevant to the exam course and consequently no bonuses can be earned during the exam course. Otherwise the final exam proceeds as detailed under 5. If Part A is passed in the exam, the % result of Part B expressed as points is converted to a grade as per 5.3.

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

2nd week:
Practical: Preparation for labs

3rd week:
Practical: Cell types and basic constituents: separation and staining of blood cells

4th week:
Practical: Cell types and basic constituents: separation and staining of blood cells

5th week:
Practical: Membrane transport: multidrug resistance

6th week:
Practical: Membrane transport: multidrug resistance

7th week:
Practical: Homeostasis: cell viability and death

8th week:
Practical: Homeostasis: cell viability and death

9th week:
Practical: Cell morphology, subcellular structures: fluorescent visualization

10th week:
Practical: Cell morphology, subcellular structures: fluorescent visualization

11th week:
Practical: Cell signaling: in situ observation

12th week:
Practical: Cell signaling: in situ observation

13th week:
Practical: Remedial lab

14th week:
Practical: Remedial lab

Requirements

Department: Department of Biophysics and Cell Biology, Cell Biology Division
Recommended semester: 1st year 2nd semester.
Semester for the regular course: 1st.
Prerequisites of the course: No prerequisites.
Teaching staff: Dr. Katalin Goda and members of the Department
Education manager: Enikő Nizsalóczki (e-mail: cellbioedu@med.unideb.hu)

Aims of the course: The course gives an overview of the functional anatomy of higher eukaryotic animal cells with examples of the paradigmatic molecular mechanisms.

Material to be studied:
Cell biology Lab Notes: the currently required, up-to-date version is available at the course home page on the eLearning site.
Relevant parts of the Cell Biology Lecture course (see there).

Course home page: https://biophys.med.unideb.hu, elearning.med.unideb.hu

Signature: Signing for the course can be denied if the student has not performed all the lab practices or any one of the lab logs has not been accepted.

Type of exam: Practical grade

Requirements:

Completing all labs, and writing up the results and their interpretation in a lab log book on the spot is required. Only handwritten, bound lab log books are acceptable. The compulsory preparation for the lab includes writing the aims of the lab and the methods of implementation into the lab logbook before the lab. During the lab a log must be written into the book in a way that allows reproducing the work done. So it must document what the student has actually done, the results obtained (including graphs and color drawings), and their interpretation. The lab tutor will only sign the log up-on proper, independent completion of the lab. All labs must be accepted by a valid signature in order to receive the end of term signature.
Labs can only be performed by students who arrive well prepared. This is checked by a ~10 min test at the beginning of the lab, graded on a scale of 0-5 according to the following table:

A TP of 0 results automatically in dismissal from the lab.

Furthermore, if the student's participation in the lab is not acceptable, the lab tutor will dismiss the student from the lab immediately, and the lab will be considered failed.
TP ≥1 are averaged and, after rounding, yield the final practical grade. If the average of the TP is below 1.5, it results in a practical grade 1 (fail). In these cases, a written lab exam can be done for the pass (2) mark before the exam period (covering the topics of all labs).
The practical grade cannot be improved in the exam period.
Since all labs must be accepted in order to receive the end of term signature (and a practical grade), those missing a lab are offered one (1) extra occasion to make up for the missed lab during the re-medial week. This offer includes both the cases of writing a lab test of grade 0 earlier, and labs missed because of certified illness. In the latter case, certificates must be filed with the Education coordinator in Office Hours at the earliest possible occasion, so the student can be assigned a

remedial lab appointment.

Information for repeaters
The following special rules apply to those repeater (Medicine or Dentistry) students who took the unified (theory + practicals) Cell Biology course before the academic year of 2018/19.

1. These students have to be registered for the Cell Biology course (lecture, seminar, practice) with the "old" code (Medicine students: AOSEJ02T2, Dentistry students: FOSEJ04D2).

2. Students who completed all the labs and passed the lab exam will be exempted from repeating the labs. They must fill in a questionnaire about their previous studies in the e-learning system by the end of week 3.

3. The questionnaire can be found under the menu item Cell Biology Lecture Course: https://elearning.med.unideb.hu/mod/questionnaire/view.php?id=38301

4. Students with incomplete labs or a failed lab exam must attend and complete all labs during the semester. At the end of the semester scores of the written quizzes will be summed and evaluated as in the „Cell Biology Practical" course as described above. Students need to do all the labs and need to achieve a passing grade in order to receive a signature for their „Cell Biology" course. Grading of the course will be identical to the grading of the new „Cell Biology Lecture" course.

Subject: **FIRST AID AND REANIMATION**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **6**
Practical: **15**

1st week:
Lecture: The concept of first aid, first aid levels. Time Factor. The role of the scene. The usage of paramedics, rules of calling ambulance. ABCDE approach.

2nd week:
Lecture: Concept and recognition of unconsciousness. Symptoms of airway obstruction. Airway management. Recovery position.

3rd week:
Lecture: Organizational tasks at the site of the resuscitation. Prevention and solution of the complications of resuscitation. BLS. Effect, result, success in CPR. AED.

4th week:
Lecture: Death as a process. Reversibility. Assessment of vital signs. First aid for burns. Shock.

5th week:
Lecture: Burning; first aid in burning diseases; shock.
Intoxications. Ways of poison can enter the body. First
aid of poisoning with corrosive and non-corrosive
substances. Typical symptoms and recognition of common poisons.

6th week:
Practical: Checking breathing and circulation. Ventilation without equipment. ABCDE approach.

7th week:
Practical: Practising ventilation without equipment.

8th week:
Practical: Practising chest compression.

9th week:
Practical: Cardiac arrest care simulation (BLS+AED)

10th week:
Practical: Practical exam (BLS+AED)

11th week:
Practical: General rules of wound care. Presenting wound dressing and immobilization devices. Sterility. Bleeding control. Arterial pressure points. Arterial and venous pressure bandage.

12th week:
Practical:
First aid for soft tissue contusion, distortion, dislocation and bone fracture.
Immobilization devices: Schanz cervical collar, Desault's bandage, hand and finger fracture fixation. Triangular bandage.
Kramer-, pneumatic air splint device.
Bone fracture care by body regions.
Complex trauma care.

13th week:
Practical:
Test

Self Control Test

Requirements

Condition of signing the Lecture book:

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

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

1st week:
Lecture: Introduction to Molecular Biology. The structure-function relationship of proteins I. Protein structure levels. Domains and subunits. Methods to determine the 3D structure of proteins. The structure-function relationships of proteins, through the examples of collagen and some metabolic enzymes. Protein structure databases. The structure-function relationship of proteins II. Protein folding. Protein dynamics, specific movements: pancreatic lipase and serine proteases. Intrinsically disordered proteins: characteristics and biological functions. Misfolding: protein aggregation diseases.

2nd week:
Lecture: Enzymes I-III. General characterization and classification of enzymes. How do enzymes increase the reaction rate? Principles of the Michaelis-Menten kinetic model and the steady-state kinetic model. Definition and interpretation of kinetic parameters. Reversible and irreversible enzyme inhibition. Principles and visualization of competitive, non-competitive and

uncompetitive enzyme inhibition. Regulatory mechanisms of enzymes and their significance.

3rd week:
Lecture: The genetic code. Codons, anticodons. Structure and function of tRNAs and the ribosome. Protein synthesis. The open reading frame. Steps of translation (protein synthesis): initiation, formation of the peptide-bond, elongation and termination. Antibiotics. Antiviral effect of interferon.
Protein maturation. Assisted protein folding and its enzymes and chaperons. Misfolding: protein aggregation diseases. Protein targeting.

4th week:
Lecture: Isolation and characterization of proteins. Various techniques for separation and purification: altering the ionic strength and pH, chromatography, electrophoretic methods. Determining the amino acid composition, amino acid sequence and higher order structure of proteins.
Immonological techniques. The structure of immunoglobulins. Production of antibodies: polyclonal and monoclonal antibodies. Examples of analytical techniques using antibodies: ELISA, immunohistochemistry, immunofluorescence, confocal microscopy, western blotting.
Posttranslational modifications. Glycosylation, phosphorylation. Protein kinases and phosphatases. Lipid modifications. Carboxylation and hydroxylation. Modifications by bacterial toxins: cholera toxin.

5th week:
Lecture: Protein degradation and turnover, proteases I-II. Biological function of protein processing. Classification of proteolytic enzymes. Structure and function of serine proteases. Protease inhibitors. Lysosomal and ubiquitin-dependent proteasomal protein degradation.
Proteomics. Methods in proteomics: two-dimensional and other electrophoretic approaches, mass spectrometry. Clinical proteomics, biomarkers.

6th week:
Lecture: DNA and genome. Structure of DNA. The components of the human genome. Structure of human chromosomes. The 1000 genome project.
Genome replication. Initiation, synthesis and termination in prokaryotes and eukaryotes. The replication fork. Synthesis of the leading and lagging strand. Replication of chromosome ends (telomers).
Recombination. Genetic recombination. Main types of DNA recombination. The recombinase enzyme. Phage integration, transposition.

7th week:
Lecture: Mutation and DNA repair. Causes and consequences of mutations. DNA repair mechanisms. Diseases caused by defective DNA repair.
Prokaryotic transcription. Function of the prokaryotic RNA polymerase. Characteristics of transcription factors. Transcriptional activation and inhibition in prokaryotes.
Eukaryotic transcription I. Initiation and elongation in eukaryotes. Characteristics of eukaryotic transcription factors. Transcription regulatory regions and their interactions.

8th week:
Lecture: Eukaryotic transcription II. Chromatin structure and transcription. Post-transcriptional modifications of RNA, splicing. Additional functions of RNAs.
Principles of signal transduction. Receptors, receptors tyrosine kinases, G proteins, nuclear rceptors. Secondary messengers. Interactions of signalling pathways.
Molecular biology of viruses I. Classification of viruses. The viral replicative cycle. Viral entry in the cells. Coronaviruses.

Self Control Test

9th week:
Lecture: Molecular biology of viruses II. Viral infection and the body's response. Diagnostic approaches. Virus propagation. Clinical

relevances.
Tools and techniques of molecular biology. DNA isolation from cells, characterisation of the purified DNA. DNA modifying enzymes. Recombinant DNA. Ligation of DNA fragments. Plasmid vectors. Steps of DNA cloning. DNA libraries.

10th week:
Lecture: DNA amplification. Oligonucleotides and their synthesis, hybridization. The polymerase chain reaction (PCR). PCR applications in research and in the clinic.
DNA hybridization and sequencing. Principles of nucleic acid hybridization. Southern blotting. In situ DNA hybridization (FISH, CGH). Principles of DNA sequencing: the chain termination technique and next generation sequencing. Genome projects.
Analysis of changes in gene expression. DNA binding of transcription factors. Detection and quantification of mRNAs: gene specific and global approaches. Methods for studying promoter activity.

11th week:
Lecture: Big Data in Molecular Biology. What is data science? Big Data in medical sciences: phenotypes and "omics". Databases. Bioinformatics, genomics, functional genomics. Genome projects.
Protein expression, site-directed mutagenesis. Recombinant protein expression. Expression vectors. Protein expression in prokaryotic and eukaryotic systems. Fusion proteins. Site-directed mutagenesis.
Model organisms I. Comparison of animal models. Murine models of human diseases. Different approaches for mouse genome manipulation.

12th week:
Lecture: Model organisms II. Mouse genome manipulation: classic transgenesis, gene targeting and conditional mutagenesis. Transplantation model systems.
Mikrobiome. The concept of microbiome. Human enterotypes. Fecal transplantation therapy. Bacterial metabolites. Long-term effects of alterations in the microbiome: the connection with diabetes, psychiatric disorders, ageing, cancer.
Genome editing. Concept and types of genome editing. Small changes, insertions, deletions. Genome editing techniques and molecular systems: TALEN, zinc finger, CRISPR-Cas9, etc. Therapeutical genome editing, gene therapy.

13th week:
Lecture: Clinical applications of Molecular Biology. Molecular biology techniques in diagnostics: infectious diseases, molecular characterization of tumors. Therapeutical antibodies, recombinant protein therapeutics. Immune-activating antibodies in cancer therapy. Gene therapy, cell therapy. Regenarative medicine, stem cells. Vaccines.
Self Control Test

14th week:
Lecture: Summary

Requirements

Requirements for signing of the semester: attendance in the seminars. Only those students can get offered grade or take the exam of the theoretical course, who fulfilled the requirements of the practical course as well.

Required knowledge from Molecular Biology: topics of molecular biology presented at the lectures (slides are available at the https://elearning.med.unideb.hu web site, login with your university network ID and password) and topics discussed in the seminars. Attendance on the **lectures** is recommended, but not compulsory. Note that getting the bonus points on the seminars will be very difficult without proper understanding of the material, for which the attendance on the lectures is essential.

On the **seminars**, lectures of the previous week will be discussed. On the seminars 10 bonus points can be collected by the seminar tests. Based on the test results, from 60 % 4 bonus points, from 70 % 6 bonus points, from 80 % 8 bonus points, from 90% 10 bonus points can be collected (please ask for more details from the seminar teachers). The seminar bonus points will be added to the test points collected during the semester, but can't be added to the points of the written exam. In case of the seminars maximum three absences are accepted. We can't accept more absences even with medical paper. Students can't make up a seminar with another group. Seminars are not obligatory for repeaters (if they have got a signature previously). Only those students can collect seminar bonus points, who don't miss more than three seminars (applies repeaters, too).

Control tests: During the semester students can write two control tests from the material of the lectures and seminars. Both tests are composed of 40 multiple choice test questions (each good answer gets 1.25 points). With the two control tests max. 2 x 50 points can be collected. Control tests are not obligatory.

Offered grades: at the end of the semester, on the basis of the collected points, grade will be offered. During the semester 100 (+10) points can be collected by the two control tests of the material of the lectures (2 x 50 points) and by the seminar tests (10 points). Grades: 2 (pass): 60-69.5 points, 3 (satisfactory): 70-79.5 points, 4 (good): 80-89.5 points and 5 (excellent): 90-110 points. Students have to decide to accept the offered grade until the beginning of the exam period. If someone accepts the grade, it will be registered in the Neptun and the grade can be improved once during the exam period. Those who decline the offered grade are obliged to take the exam in the exam period. Semester points will be automatically erased of those students, who break the rules of test writing.

Semester exam: Those students who did not collect 60 points during the semester (or didn't accept the offered grade) have to take a written exam in the exam period. The written exam is composed of 40 multiple choice test questions (each good answer gets 2.5 points). By the test maximum 100 points can be collected. 60% (60 points) is needed to get a passing mark, and the grade increases with every 10 points (60-69.5 pass, 70-79.5 satisfactory, 80-89.5 good, 90-100 excellent). If a student fails the "C" written exam, the department provides him/her a chance to prove his/her knowledge in an oral exam in front of an examination committee. If the student passes the oral exam he/she will be given a grade 2 (pass). The department will provide one examination date per week during the exam period.

Improvement exam: It is allowed to take one improvement exam in the exam period. Both the offered grade and the exam grade can be improved. The policy of the institute is that one may not worsen the already achieved grade.

Exemption from the written part of the final "Biochemistry and molecular biology" exam: Those students who collect at least 210 points during the three semesters taught by the Department of Biochemistry and Molecular Biology and have at least 55 points from each of the three semesters during the course of their Biochemistry and Molecular Biology studies (Molecular Biology, Biochemistry I., Biochemistry II.) will be exempted from the written part of the biochemistry and molecular biology final exam. Only the points collected on the theoretical course of the subject will be included in the point collecting system. Minimum questions of the Biochemistry final exam will also contain basic questions of Molecular Biology.

Please follow the announcements of the department on the announcement table (LSB downstairs 1st corridor), and on the elearning site of the Department (https://elearning.med.unideb.hu), you can login with your university network ID and password.

Subject: **MOLECULAR BIOLOGY PRACTICAL**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Practical: **10**

5th week:
Practical: Introduction practice

6th week:
Practical: Introduction practice

7th week:
Practical: Introduction practice

8th week:
Practical: Protein blotting and immunological identification by specific antibodies.

9th week:
Practical: Protein blotting and immunological identification by specific antibodies.

10th week:
Practical: Protein blotting and immunological identification by specific antibodies.

11th week:
Practical: Studies on phosphatases

12th week:
Practical: Studies on phosphatases

13th week:
Practical: Studies on phosphatases

Requirements

Students will have two practices: "PCR" and "Study of phosphatases". Every laboratory practice have to be performed, if someone is absent due to any serious reason, the missing experiment have to be performed within the three-week practical period joining to another group after obtaining permission from the education official of the department. There will also be a possibility after each three-week period, on Monday afternoon, to do a make-up lab. For this make-up practice students have to be registered until the previous Friday 12 a.m. on email. Students have to prepare notebooks during the practices. By each notebook 5 points can be earned. According to these points, students will get a practice grade at the end of the semester: 0-5.5 points fail; 6-6.5 points pass; 7-7.5 points satisfactory; 8-8.5 points good; 9-10 points excellent. Students have to be prepared for the practices. Please check our elearning site to get more information and check the schedule of the practices (https://elearning.med.unideb.hu). Notebooks can be printed from this website as well! Practical course won't be signed for those students who miss even one practice or don't prepare acceptable notebooks. Practices are not obligatory for repeaters (if they have got at least a pass for the practical course previously). Passing the course "Molecular Biology Practical" is a required condition for obtaining the signature for "Molecular Biology Lecture".

Passing the course "Molecular Biology Practical" is a required condition for obtaining the signature for "Molecular Biology Lecture".

Subject: **ORAL ANATOMY, HISTOLOGY AND EMBRYOLOGY I. LECTURE**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **28**
Seminar: **28**

1st week:
Lecture: General introduction. Epithelial tissue: covering and lining epithelia.
Seminar: Histology: Introduction to histological methods. The microscope and the resolution. Using the virtual microscope: Case Center and Panoramic Viewer. The evaluation and interpretation of histological sections. Always keep in mind: What you can see in the microscope is a thin (almost 2-dimensional) section of a 3-dimensional object. 1. Small intestine (HE)

2nd week:
Lecture: Osteology and arthrology - introduction The muscular system - general introduction. Innervation of the muscles.
Seminar: Histology: Epithelial tissues: simple covering and lining epithelia 1. Mesothelium (mesenterium, Silver impregnation) 2. Endothelium (small intestine, HE stain) 3. Simple squamous epithelium, simple cuboidal epithelium (kidney, HE stain) 4. Simple columnar epithelium with microvilli (small intestine, HE stain) 5. Pseudostratified columnar epithelium ciliated (trachea, HE stain) Demonstration: movement of cilia (video) Make schematic drawings of the epithelial tissues. Identify epithelial tissues on the basis of the distribution and form of nuclei at low-power magnification.

3rd week:
Lecture: Epithelial glands. Connective tissue - part one
Seminar: Histology: Stratified epithelial tissues. l. Stratified squamous nonkeratinizing epithelium (esophagus, HE stain) 2. Stratified squamous keratinizing epithelium (skin, HE stain) 3. Stratified columnar epithelium (urethra masculina, HE stain) 4. Transitional epithelium: urothelium (ureter, HE stain).

4th week:
Lecture: Connective tissue - part two. Clinical aspects - upper limb anatomy.
Seminar: Histology: Glandular epithelium, pigment epithelium l. Sebaceous, sweat and apocrine glands (axillary skin, HE stain) 2. Serous and mucous glands (submandibular gland, HE stain) 3. Serous, mucous glands (sublingual gland, PAS+H stain) 4. Pigment epithelium (retina). 5. Pigment containing cells (skin, methyl-blue) (Classification of exocrine glands on the basis of morphology, mechanism of secretion and their microscopical features, the chemical character of the secretion product. Localization of different types of glands in various organs.)

5th week:
Lecture: Connective tissue - part three. Adipose tissue. Cartilage.
Seminar: Histology: Cells of the connective tissue: 1. Mesenchyme (umbilical cord, HE stain) 2. Fibroblasts (granular tissue, HE stain) 3. Mast cells (healing wound from rat skin, Toluidin blue stain) 4. Macrophages (Skin, Trypan blue - nuclear fast red stain) Demonstration: 1. Plasma cells (lymph node, HE stain) 2. Fibroblasts (tissue culture, H stain)

6th week:
Lecture: Histology of bone. Development and growth of the bone.
Seminar: Histology: Fibers of the connective tissue: 1. Collagen fibers (large intestine, HE stain) 2. Collagen fibers (large intestine, Azan stain) 3. Elastic fibers (aorta, orcein stain) 4. Reticular fibers (liver, silver impregnation) 5. Collagen and elastic fibers (spermatic cord, Van Gieson and Resorcin- fuchsin) Make distinction between collagen and elastic fibers! Fine structure of collagen fibers.

7th week:
Lecture: Muscular tissue - part one Muscular tissue - part two.
Seminar: Histology: Consultation - Basic histological methods. Epithelial and connective tissues.
Self Control Test

8th week:
Lecture: Spermiogenesis. Oogenesis. Structure of the foot.
Seminar: Histology: SELF CONTROL - Basic histological methods. Epithelial and connective

tissue.
Self Control Test

9th week:
Lecture: Fertilization, beginning of the pregnancy. Clinical aspects - lower limb anatomy.
Seminar: Histology: The adipose tissue and the cartilage. 1. Fat cells (skin, Osmium + H stain) 2. Hyaline cartilage (trachea, HE stain) 3. Elastic cartilage (epiglottis, orcein stain) 4. Fibrocartilage (knee joint, HE stain) 5. Fibrocartilage (knee joint, Azan stain) 6. Fibrocartilage and hyaline cartilage (knee joint, toluidin-blue stain) 7. Intervertebral disc (HE stain) 8. White and brown adipose tissue (adrenal gland, HE)

10th week:
Lecture: Gastrulation. The early differentiation of the mesoderm. Histology of the blood vessels.
Seminar: Histology: Histology and development of the bone. l. Cross section of compact bone (Schmorl stain). 2. Longitudinal section of compact bone (Schmorl stain). 3. Intramembranous ossification (skull of a rat, HE stain) 4. Enchondral ossification and the epiphysial plate. (rabbit knee joint, HE stain) 5. Enchondral ossification and the epiphysial plate. (rabbit knee joint, Azan stain) 6. Enchondral ossification and the epiphysial plate (rabbit knee joint, toluidin-blue stain).

11th week:
Lecture: The differentiation of the ectoderm and mesoderm. Blood.
Seminar: Histology: Muscle tissue 1. Striated muscle (HE stain). 2. Striated muscle (iron-H stain). 3. Smooth muscle (large intestine) HE stain. 4. Cardiac muscle (HE stain) 5. Cardiac muscle (PTAH) Demonstration: Electron micrographs of longitudinal sections of striated muscle.

12th week:
Lecture: The differentiation of the entoderm, the folding of the embryo. Bone marrow.
Seminar: Histology: The microscopic structure of blood vessels. 1. Elastic artery (HE stain). 2. Elastic artery (orcein stain). 3. Muscular arteries and veins (HE stain) 4. Large intestine (HE stain) 5. Demonstration: Spermatic cord (van Gieson + resorcin fuchsin stain).

13th week:
Lecture: Fetal membranes. Stages of development: embryonic and fetal periods. Twins. Developmental mechanisms The production of blood cells. (The development of myeloid tissue).
Seminar: Histology: Blood. Bone marrow. 1. Peripheral blood smear (May-Grünwald-Giemsa stain) 2. Bone marrow (HE stain) 3. Sinusoids (Hypophysis, HE stain) 4. Demonstration: Bone marrow smear (May-Grünwald-Giemsa stain) video.

14th week:
Lecture: Development of the skull and the vertebral column Overview of general embryology.
Seminar: Histology: SELF CONTROL - Adipose tissue, cartilage, bone, development and growth of the bone, muscular tissue. The histology of blood vessels, blood and bone marrow, production of the blood cells. Embryology: SELF CONTROL
Self Control Test

Requirements

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

Rules of examinations:

Evaluation of the midterm examinations:
The performance of the students on the midterm examinations will be evaluated on two histology (h1-h2) and one embryology (e1) self-controls. The results of the midterm examinations will be converted into marks in the following ways:

0 – 59%= 1 (fail)
60 – 69% = 2 (pass)
70 – 79% = 3 (satisfactory)
80 – 89% = 4 (good)
90 – 100%= 5 (excellent)

In case of a 2 (pass) or better performance in a self-control the student can choose the obtained mark to be accepted as the grade for the particular part in the End Semester Exam. Students with a fail (1) mark for a given self-control have to sit for that part in the end-semester exam. Students will be examined only from those parts from which they do not have an accepted mark by the end of the semester.

End semester examination:
The final examination consists of oral (anatomy - in the dissecting room) and written (histology, embryology - MOODLE) parts. The exams cover the topics of the lectures, seminars and practicals of both "Oral Anatomy, Histology and Embryology – I" course of the semester and include the relevant material from official textbooks. The first exam is an "A" chance exam.

Oral part
Anatomy (two topics – two marks):
a1. upper and lower limb
a2. skull

If the student has a 4 (good) or 5 (excellent) mark from the "Oral Anatomy, Histology and Embryology – I. Practical" course (earned a "Anatomy Bonus") the examiner will only ask one of the topics on the exam. The topic not asked will be chosen randomly (i.e. the student picks a number between 1 and 2).

Written part
Embryology (one mark): e1
Histology (two marks):
h1: microtechnic, epithelial tissue, connective tissue
h2: adipose tissue, cartilage, bone, bone formation muscle tissue, blood vessels, red bone marrow, blood and development of its formed elements.

The obtained points of the written parts will be converted into marks similarly to the evaluation of the mid semester examinations (see above).

The final ESE mark is calculated as the average of the anatomy, histology and embryology marks (rounded up from x.5 to the nearest integer)

ESE mark = (a1+a2+h1+h2+e1)/5

or

ESE mark = (a1+h1+h2+e1)/4 in case of an “Anatomy Bonus”

Improvement
Improvement of the mark is possible during the regular examination period by repeating all of the oral and written parts of the exam and the ESE mark in this case will be calculated from the new marks. The previous ESE mark will be discarded.

Registration and postponement: Through the NEPTUN system.

Obtaining a valid grade from "Oral Anatomy, Histology and Embryology I. Practical" is needed to get a signature from this subject!

Subject: **ORAL ANATOMY, HISTOLOGY AND EMBRYOLOGY I. PRACTICAL**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Practical: **28**

1st week:
Practical: Anatomy: Anatomy of the upper limb I.
Anatomical terminology, planes and directions. Bones and joints of the upper limb.

2nd week:
Practical: Anatomy: Anatomy of the upper limb II.
Superficial veins, pulse points. Anatomical basis of blood pressure measurement. Cutaneous innervation. Lymphatic drainage.

3rd week:
Practical: Anatomy: Anatomy of the upper limb III.
Thoracohumeral- and spinohumeral muscles. Axillary fossa: brachial plexus, axillary a.v., axillary lymph nodes. Anterior region of arm, scapular region, deltoid region. Posterior region of arm. Cubital fossa. Anterior and posterior regions of forearm. Volar and dorsal carpal regions, carpal tunnel, Guyon’s tunnel.

4th week:
Practical: Anatomy: Anatomy of the lower limb I.
Bones, ligaments and position of the pelvic girdle. Bones and joints of the lower limb. Arches of foot.

5th week:
Practical: Anatomy: Anatomy of the lower limb II.
Superficial veins, pulse points, cutaneous innervation and lymphatic drainage of the upper limb.

6th week:
Practical: Anatomy: Anatomy of the lower limb III.
Femoral a.v. Lumbar plexus. Subinguinal hiatus, femoral canal. Subinguinal region, femoral trigone. Adductor muscles of thigh and obturator canal. Anterior femoral region, adductor canal. Gluteal region. Sacral plexus. Intramuscular injection points in the gluteal region. Posterior femoral region, flexor muscles of thigh. Popliteal fossa. Muscular compartments of the leg, anterior and posterior crural regions. Medial and lateral malleolar regions. Plantar and dorsal regions of foot.

7th week:
Practical: Anatomy: Anatomy of the skull. Classification of the skull. Connections between bones of the skull: sutures, gomphosis, cartilaginous connections. Neurocranium I. Frontal bone. Parietal bone. Occipital bone.

8th week:
Practical: Anatomy: Anatomy of the skull Neurocranium II. Sphenoidal bone. Temporal bone.

9th week:
Practical: Anatomy: Anatomy of the skull. Neurocranium III. Calvaria: sutures, fontanelles. Internal and external cranial base.

10th week:
Practical: Anatomy: Anatomy of the skull Viscerocranium I. Ethmoidal bone. Maxilla. Palatine bone. Vomer. Inferior nasal concha. Lacrimal bone. Nasal bone. Zygomatic bone. Mandible. Hyoid bone.

11th week:
Practical: Anatomy: Anatomy of the skull Viscerocranium II. Orbit. Nasal cavity and paranasal sinuses.

12th week:
Practical: Anatomy: Anatomy of the skull Temporal and infratemporal fossa. Pterygopalatine fossa. Temporomandibular joint.

13th week:
Practical: Anatomy: Revision.

14th week:
Practical: Anatomy: Practical examination.

Requirements

Requirements

Concerning attendance, the rules written in the Regulations Governing Admission, Education and Examinations of the Faculty of Medicine, University of Debrecen are valid. The presence in practices will be recorded. The head of the department may refuse to sign the subject if a student is absent more than three times from practices in the semester even if he/she has an acceptable reason. Compensation of practices is possible only on the same week at another student's group. Altogether, compensation of three practices is allowed.

Rules of the End Semester Examination (ESE)
The exam is an oral examination conducted with the aid of anatomical preparations in the dissecting room, in the time of the practicals on the 14th week. The exam will focus on IDENTIFICATION of gross anatomical structures selected from a list of structures that will be made available for the students in the first week of the semester. The examination is successful in case of 60% or better performance. The successful ESE is converted to grades on the basis of the following scheme of conversion:

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

In case the result of the ESE is 4 (good) or 5 (excellent) the student will earn an “Anatomy Bonus” for the Final Examination of the “Oral Anatomy, Histology and Embryology – I. Lectures” course.

In case the student fails the ESE, the exam can be repeated once in the last week of the semester and once in the exam period. Improvement of the ESE's mark is not allowed.

Details of the practical exam will be published on the e-learning site of the department.

Department of Foreign Languages

Subject: **HUNGARIAN LANGUAGE I/2.**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Practical: **28**

1st week:
Practical: 1. Emlékszel?

2nd week:
Practical: 2. Napirend

3rd week:
Practical: 3. Melyik a jobb?

4th week:
Practical: 3. Melyika jobb?

5th week:
Practical: 4. A testem

6th week:
Practical: 5. Beteg vagyok

7th week:
Practical: 6. Ismétlés a tudás anyja Midterm test

8th week:
Practical: 7. A család

9th week:
Practical: 7. A család

10th week:
Practical: 8. Csak azért is zumbázni akarok

11th week:
Practical: 9. Mit csináltál tegnap?

12th week:
Practical: 9. Mit csináltál tegnap? 10. Hol nyaraltatok?

13th week:
Practical: 10. Vizsga lesz! End term test

14th week:
Practical: Oral exam

Requirements

Requirements of the course:
Attendance

Attending language classes is compulsory. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions.
The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time the attendance is refused.

Testing, evaluation

In each Hungarian language course, students must sit for 2 written language tests and an oral exam. Students must appear at the lecture hall at least 15 minutes before the exam. If students are

late, they are not allowed to write the test.
A further minimum requirement is the knowledge of 200 words per semester divided into 10 word quizzes. There are five word quizzes before and another five after the midterm test. If a student fails or misses any word quizzes he / she cannot take the written test. A word quiz can be postponed by a week and students can take it only with their own teacher. Students can get bonus points (5-5%) by taking two extra quizzes containing 20 sentences each, before the midterm and end term tests. The sentences are taken from the units of the coursebook.

The oral exam consists of a role-play from a list of situations covered in the coursebook. If students fail the oral exam, they fail the whole course. The results of the written tests and the oral exam are combined and averaged.
Based on the final score the grades are given as follows.

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

If the final score of the written tests is below 60, the student can take a written remedial exam once covering the whole semester's material.
Coursebook: See the website of the Department of Foreign Languages: **ilekt.med.unideb,hu.**
Audio files to the course book, oral exam topics and vocabulary minimum lists are also available on the website.

Department of Pediatric and Preventive Dentistry

Subject: **PREVENTIVE DENTISTRY I.**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Seminar: **14**

1st week:
Seminar: The history of prevention. Prevention of dental diseases: importance, aim and possibilities.

2nd week:
Seminar: Normal tissues in the oral cavity, anamnesis, steps of patient's examination.

3rd week:
Seminar: The dental plaque (biofim) and its role in the development of dental diseases

4th week:
Seminar: Caries: clinical signs and symptoms, diagnostic methods

5th week:
Seminar: Diseases of the periodontium, diagnosis and treatment. The prevention of periodontal diseases, aims and possibilities

6th week:
Seminar: The role of oral hygiene in prevention of dental diseases

7th week:
Seminar: Written test

8th week:
Seminar: The role of nutrition in prevention of dental diseases.

9th week:
Seminar: The role of fluoride in prevention of dental caries.

10th week:
Seminar: Fissure sealing

11th week:
Seminar: The effect of environmental and iatrogenic factors on oral health

12th week:
Seminar: Dental health education.

13th week:
Seminar: The measurement of dental caries (caries indices)

14th week:
Seminar: Written test.

Requirements

The aims and objectives of the course
The goal of the course is to provide the students with both an introductory knowledge of the complexities of assessing and addressing disease and prevention at the individual and population level and an understanding of the role of the dental profession in promoting and maintaining oral health.

Short description of the course
Provides an introduction to dental disease, the causes and methods for prevention. An intense focus on dental caries and preliminary information on periodontal disease. Students learn to utilize patient assessment techniques and provide oral health information. The main topics discussed are:

- Application of the basic sciences in maintaining healthy oral tissues.
- The principles and control of dental diseases.
- The etiology, epidemiology and prevention of dental caries.
- Oral hygiene, nutrition and dietary measures, and dental health education as a preventive dental service.
- The metabolic and dental aspects of fluorides in the control of dental caries.
- Preventive aspects of prosthodontics and conservative dentistry
- Oral cancer prevention

Compulsory reading
Harris NO, García-Godoy F: Primary preventive dentistry 6th ed. Appleton & Lange 2004

Recommended reading
Limeback H: Comprehensive Preventive Dentistry. Wiley-Blackwell 2012

Assessment
AW 5 grade

Requirements
Active participation in the seminars is obligatory.
With acceptable written certificate students may miss 2 seminars (there is no possibility to compensate the missed seminars).
The missed seminars must be certified within 3 working days to the Educational Office by e-mail (fokot@dental.unideb.hu)

Course exemption

With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week.

Conditions of signing the lecture book
Two written self-control tests will be held during the semester.
All of the SCTs are obligatory to take and cannot be repeated. The result of the missed SCT is 0%.

Calculation of the grade
5 grade (AW5) practical mark will be calculated according to the average of the result of the SCTs.
If the average of the SCTs is under 60% the result of the course is fail (1) and the student must take an end-semester (oral) exam as a “B” chance.

60-69.9%	pass (2)
70-79.9%	satisfactory (3)
80-89.9%	good (4)
above 90%	excellent (5)

Prerequisites of taking the subject
Odontology

CHAPTER 17
ACADEMIC PROGRAM FOR THE 2ND YEAR

Department of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS I.: DENTAL MATERIALS**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **28**

1st week:
Lecture: Classification of dental materials.
Practical: Information about the practices, lessons and practice tests in general. Rules and regulations during the practice.

2nd week:
Lecture: Plasters used in dentistry. Thermoplastic materials.
Practical: The trial of plasters and thermoplastic materials.

3rd week:
Lecture: Polymers.
Practical: Mechanical testing of dental polymers.

4th week:
Lecture: Plastics used in dentistry.
Practical: Trial of denture base polymers.

5th week:
Lecture: Dental filling materials.
Practical: The trial of dental filling materials.

6th week:
Lecture: Basics about metals. Metals in dentistry. Mechanical testing in dentistry.
Practical: The presentation of casting of metals .Steps of casting process.

7th week:
Lecture: Dental cements I.
Practical: Practical and theoretical test I

8th week:
Lecture: Dental cements II.
Practical: The trial of dental cements.

9th week:
Lecture: Adhesion in dentistry.
Practical: The trial of adhesion and dental adhesives.

10th week:
Lecture: Impression materials.
Practical: The trial of impression materials.

11th week:
Lecture: Basics about ceramics.
Practical: Application of ceramics in practice. Presentation of technical phases of a ceramic fused to metal process.

12th week:
Lecture: Ceramics and tooth colour in dentistry.
Practical: Tooth colour in practice.

13th week:
Lecture: Biocompatibility, corrosion.
Practical: Practical and theoretical test II

14th week:
Lecture: Secondary materials in prosthetics. Consultation.
Practical: Remedial test.

Requirements

The aim of acquiring the professional content of the subject: The aim of course is to introduce students to dental materials and their properties.
Brief course programme: There is a wide spectrum of materials frequently used in dentistry. Therefore, dentists have many options to select materials for every situation and problem. In order to choose the most optimal solution, it is important to be well acquainted with the physical, chemical, and biological behavior of professional materials. The practical lessons provide the possibility to test different materials and to measure their important physical and chemical properties.
Competences: During the course, the students will receive a summary of the materials they come into contact with during their dental activities. You can get to know the physico-chemical parameters, advantages and disadvantages of the materials used in dentistry, and acquire theoretical and practical knowledge about the manipulation, handling and use of dental materials.
Requirements:
The lectures are at the time and place according to the class hours, their visit is not obligatory, but it is recommended. Practical self-control tests will be held before each practices. The aim of the practical self-control tests is to evaluate the students' basic knowledge of the actual weekly topic. The evaluation of a practical self-control test can be 'accepted' or 'not-accepted'. A missed practice means a 'not-accepted' practical self-control test. If the amount of the 'not-accepted' practical self-control tests exceeds 3, the signature will be refused automatically. During the practices wearing a lab coat is compulsory. Conditions of exemption (to repeaters and other special cases): Students who already have been given the signature, may request to be exempted from attending the practices. The request have to be submitted in a paper based form or via e-mail to the Biomaterials and Prosthetic Dentistry Department until the end of the first week of the semester. (demeter.zsofia@dental.unideb.hu) Conditions of signature in the lecture book: The amount of missed practices cannot exceed 3 practices, even if they are certified. All the missed practices must be certified. There is no possibility to compensate for missed practices. Being late for a practice means a missed practice. A missed practice means 'not-accepted' practice automatically, and a 'not-accepted' practical self-control test. All the conditions of signature at Phantom Laboratory Practice is obligatory to get signature in the lecture book.
Assessment:
Oral exam at the end of the semester. Written self-control tests will be held during the semester, according to the time-table at a predefined time and place. Related to the result of these written tests (just 4 or 5) marks will be offered as the final grade of the ESE.

Department of Basic Medical Sciences

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

1st week:
Lecture: Energy in biology. Oxidative phosphorylation. The citric acid cycle and its regulation. The mithocondrial genom.

2nd week:
Lecture: Main pathways of the carbohydrate metabolism, central role of glucose. Absorption and transport of monosaccharides. Carbohydrate metabolism in various tissues. Glycolytic

pathway. Rapoport-Luebering shunt. Energy production of the glycolytic pathway. Non-physiological inhibitors of the glycolytic pathway. Shuttle pathways. Cori cycle. Glucose-alanine cycle. Gluconeogenesis. Substrates of the gluconeogenesis.

3rd week:
Lecture: Regulation of the glycolytic pathway in liver and muscle. Regulation of gluconeogenesis. Glycogen in liver and muscle. Degradation and synthesis of glycogen. Regulation of glycogen synthesis and degradation. Metabolism of galactose and fructose.

4th week:
Lecture: Pentose phosphate pathway. Synthesis of disaccharides. Metabolism of glucuronic acid. Inherited diseases in the carbohydrate metabolism. Biochemistry of diabetes mellitus. Pyruvate dehydrogenase complex.

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

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

7th week:
Lecture: Steroid hormones. Bile acids. Vitamin D. Eicozanoids. Lipid peroxidation. Synthesis of sphyngolipids and phospholipids

8th week:
Lecture: The mevalonate metabolic pathway. Synthesis of cholesterol Cholesterol transport in the body. The LDL receptor and its gene. Excretion of cholesterol. Biochemical explanation of elevated blood cholesterol levels.
Self Control Test

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

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

11th week:
Lecture: Degradation and synthesis of proline. Degradation and synthesis of arginine and ornithine, their precursor functions: NO, creatine, polyamines. Aspartate and asparagine degradation and synthesis in the oxaloacetate pathway. Degradation of amino acids in the succinyl-CoA pathway. The vitamin requirements and enzyme deficiencies in the propionyl CoA succinyl CoA conversion. Degradation of isoleucine and valine, related enzyme deficiencies. Comparison of leucine degradation with the degradation of isoleucine and valine. Degradation of lysine and tryptophane, their precursor functions. Carnitine

synthesis. Degradation of phenylalanine and tyrosine, related enzyme deficiencies and precursor functions. Synthesis and degradation of cathecolamines.

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

13th week:
Lecture: De novo synthesis of pyrimidine nucleotides. Regulation of pyrimidine nucleotide synthesis. Salvage pathways for the pyrimidines. Degradation of pyrimidine nucleotides. Nucleoside and nucleotide kinases. Synthesis of deoxythymidilate. Nucleotide coenzyme synthesis (NAD,FAD,CoA). Antitumour and antiviral action of base and nucleoside analogues. Biochemistry of nutrition. Energy requirement. Basic metabolic rate. Energy content of the food. Energy storage and thermogenesis.
Self Control Test

14th week:
Lecture: Biochemical mechanism of obesity. Protein as N and energy source. N balance. Essential amino acids. Protein malnutrition. Vegetarianism. Clinical aspects of protein nutrition. Carbohydrates and lipids. Pathological mechanisms in obesity. Vitamins. Structure, biochemical functions. Relationship between the biochemical functions and the symptoms of deficiency. Essential inorganic elements of the food (metabolism, function, deficiency). Integrated metabolism.

Requirements

Requirements for signing the semester: attendance in the seminars. Only those students can get offered grade or take the exam of the theoretical course, who fulfilled the requirements of the practical course as well.

Required knowledge from Biochemistry I.: topics of metabolism presented at the lectures (slides are available at the https://elearning.med.unideb.hu website, login with your university network ID and password) and topics discussed in the seminars.

Attendance on the **lectures** is recommended, but not compulsory. Note that collecting points on the seminars will be very difficult without the proper understanding of the material, for which the attendance on the lectures is essential.

On the **seminars** the lectures of the previous week can be discussed. On the seminars 20 points can be collected by the seminar tests. Based on the test results, from 60% 8 points, from 65% 10 points, from 70% 12 points, from 75% 14 points, from 80% 16 points, from 85% 18 points, from 90% 20 points can be collected (please ask for more details the seminar teachers). The seminar points will be added to the total points collected during the semester, but can't be added to the points of the written exam. In case of the seminars maximum three absences are accepted. Further absences can't be accepted even with medical paper. Students can't make up seminars with another group.
Seminars are not obligatory for repeaters (if they have got signature previously). Only those students can collect seminar points, who don't miss more than three seminars (in case of repeaters, too).

Achievements during the semester will be evaluated in terms of points. During the semester 110 points can be collected by the seminar tests (20 points) and by the two control tests from the

material of the lectures (90 points). Control tests consist of all together 72 single- and multiple choice test questions (each for 1.25 points).

Semester points will be automatically erased of those students, who break the rules of test writings. In the first semester grade will be offered on the basis of the collected points for all those students, who collected at least 60 points: pass for 60-69.5 points; satisfactory for 70-79,5 points; good for 80-89,5 points; excellent for 90-110 points. Those students who want to get a better grade, can take an exam. Those, who did not collect 60 points, have to take a written exam in the exam period.

At the written **end-semester exam** 100 points can be collected, the test consists of 40 single- and multiple choice test questions from the lecture material (each question for 2.5 points). 60% (60 points) is needed to get a passing mark, and the grade increases with every 10 points (60-69.5 pass, 70-79.5 satisfactory, 80-89.5 good, 90- excellent). In case of unsuccessful written "C" exam, students will get oral questions, too.

Those students who collect at least 210 points during the three semesters from the three courses (Molecular Biology, Biochemistry I., Biochemistry II.) of the Department of Biochemistry and Molecular Biology and have at least 55 points from each subjects will be exempted from the written part of the final exam at the end of the second semester.

Please follow the announcements of the department about the control tests, exams and other current information on the announcement table (LSB downstairs, 1st corridor), and on the elearning site of the Department (https://elearning.med.unideb.hu, login with your university network ID and password).
Passing the course "Biochemistry I. Practical" is a required condition for obtaining the signature for "Biochemistry I. Lecture".

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

1st week:
Practical: Safety instructions and fire regulations. Introduction to the practices.

2nd week:
Practical: Determination of the activity of glycolytic enzymes (aldolase, LDH), electrophoresis of LDH. Studies on the coupling of mitochondrial electron transport by proton motive force to ATP synthesis.

3rd week:
Practical: Determination of the activity of glycolytic enzymes (aldolase, LDH), electrophoresis of LDH. Studies on the coupling of mitochondrial electron transport by proton motive force to ATP synthesis.

4th week:
Practical: Determination of the activity of glycolytic enzymes (aldolase, LDH), electrophoresis of LDH. Studies on the coupling of mitochondrial electron transport by proton motive force to ATP synthesis.

5th week:
Practical: Usage of medical devices in biochemistry. Bioinformatics I.

6th week:
Practical: Usage of medical devices in biochemistry. Bioinformatics I.

7th week:
Practical: Usage of medical devices in biochemistry. Bioinformatics I.

8th week:
Practical: Studies on transaminases.

9th week:
Practical: Studies on transaminases.

10th week:
Practical: Studies on transaminases.

11th week:
Practical: Evaluation and discussion of the practices. Control test.

Requirements

Every laboratory practices must be performed, if someone is absent due to any serious reason, the missing experiment has to be performed within the three-week practice period joining another group. There will also be a possibility after each three weeks period, on Monday afternoon, to do a make-up lab. Schedule of the practices will be posted on the elearning site of the Department (https://elearning.med.unideb.hu). During the practices students have to prepare notebooks. Students will write a starting test at the beginning of each practice and a final test from the whole material of the practices on the 11th week. According to the points that are collected by the notebooks and practice tests, students will get a practice grade. 60% of the points have to be reached for the acceptance of the course. Practices are not obligatory for repeaters (if they have got the signature and at least a passing grade previously). Passing the course "Biochemistry I. Practical" is a required condition for obtaining the signature for "Biochemistry I. Lecture". You can read more detailed information about the practices on the elearning site of the Department (https://elearning.med.unideb.hu)

Subject: **DENTAL PHYSIOLOGY I. LECTURE**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **45**
Seminar: **28**

1st week:
Lecture: Introductory remarks
Preparation for laboratory practices
Membrane transport mechanisms
Humoral regulation of cell function I.

2nd week:
Lecture:
Electrical properties of the cell membrane
Mechanisms underlying the action potential.
Electrophysiology of cardiac myocyte
Cardiac electrophysiology, ECG

3rd week:
Lecture: Neuromuscular junction. Synapse The autonomic nerves
Basic receptor function. Skeletal and smooth muscle physiology I.
Basic receptor function. Skeletal and smooth muscle physiology II.
Mechanics and contractility of cardiac myocyte

4th week:
Lecture:
The cardiac cycle
Cardiac mechanics
Autoregulation of cardiac output
Neuroendocrine control of cardiac functions

5th week:
Lecture:
Cardiac work and energetics; cardiac failure

Novel results in cardiac physiology
Principles of hemodynamics
Features of arterial circulation
Self Control Test

6th week:
Lecture:
Microcirculation
Lymphatic circulation, venous circulation
Components of vascular tone
Measurement of intracellular Ca2+ concentration

7th week:
Lecture:
Physiology of the body fluids. Homeostasis.
Plasma. Red blood cells.
Jaundice. Blood types.
Hemostasis 1.

8th week:
Lecture:
Hemostasis 2. White blood cells.
Cardiovascular reflexes I.
Cardiovascular reflexes II.
Renal, Humoral and Local Regulation of Circulation

9th week:
Lecture:
Functions of endothelium
Coronary and cerebral circulation
Pulmonary circulation
Splanchnic, cutaneous and skeletal muscle circulation

10th week:
Lecture:
Mechanics of respiration, work of breathing
Gas transport in the blood
Control of breathing
Exercise physiology

Self Control Test

11th week:
Lecture: Circulatory shock
Integrated response of the cardiovascular and respiratory system

13th week:
Self Control Test

Requirements

1. Signature of the semester
Attendance of lectures and seminars is compulsory. The signature of the semester may be refused for the semester in case of more than three absences from the seminars. Completion of a missed seminar with a different group is not possible.
In cases of more than four lecture absences the special advantage is withdrawn (see below).
Each student must attend seminars with the group specified by the Education Office. For continuous updates on all education-related matters, please check the elearning.med.unideb.hu web site (Department of Physiology menu item).
The Dental Physiology I lectures are listed at the elearning.med.unideb.hu web site, too.

2. Evaluation during the semester
The knowledge of students will be tested 3 times per semester in the form of a written test (multiple choice questions). Participation on mid-semester written tests is compulsory. If one wishes to improve on his/her general performance, it is possible to take a make-up (remedial) test on one of the three topics. Note that the calculation of the average score will be based upon the result of the remedial test, even if it is worse than the original score. At the end of the 2nd semester the 1st semester test results will be used to calculate your bonus points. The bonus points are valid only for a given academic year! The calculation of bonus points is detailed at the description of Dental Physiology II.

3. Examination
The first semester is closed by an oral end-semester exam (ESE) covering the topics of all lectures, seminars and laboratory practices of the semester. The list of exam questions is available on the elearning.med.unideb.hu web site (Department of Physiology menu item).

The ESE mark based on the average score of mid-semester tests will be offered if
- one's average score of the three mid-semester tests is above 60%; and
- one's Dental Physiology I. Practical mark is at least satisfactory (3); and
- (s)he has fewer than 5 lecture absences; and
- the Dept. of Physiology verifies the semester (signature of lecture book).

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

score	**mark**
0 – 59 %:	fail
60 – 69 %	pass
70 – 79 %	satisfactory
80 – 89 %	good
90 – 100 %	excellent

- If one is not satisfied with this result, (s)he may participate in ESE during the examination period.
- If one is not satisfied with this result, (s)he may participate in ESE during the examination period.
- If one wishes to improve his/her former Physiology exam mark, it is possible to take improvement exam. Note that the mark of improvement exam depends on the actual actual performance, even if it is worse than the previous result!

Subject: **DENTAL PHYSIOLOGY I. PRACTICAL**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Practical: **42**

1st week:
Practical: Introduction

2nd week:
Practical: 1. Investigation of the cardiovascular functions

3rd week:
Practical: Simulation of the action potential in the squid axon

4th week:
Practical: Computer simulation of the frank-straling-mechanism

5th week:
Practical: Determination of parameters characterising the respiratory functions

6th week:
Practical: Computer aided acquisition and processing of biological signals

7th week:
Practical: Remedial lab

8th week:
Practical: Effects of electrolytes on the uterinal smooth muscle function

9th week:
Practical: Investigation of the endothelial

function on isolated arterial ring

10th week:
Practical: Computer simulation of the humoral regulation of intestinal smooth muscle

11th week:
Practical: Remedial lab

12th week:
Practical: Lab exam

Requirements

1. Signature of the semester
Attendance of laboratory practices is compulsory. The signature of the semester may be refused in case of more than two absences from the practices.
All missed practices must be made up; however this does not reduce the number of absences! Completion of all topic sheets in the Exercise Book, each verified by the signature of the teacher, is also a precondition of the signature of the semester.
Each student must attend on laboratory practices with the group specified by the Education Office. For continuous updates on all education-related maters, please check the elearning.med.unideb.hu web site (Department of Physiology menu item).

2. Evaluation during the semester
None

3. Examination
Laboratory practical knowledge of the students will be tested at the end of the semester as part of the Lab Exam. As a precondition of attending the Lab Exam, the fully completed Exercise Book (with all the verified topics) must be presented during the Lab Exam. Students are expected to perform the given experiment on their own and must be familiar with theoretical background also.

If the evaluation of the Lab Exam is `fail` (1) then the Lab Exam can be repeated once during the exam period. There will be only one date for the improvement of the Lab Exam during the exam period.
Improvement of the successful Lab Exam grade is NOT possible during the regular examination period.

If the final evaluation of the Lab Exam is `fail` (1) then one cannot take Dental Physiology I. end-semester exam (ESE).

If the final evaluation of the Lab Exam is `pass` (2) then Dental Physiology I ESE mark based on the average score of mid-semester tests will NOT be offered even if the average score of the three mid-semester tests is above 60%.

Subject: **ORAL ANATOMY, HISTOLOGY AND EMBRYOLOGY II. LECTURE**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **56**
Seminar: **28**

1st week:
Lecture: Topographical anatomy of the head and neck - part one. Topographical anatomy of the head and neck- part two. Topographical anatomy of the oral and nasal cavities. Anatomy, histology and development of the teeth.
Seminar: Histology: Lip, tongue and salivary glands l. Lip (HE stain). 2. Tongue (filiform and fungiform papillae) (HE stain). 3. Tongue (circumvallate papillae) (HE stain) 4. Parotid gland (HE stain) 5. Submandibular gland (HE stain) 6. Sublingual gland (PAS + H stain)

2nd week:
Lecture: Pharynx. Larynx. Development of the face, and oral and nasal cavities. Development of the pharyngeal gut.
Seminar: Histology: Palate 1. Longitudinal section of palate (HE stain) 2. Longitudinal section of palate (van Gieson stain) 3. Cross section of palate (HE stain) 4. Cross section palate (Azan stain) 5. Overview: types of mucosal membranes in oral cavity.

3rd week:
Lecture: Clinical anatomy of the head and neck-part one. Clinical anatomy of the head and neck-part two. Lymphatic tissue - part one. Lymphatic tissue - part two.
Seminar: Histology: Histology of teeth – part one 1. Longitudinal section of demineralized tooth (HE stain) 2. Longitudinal section of demineralized tooth (Azan stain) 3. Longitudinal section of mineralized tooth (unstained) 4. Longitudinal section of mineralized tooth (Dimethylmethylene blue stain) Overview: structure of enamel, dentin, cementum.

4th week:
Lecture: Lymphatic tissue-part three. The skin. The hypothalamo-hypophyseal system. Hypophysis and epiphysis.
Seminar: Histology: Histology of teeth – part two. Periodontal ligaments, alveolar bone 1. Longitudinal section of demineralized tooth (HE stain) 2. Longitudinal section of demineralized tooth (van Gieson stain) 3. Cross section of demineralized tooth with periodontal ligaments, alveolar bone (HE stain) 4. Cross section of demineralized tooth with periodontal ligaments, alveolar bone (van Gieson stain) 5. Overview: structure of periodontal ligaments, alveolar bone, pulp, gingiva. The tooth support mechanism.

5th week:
Lecture: Thyroid, parathyroid and suprarenal glands. The APUD system. Heart - part one. Heart - part two.
Seminar: Histology: Development of the teeth 1-2. Teeth primordia in the rat's head (HE stain) 3-4. Teeth primordia in the rat's head (Azan stain) 5. Overview: Developmental mechanisms of teeth.

6th week:
Lecture: Heart - part three. Development of the heart - part one. Development of the heart - part two. Trachea and lungs.
Seminar: Histology: Lymphatic tissues 1. Lymph node (HE stain) 2. Palatine tonsil (HE stain). 3. Lingual tonsil (HE stain) 4. Skin (HE stain) 5. Demonstration: Cells of the lymph node (video), thymus (HE stain), spleen (HE stain).
Self Control Test

7th week:
Lecture: Pleura. Development of the respiratory system. Mediastinum. Esophagus. Clinical anatomy of the organs of the thorax. The structure of the abdominal wall.
Seminar: Histology: SELF CONTROL - Histology of lip, tongue, salivary glands, palate, lymphatic tissues, skin, endocrine system. Structure and development of teeth and their supporting tissues.
Self Control Test

8th week:
Lecture: Digestive system - introduction. Development of the primitive gut. Stomach. Small intestines. Large intestine.
Seminar: Histology: Respiratory system 1. Larynx (HE stain) 2. Trachea (HE stain) 3. Lung (HE stain) 4. Demonstration: Lung, the vascular system filled with drawing ink (HE stain).

9th week:
Lecture: Histology of the stomach and the

intetines. Pancreas. Liver - part one Liver - part two. Portal system. Peritoneum. Bursa omentalis.
Seminar: Histology: Digestive system - part one 1. Stomach (HE stain) 2. Stomach (PAS+H stain) 3. Jejunum (HE stain) 4. Colon (HE stain stain) 5. Appendix (HE stain) 6. Demonstration: Esophagus (HE stain), stomach (GEP cells: silver impregnation and immunohistochemical reaction).

10th week:
Lecture: Development of the peritoneum and intestines. Separation of the body cavities. Retroperitoneum. Gross anatomy of the kidneys.
Seminar: Histology: Digestive system - part two 1. Liver from pig (HE stain) 2. Human liver (HE stain) 3. Liver from rat (Trypan blue supravital stain + Nuclear fast red stain) 4. Pancreas (HE stain) 5. Demonstration: Pancreas (GEP cells: silver impregnation and immunohistochemical reaction).

11th week:
Lecture: Structure of the kidneys and urinary system. Development of the urinary system. Topographical anatomy of the wall of the pelvis and perineal region. Male genital organs: testis and epididymis.
Seminar: Histology: Urogenital system - part one 1. Kidney - coronal section (HE stain) 2. Kidney - tangential section (HE stain) 3. Kidney (Vascular infiltration with drawing ink + HE stain) 4. Demonstration: Ureter (HE stain), urinary bladder (HE stain).

12th week:
Lecture: Ductus deferens, spermatic cord, seminal vesicle, prostate, scrotum. Penis. Mechanism of erection. Female genital organs: the ovary. Anatomy of the uterine tube and the uterus. Broad ligament. Vagina.
Seminar: Histology: Urogenital system - part two 1. Testis and epididymis (HE stain) 2. Ovary (HE stain) 3. Demonstration: Prostate (Goldner's stain), ovary with corpus luteum (HE stain).

13th week:
Lecture: Attachment and peritoneal relations of the uterus. Female external genital organs Structure of the uterus and uterine tube Menstrual cycle and its endocrine regulation. Implantation. The pregnant uterus. Placenta - part one.
Seminar: Histology: Urogenital system - part three 1. Uterus - proliferative stage (HE stain) 2. Uterus - secretory stage (HE stain) 3. Placenta (HE stain) 4. Demonstration: Pregnant uterus (HE stain) 5. Overview: Fetal circulation.

14th week:
Lecture: Placenta - part two. Fetal circulation. Development of the blood vessels. Development of the genital organs. Subdivision of the cloaca. Sexual differentiation. Sexual anomalies of genetic and hormonal origin.
Seminar: Histology: SELF CONTROL - Respiratory system, digestive system, urogenital system.
Self Control Test

Requirements

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

Midterm examinations:

Midterm examinations (Self Control Tests) are conducted with the MOODLE system in the time of the Histology Seminars and cover the topics of lectures and seminars of the semester, and include relevant material from official textbooks. The two midterm examinations will cover the following topics:
Histology 1: Histology of the lip, tongue, salivary glands, palate, lymphatic tissue, skin, endocrine system. Structure and development of teeth and supporting tissues.
Histology 2: Histology of the respiratory, digestive and urogenital systems.

Evaluation of the midterm examinations:
Midterm examinations will be evaluated with points. Based on the sum of the points the student may earn 1 “Histology Bonus”.
15 – 20 points= 1 Histology Bonus
0 – 14 points= no Histology Bonus

Final examination (at the end of the 1st semester):
Students can only sign up for the Final examination in the NEPTUN system after passing the “Oral Anatomy, Histology and Embryology II. Practical” course. The Final exam is an oral examination that consists of two parts:

Part 1 – Anatomy + systems embryology (in the Dissecting Room; 3 topics /a1-a3/ from different regions of the human body with the continuous aid of anatomical preparations, and one more systems embryology topic /e1/).
If the student has a 4 (good) or 5 (excellent) mark from the “Oral Anatomy, Histology and Embryology – II. Practical” course (earned 1 or 2 “Anatomy Bonus”) the examiner will ask two topics (in case of 1 Anatomy Bonus) or only one topic (in case of 2 Anatomy Bonuses) on the exam. The topic(s) not asked will be chosen randomly: the student picks (a) number(s) between 1 and 3. The embryology topic cannot be excluded. If the student fails any of the topics the examiner will not ask the remaining topics and the exam will be terminated.

Part 2 - Histology (In the Histology seminar rooms; 2 histology slides /h1-h2/ and 1 general embryology /e2/ topic).
If the student earned a Histology Bonus during the semester the examiner will ask one slide on the exam. The slide not asked will be chosen randomly: the student picks a number between 1 and 2. The embryology topic cannot be excluded. If the student fails any of the topics the examiner will not ask the remaining topics and the exam will be terminated.

The results of Part 1 and Part 2 (7 marks) are evaluated together, thus on the "B" and "C" examinations the student will have to redo all the topics again.

Calculation of the mark for the final examination:
The mark of the final examination is the average of all the marks earned during the exam (rounded up from x.5 to the nearest integer).
The topics not asked because of Bonuses will not be part of the calculation.

Example 1 - (no Anatomy or Histology Bonuses)
Final mark = (a1+a2+a3+h1+h2+e1+e2)/7

Example 2 - (2 Anatomy Bonuses and 1 Histology Bonus)
Final mark = (a1+h1+e1+e2)/4

Improvement:
Improvement of the mark is possible during the regular examination period by repeating all of the oral and written parts of the exam and the ESE mark in this case will be calculated from the new marks. The previous ESE mark will be discarded.

Registration for the examination:
Students are supposed to register for the exam through the NEPTUN system.

Subject: **ORAL ANATOMY, HISTOLOGY AND EMBRYOLOGY II. PRACTICAL**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Practical: **56**

1st week:
Practical: Anatomy: Topographical anatomy of the head and neck I-II. **a**. Topographical anatomy of the head and neck: part one. Surface anatomy: Draw the surface projections and landmarks of the following structures on the cadaver: Head: cutaneous branches of the trigeminal nerve. Branches of the facial nerve on the face and neck. Facial, superficial temporal and external carotid arteries. Retromandibular vein. Parotid gland and parotid duct. Lymph nodes and lymphatic drainage of head. Neck: Triangles of the neck. Superficial veins (ext. jugular vein). Cutaneous branches of the cervical plexus. Position of the hyoid bone, thyroid cartilage, thyroid gland. The carotid sheath (vagina vasorum) and its structures. The site of cricothyrotomy. Surface projection of the apex of the lungs. Relations of the scalene muscles. Lymphatic drainage of the neck. Make schematic drawings of these structures! Incise the skin in the midline and peel off laterally. The incision of the facial skin has to be made from the medial part of the orbit down to the philtrum passing round the nose, then continued through the lower lip to the chin. At the neck region a vertical incision has to be made in the midline, from the base of the mandible to the sternum, and a transversal incision along the clavicle. The skin is to be folded laterally. Attention: Branches of the supraclavicular nerves cross the clavicle! **b**. Dissect the superficial structures: branches of the Vth and VIIth cranial nerves, facial artery and vein, parotid duct, cutaneous branches of the cervical plexus, superficial cervical artery, external jugular vein, triangles of the neck. Careful preparation of the muscles of face. Face: Topography of the parotid gland. Nerves and blood vessels related to the parotid gland. Remove the parotid gland only one side by careful preparation of branches of the facial nerve and blood vessels. Dissection of the frontal and temporal regions. Neck: dissection of the supraclavicular triangle. Spare the sternocleidomastoid muscle.

2nd week:
Practical: Anatomy: Topographical anatomy of the head and the neck: III-IV. **a**. Dissection of the submandibular triangle. Continue the dissection of the frontal, temporal and supraclavicular regions. Cut the sternocleidomastoid muscle. At the side of the intact parotid gland dissect the structures which pierce the gland. The parotid gland itself remains in position. **b**. Carotid triangle and the middle part of the neck. Sulcus lateralis linguae, muscles of the floor of the mouth. Topography of the salivary glands. Dissection of the scalenotracheal fossa. Branches of the subclavian artery. Repetition of the superficial regions of the head and neck.

3rd week:
Practical: Anatomy: Topographical anatomy of the head and the neck: V-VI. **a**. Head: Retromandibular fossa. At the side of the removed parotid gland dissect the alveolar nerve and artery from the mandibular canal and remove that half of the mandible. Cut out the masseter, the external and internal pterygoid muscles by

careful preparation of the structures between the two pterygoid muscles. Preparation of the inferior alveolar nerve, lingual nerve, chorda tympani, maxillary artery, auriculotemporal nerve, middle meningeal artery, stylohyoid, styloglossus, stylopharyngeus muscles, glossopharyngeal nerve. Remove the lateral plate of the pterygoid process of the sphenoid bone. Find the muscles of the soft palate. Overview: blood supply and innervation of the teeth. **b**. Dissection of the nucheal region from the external occipital protuberance to the 7th thoracic vertebra. Occipital artery, muscles of the nucheal region from layer to layer. Identify the suboccipital triangle and its elements. Remove all muscles attached to the occipital bone. Make visible the posterior arch of the atlas and exarticulate the atlantooccipital joint. Cut through the alar ligaments and the apical ligament. Bend the head forward. The head remains connected to the body only through the pharynx and esophagus. In the other cadaver, structures related to the pharynx are dissected. Para- and retropharyngeal spaces.

4th week:
Practical: Anatomy: Topographical anatomy of the head and the neck: VII-VIII. **a**. Open the posterior wall of the pharynx and investigate the related structures. Study the faucial isthmus. Dissection of the larynx in situ: remove the lamina of the thyroid cartilage the one side and dissect the muscles of larynx.**b**. Demonstration of the median section of the head and neck. Conclusion of the dissection of the pharynx and larynx. Make a schematic drawing of the median section of the head. Demonstration of the pharynx, larynx, tongue, palatine and lingual tonsil. Make schematic drawings of these structures. Overview: blood supply and innervation of the oral cavity mucosa, tongue and larynx.

5th week:
Practical: Anatomy: Topographical anatomy of the head and the neck: IX-X. **a**. Repetition of the skull. I. Bones and soft tissue, divisions of nasal and oral cavities. Paranasal sinuses. Repetition of the median section of the head and neck. **b**. Repetition of the skull. II. Anatomy of the teeth. Temporomandibular joint.

6th week:
Practical: Anatomy: CONSULTATION. Trunk. **a**. CONSULTATION: Topographical anatomy of the head and neck. Oral and nasal cavities, pharynx, larynx. **b**. Bones and joints of the thoracic cage and vertebral column. The structure of the thorax and vertebral column. Movements of the thoracic cage. Muscles of the thorax and back.

7th week:
Practical: Anatomy: Thoracic wall. Thoracic cavity I. **a**. Structure of the thoracic wall. Topography of the intercostal spaces. Lymphatic drainage of the breast. Diaphragm. **b**. Divisions of the thoracic cavity. Mediastinum. Surface projections of the thoracic organs. On the anterior thoracic wall draw the following landmarks: projection lines of the heart and its orifices, the auscultation areas of the cardiac valves, margins of the cardiovascular shadow, projections of the lungs, pleurae and pleural recesses. Carefully relate the projections to the position of the sternum and ribs in the schematic drawing! Presentation of radiographs.

8th week:
Practical: Anatomy: Thoracic cavity II-III. **a**. Study of the heart on isolated preparations. Size and position of the heart. Pericardium. External anatomy of the heart. Arteries and veins of the heart. Internal anatomy of the atria and the ventricles of the heart. Types, locations and functions of the heart valves. Layers of the heart wall. The conducting system. Functional aspects of the circulatory system. Pulmonary and systemic circulation. Presentation of radiographs, cardivascular silhouette. **b**. Study the trachea, lungs, pleura and its recesses. Remove the lungs and inspect the surfaces, lobes and hilum. Make schematic drawings of the surfaces of the lungs. Dissect bronchopulmonary segments (in one of the lungs) and bronchial arborization (in an other lung).

9th week:
Practical: Anatomy: Thoracic cavity IV. Abdominal cavity I **a**. Definition and divisions of the mediastinum. Structures of the supracardiac and posterior mediastinum. Presentation of radiographs. Clinical cases. **b.** Demarcate the regions of the abdominal wall and cavity and draw the surface projections of abdominal organs on the cadaver. Muscles of the abdominal wall. Layers of the abdominal wall. Median abdominal and the inguinal regions, inguinal canal. Inspection and identification of the abdominal organs. Compare the surface projections on the body and in your own drawings with the actual positions of the organs. Isolated organs (stomach, small and large intestines, liver, spleen, pancreas). Presentation of radiographs.

10th week:
Practical: Anatomy: Abdominal cavity II-III. **a**. Peritoneum, peritoneal ligaments, omental bursa. Inspection of isolated kidneys. **b**. Topography of the stomach, small and large intestines, liver, spleen, pancreas, kidneys, suprarenal glands. Positions of the lesser and greater omentum, omental bursa, mesentery, transverse mesocolon. Arteries (celiac trunk, superior and inferior mesenteric artery). Portal vein. Discussion of the abdominal lymphatic system.

11th week:
Practical: Anatomy: Abdominal cavity IV-V. **a**. Kidneys, suprarenal glands. Dissection of the kidney, demarcate a lobe of the kidney. Make a schematic drawing of the coronal section of a kidney. Topography and sheaths of the kidney. Layers of the retroperitoneal space. Paired visceral and parietal branches of the abdominal aorta. Inferior vena cava and its branches. Lumbar plexus. **b**. Repetition. Clinical cases.

12th week:
Practical: Anatomy: True pelvis and perineal region I-II. **a**. External genital organs - demonstration. Topography of the organs in the true pelvis (in males). Rectum, prostate. **b**. Topography of the organs in the true pelvis (in females). Ovary, uterine tube, uterus. Demonstration of excised preparations. Blood vessels, peritoneal relations. Broad ligament.

13th week:
Practical: Anatomy: True pelvis and perineal region III-IV. **a**. Perineal region. Structures of the anal region. Ischiorectal fossa. Urogenital region. and external genital organs. Major nerves and blood vessels. External and internal muscles of the pelvic wall. **b**. Inspection of organs and peritoneum after halving of the pelvis in the median plane. Make schematic drawings of the female and male pelvic organs! Placenta. Sacral plexus.

14th week:
Practical: Anatomy: **a**. CONSULTATION: Thoracic cavity, abdominal cavity, pelvis and perineal region. **b**. ESE (End Semester Exam)

Requirements

Concerning attendance, the rules written in the Regulations Governing Admission, Education and Examinations of the Faculty of Medicine, University of Debrecen are valid. The presence in practices will be recorded. The head of the department may refuse to sign the subject if a student is absent more than three times from practices in the semester even if he/she has an acceptable reason. Compensation of practices is possible only on the same week at another student's group. Altogether, compensation of three practices is allowed.

Rules of the End Semester Examination (ESE)
The exam is an oral examination conducted with the aid of anatomical preparations in the dissecting room, in the time of the practicals on the 14th week. The exam will focus on IDENTIFICATION of gross anatomical structures selected from a list of structures that will be made available for the

students in the first week of the semester. The examination is successful in case of 60% or better performance. The successful ESE is converted to grades on the basis of the following scheme of conversion:

0 – 59 %= 1 (fail)
60 - 69 % = 2 (pass)
70 - 79 % = 3 (satisfactory)
80 - 89 % = 4 (good)
90 - 100 % = 5 (excellent)

In case the result of the ESE is 4 (good) the student will earn 1 “Anatomy Bonus”, while if the result of the ESE is 5 (excellent) the student will earn 2 “Anatomy Bonuses” for the Final Examination of the “Oral Anatomy, Histology and Embryology – II. Lectures” course.
In case the student fails the ESE, the exam can be repeated once in the last week of the semester and once in the exam period. Improvement of the ESE's mark is not allowed.

Details of the practical exam will be published on the e-learning site of the department.

Department of Foreign Languages

Subject: **HUNGARIAN LANGUAGE II/1.**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Practical: **28**

1st week:
Practical: 1. fejezet: Emlékszik?

2nd week:
Practical: 1. fejezet: Emlékszik? / Tegezés, Önözés

3rd week:
Practical: 2. fejezet: Tegezés - Önözés

4th week:
Practical: 3. fejezet: Élelmiszerek 1.

5th week:
Practical: 4. fejezet: Élelmiszerek 2.

6th week:
Practical: 5. fejezet: Étkezések, étteremben 1.

7th week:
Practical: 6. fejezet: Étkezések, étteremben 2.

8th week:
Practical: 7. fejezet: Összefoglalás, midterm test

9th week:
Practical: 8. fejezet: A városban 1.

10th week:
Practical: 9. fejezet: A városban 2.

11th week:
Practical: 10. fejezet: Édes otthon 1.

12th week:
Practical: 11. fejezet: Édes otthon 2.

13th week:
Practical: 12. fejezet: Összefoglalás

14th week:
Practical: Oral exam

Requirements

Requirements of the course:

Attendance

Attending language classes is compulsory. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions.
The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time the attendance is refused.

Testing, evaluation

In each Hungarian language course, students must sit for 2 written language tests and an oral exam. Students must appear at the lecture hall at least 15 minutes before the exam. If students are late, they are not allowed to write the test.

A further minimum requirement is the knowledge of 200 words per semester divided into 10 word quizzes. There are five word quizzes before and another five after the midterm test. If a student fails or misses any word quizzes he / she cannot take the written test and have to take a vocabulary exam that includes all 100 words before the midterm and end term tests. A word quiz can be postponed by a week and students can take it only with their own teacher. Students can get bonus points (5-5%) by taking two extra quizzes containing 20 sentences each, before the midterm and end term tests. The sentences are taken from the units of the coursebook.

The oral exam consists of a role-play from a list of situations covered in the coursebook. If students fail the oral exam, they fail the whole course. The results of the written tests and the oral exam are combined and averaged.
Based on the final score the grades are given as follows.

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

If the final score of the written tests is below 60, the student can take a written remedial exam once covering the whole semester's material.
Coursebook: See the website of the Department of Foreign Languages: **ilekt.med.unideb,hu.**
Audio files to the course book, oral exam topics and vocabulary minimum lists are also available on the website.

Department of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS II.: INTRODUCTION TO THE FIXED PROSTHODONTICS**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **28**

1st week:
Lecture: Basics of gnathology. The connection of gnathology with prosthodontics. Articulators. Basics of mounting of the casts into articulators.
Practical: Discussion about the subject, and the practical work. Examination of the casts and drawing on the casts. Demonstration of wax up.

2nd week:
Lecture: Occlusion and articulation in natural dentition. Occlusal theories related to prosthodontics.
Practical: Wax-up of 34, 35 guiding cusps

3rd week:
Lecture: Jaw relations. Positions of the mandible.
Practical: Wax-up of 34, 35 supporting cusps

4th week:
Lecture: Mandibular movements
Practical: Wax-up of 36 all cusps

5th week:
Lecture: Introduction into fixed prosthodontics. Fixed prosthesis
Practical: Wax-up of 14, 15, 16 all cusps

6th week:
Lecture: Instruments used for tooth preparation. General aspects of tooth preparation.
Practical: Instruments of tooth preparation. Practice with handpieces. Setting of the mannequin

7th week:
Lecture: Preparation of molars and premolars.
Practical: Tooth preparation. Lower molar. Silicon index.

8th week:
Lecture: General aspects of tooth preparation (full veneer crown).
Practical: Tooth preparation. Lower molar. Silicon index.

9th week:
Lecture: Preparation of incisors and canines.
Practical: Tooth preparation. Lower molar. Silicon index.

10th week:
Lecture: Preparation mistakes in practice
Practical: Tooth preparation. Lower molar. Silicon index.

11th week:
Lecture: Clinical phases of crown fabrication I. history taking, patient examination, study cast.
Practical: Tooth preparation. Upper incisor. Silicon index.

12th week:
Lecture: Clinical phases of crown fabrication II. Framework try-in, biscuit probe, cementation.
Practical: Tooth preparation. Upper incisor. Silicon index.

13th week:
Lecture: Centric relation determination for fixed prosthesis.
Practical: Tooth preparation. Upper incisor. Silicon index.

14th week:
Lecture: Consultation
Practical: Tooth preparation. Upper incisor. Silicon index.

Requirements

The aim of acquiring the professional content of the subject:
The aims of the subject are to introduce students to basics of gnathology and the tooth preparation for single crown restorations.

Brief course programme:
During the course students learn about the basics of gnathology, the occlusal morphology of

premolar and molar teeth, the use of articulators, and the basic preparation rules required for single crown restorations.

Competences:
The students will be able to build up the occlusal morphology of molar and premolar teeth and will understand the occlusion theories. The practical work makes students capable of performing the basic tooth preparation for full veneer crowns in preclinical conditions.

Requirements of the subjects:
Lectures and practices according to the timetable of the subject
Active attendance during practices is required.
The amount of absences cannot exceed two practices.

Assessment: End semester exam (ESE), electronic (tablet) test
The exams (‘A’ ‘B’ or ‘C’) held during the exam period are written (tablet) tests.
Oral exam will be held only on the „C” chance exam, in case the student fails the written (tablet) exam.
The grades of the exams, will be calculated as the following:

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

Department of Anatomy, Histology and Embryology

Subject: **NEUROBIOLOGY LECTURE**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **52**
Seminar: **2**

1st week:
Lecture: Macroscopic anatomy of the central nervous system – Introduction I.
Macroscopic anatomy of the central nervous system – Introduction II.
Macroscopic anatomy of the central nervous system – Introduction III.
Macroscopic anatomy of the central nervous system – Introduction IV.

2nd week:
Lecture: Histology of the nervous system – I.
Histology of the nervous system – II.
Structure of the cerebral cortex.
General features of neurons and glial cells.

3rd week:
Lecture: Neuronal excitatory processes, role of ion channels.
Axonal transport: degeneration and regeneration in the central nervous system.
Ultrastructure and molecular architectures of synapses I.
Ultrastructure and molecular architectures of synapses II.
Practical: Histology: I. Peripheral nerve, neuroglia, ganglia, enteral plexus.

4th week:
Lecture: Synaptic function: vesicular release.
Synaptic regulation, pre-, and postsynaptic mechanisms, synaptic plasticity

Basic forms of neuronal interaction in the central nervous system.
Neuronal integration, EEG.
Practical: Histology: II. Cerebellum, thalamus, basal ganglia

5th week:
Lecture: Consultation lecture
Metabolism of the central nervous system – I.
Metabolism of the central nervous system – II.
Development of the central nervous system – neurohistogenesis. Parts of the nervous system
Practical: Histology: III. Cerebral cortex (neocortex, archicortex)

6th week:
Lecture: Development of the brainstem and spinal cord.
Development of the diencephalon and telencephalon.
Neurogenesis. Neuronal migration
Programmed cell-death, genesis and elimination of synapses

7th week:
Lecture: Sensory functions of the spinal cord; receptors, primary afferents.
The somatosensory system.
The viscerosensory system.
Physiology of sensory functions and skin sensation.

8th week:
Lecture: Pain sensation and itch
Structure of the acoustic and vestibular system I.
Structure of the acoustic and vestibular system II.
Physical basis of sensory functions I. (Wave-actions)
Practical: Histology: IV. Spinal cord, brainstem.

9th week:
Lecture: Mechanisms of hearing and vestibular sensation
Structures of the eye and the retina.
Physical basis of sensory functions – II. (optics)
Retinal mechanisms of vision.
Practical: Histology: Inner ear

10th week:
Lecture: Eye movements, optical reflexes, basic mechanisms of color vision.
Central processing of visual information.
Taste and olfaction I.
Taste and the olfaction II.
Practical: Histology: Eye, palpebra, lacrimal gland

11th week:
Lecture: Somatomotor functions of the spinal cord. The neuromuscular endplate, spinal cord motor apparatus.
Spinal cord reflexes, proprioceptive and nociceptive reflexes.
Role of brainstem is motor coordination.
Roles of the basal ganglia and cerebral cortex in the coordination of movements.

12th week:
Lecture: Vegetative system: peripheral and brainstem vegetative mechanisms.
Hypothalamic functions.
The limbic system.
Monoaminergic system; motivation reward, addiction, regulation of behaviour.

13th week:
Lecture: Sleep, wakefulness, attention, mechanisms of circadian rhythm.
Learning, memory, speech.
New results in neurobiology I.
New results in neurobiology II.

14th week:
Seminar: Discussion of lecture material.

Requirements

In the frame of Neurobiology Lecture Course lectures and seminars of neurohistology and neurophysiology are held.
It is compulsory to attend seminars. Signature of the semester may be refused in case of more than

one absence from neurophysiology seminars or more than two absences from neurohistology seminars.

For the lectures, the actual timetable and venue, as well as the lecture handouts can be found on the following webpage: https://elearning.med.unideb.hu.
Neurohistology seminars will be held in the Histology rooms of the Department of Anatomy. Neurophysiology seminars will be held on the 11th-14th weeks for General Medicine students, at the same time and same venue as the Physiology Seminars. It is compulsory to attend seminars. Rules of making up the neurohistology seminars are identical with the Anatomy Course I-II. Courses, whereas completion of neurophysiology seminars with a different group is not possible.
It is obligatory to attend the seminars in the group assigned by the Education Office.
Upon request, students are obliged to present personal ID prior to the practices.

There are no mid-semester exams in the course.

End-semester examination:
The semester is closed by an end-semester exam that consists of all materials of Neurobiology lectures, seminars and practicals. Registration to the exam is only possible with a successfully completed Neurobiology Practical exam.
The exam consists of a written test and an oral part.

For the written test, a total of 60 points and, for the oral exam, maximally 20 points (10+10) can be obtained.

Regarding the oral exam, the main emphasis is on recognizing and identifying macroscopic structures. The student chooses a single pre-combined complex topic which has two questions (questions with a list of related structures are available at: https://elearning.med.unideb.hu). The passing limit for each question is 6 points. Should the student fail on one of the questions, the oral exam is terminated and the other question will not be discussed.
Regarding the written test, all topics of the lectures, practicals and recognizing histological specimen will be subjected - the written test will be conducted using the Moodle system.

The final result of the exam is „fail" if either the written test or the oral exam does not reach the 60% passing limit (for the written test: 36 points, for the oral exam: 12 points). The final mark is calculated as the sum of points according to the following scheme:

0 – 59,9 %(0-47 points): fail (1)
60 – 69,9 % (48-55 points): pass (2)
70 – 79,9 % (56-63 points): satisfactory (3)
80 – 89,9 % (64-71 points): good (4)
90 – 100 % (72-80 points): excellent (5)

Provided that one of the two parts of the exam, i.e. either the written test or the oral exam, is NOT successful, at the remedial only the unsuccessful part needs to be completed.

Improvement of the mark is possible during the regular examination period by repeating both the written test and the oral exam while the previous mark will be erased. Both written and oral parts should be repeated in the improvement exam.

Subject: **NEUROBIOLOGY PRACTICAL**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Practical: **38**

1st week:
Practical: Dissecting Room: Anatomy: Dissection of the brain – Part I. Demonstration of surface structures of cerebral hemispheres, meninges, cisterns, structure of the calvaria, blood supply of the brain

2nd week:
Practical: Dissecting Room: Anatomy: Dissection of the brain – Part II. The structures and the position of the lateral ventricles.

3rd week:
Practical: Dissecting Room: Anatomy: Dissection of the brain – Part III. Flechsig'scut, basal ganglia, diencephalon, third ventricle

4th week:
Practical: Dissecting Room: Anatomy: Dissection of the brain – IV. Structures of the brainstem, cerebellar peduncles. Coronal sections of the brain – I.

5th week:
Practical: Dissecting Room: Anatomy: Dissection of the brain – Part V. Fourth ventricle, rhomboid fossa, circulation of cerebrospinal fluid. Cerebellum.

6th week:
Practical: Dissecting Room: Anatomy: Dissection of the brain – VI. Coronal sections of the brain – II. Spinal cord.

7th week:
Practical: Dissecting Room: Anatomy: Dissection of the brain – In situ I.
Demonstration: trigeminal nerve, trigeminal ganglion; facial nerve

8th week:
Practical: Dissecting Room: Anatomy: Dissection of the brain – In situ II.
Demonstration of the oculomotor, trochlear, abducent, glossopharyngeal, vagus, accessory and hypoglossal nerves.

9th week:
Practical: Dissecting Room: Anatomy: Consultation – I.

10th week:
Practical: Dissecting Room: Anatomy: Sensory organs – I. Structures of the ear, n. VIII.

11th week:
Practical: Dissecting Room: Anatomy: Sensory organs – II. Structures of the eye and orbita

12th week:
Practical: Dissecting Room: Anatomy: Consultation – II.
Practice Hall of Dept. of Physiology: Examination of the cranial nerves.

13th week:
Practical: Dissecting Room: -
Practice Hall of Dept. of Physiology: Examination of somatosensor and motor system.

14th week:
Practical: Practical exam

Requirements

It is compulsory to attend the laboratory practices. Signature of the semester may be refused in case of more than 3 absences from all of the practices held in the dissection- and histology rooms of the

Department of Anatomy and the practice hall of the Department of Physiology. Completion of all topic sheets in the exercise book is obligatory, that is verified by the signature of the teacher, is also a precondition of the signature.

For the practices, the venues are the dissection rooms and histology rooms of the Department of Anatomy and the Practice Halls of the Department of Physiology.
Rules of making up the practices taking place in the section room are identical with practices of Anatomy Course I-II.
Practices in the Department of Physiology are held on the 12th-14th weeks for Dentistry students.
Completion of the practices in the Department of Physiology are verified by completion of all topic sheets of the Exercise Book of Physiology and by signature of the practice teacher after each practice sheets. In case of lacking completed and signed Exercise Book, the end-semester signature can be refused.
Missed Neurobiology practices in the Department of Physiology must be made up in the frame of remedial practices. However, in the case of absolute necessity, one might try to join the practice of a different group; but before this happens, the student must get the permission of his/her lab teacher. There is absolutely no possibility to attend the practices of a different group without the permission of your own lab teacher. The actual timetable and venue of the practices can be found on the following webpage: https://elearning.med.unideb.hu.
It is obligatory to attend the practices in the group assigned by the Education Office.
Upon request, students are obliged to present personal ID prior to the practices.

End-semester examination:
The semester is closed by a practical exam that consists of all materials of Neurobiology practicals.

The exam consists of two parts, in which the neuroanatomical and neurophysiological knowledge of the student is tested. Both parts should be completed with at least pass, and the average of the two exams will be the final grade of the Practical Exam.

Regarding the neuroanatomy part, the main emphasis is on recognizing and identifying macroscopic structures. The first task is to identify 10 structures selected by the examiner from a minimal structure list (available for the students at: https://elearning.med.unideb.hu).
The final mark is calculated as the sum of points according to the following scheme:

10 identified structures: 5 (excellent)
9 identified structures: 4 (good)
8 identified structures: 3 (satisfactory)
7 identified structures: 2 (pass)
6 or less identified structures: 1 (fail)

Regarding the neurophysiology part, the student has to demonstrate the knowledge of practical materials of the Practical Hall of Department of Physiology. The student has to complete one randomly chosen simulation or diagnostical practice as it was achieved by students during the semester. As a precondition of attending the Closing Lab, the fully completed Exercise Book (with all the verified topics and signed front page) together with a photo ID must be presented during the Closing Lab. Students are expected to perform the given experiment on their own and must be familiar with theoretical background also.

In case of unsuccessful practical exam, the student can repeat the practical exam two times (on the 14th week and in the exam period at a time indicated by the Department of Physiology. There is no remedial exam in case of successful practical exam.

Besides the compulsory and recommended literature, lecture materials uploaded to https://elearning.med.unideb.hu also help students preparing for the Practical Exam

Department of Basic Medical Sciences

Subject: **BIOCHEMISTRY II.**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **48**
Seminar: **22**

1st week:
Lecture: Gene expression I: Levels of eucariotic gene expression. The active chromatin. Regulation of transcription. Regulation at the mRNA level.

2nd week:
Lecture: Gene expression II: Translational regulation. Posttransational events. Gene therapy. Biochemistry of cell proliferation I: Mitotic cascade. M-phase kinase. Products and biochemical function of protooncogenes. Mechanism of oncogene formation.

3rd week:
Lecture: Biochemistry of cell proliferation II: Tumor suppressor genes and their biochemical function. Biochemical features of terminal differentiation. Biochemistry of programmed cell death.

4th week:
Lecture: Signal transduction I: Signal Term and levels of regulation. Significance and interrelationship between metabolic, cytokine, hormonal and neuronal regulation. Forms of external signals. Receptors and transducers. Systems increasing the sensitivity of regulation: allosteria, substrate cycle, interconversion cycle, cascades. Signalling pathways of nonpenetrating signals. Ionchannel receptors. Seven transmembrane domain receptors G proteins and GTP-ases. The adenylate cyclase and the phospholipase C signalling pathway. G proteins and GTP-ases. The adenylate cyclase and the phospholipase C signalling pathway. Control of enzyme activity. Other phospholipases. cGMP phosphodiesterase system. Signalling via one-hydrophobic domain proteins: the cGMP system. Coupling of tyrosin kinase receptors to the signalling pathways, raf, MAP kinases. Metabolic effects of insuline.

5th week:
Lecture: Signal transduction II: Cell death receptors. Signals acting via cytoplasmatic targets: the NO system. Coupling of signalling pathways to the regulation of genes and to the actin filament movement. Nuclear receptors. Signal crosstalks.
Iron and hem metabolism I: Iron transport, storage and distribution in the human body. Molecular regulation of the iron level in cells: stability of transferrin receptor and ferritin mRNA, IRE binding protein. Risk of the free iron and intracellular hemolysis.

6th week:
Lecture: Iron and hem metabolism II: Uroporphynoids, hem-proteins. Synthesis of hem, regulation of the synthesis in eukariotic cells. Degradation of hem: formation, conjugation and excretion of bile pigments. Hem oxygenase. Disorders in hem metabolism. Hemolobine and inflammation: Biochemistry of the blood. Metabolism of red blood cells.

Genetic diseases leading to haemolysis. Hemoglobin; structure, function and regulation. Pathological forms of hemoglobin. Specific biochemical reactions of leukocytes. Leukocytes and inflammation. Serum proteins.
Self Control Test

7th week:
Lecture: Biochemistry of blood clotting I: Cellular, humoral and vascular aspects of blood clotting. Structure, activation, adhesion and aggregation of thrombocytes. Classification of blood clotting factors and their role. Factors depending on vitamin K. Contact phase of blood coagulation. Blood clotting in the test tube and in the body.

8th week:
Lecture: Biochemistry of blood clotting II: Classification of blood coagulation. Role of thrombocytes and the vascular endothel. Limiting factors inhibitors and activators of blood coagulation. Fibrinolysis.
Biochemistry of the liver I: Biotransformation.

9th week:
Lecture: Biochemisry of the liver II: Biochemical consequences of ethanol consumption. Biochemistry of the sport: Biochemistry of the cytoskeleton. Proteins of myofibrils. Molecular mechanism for the generation of force. Metabolic fuel of muscle. Metabolism of muscle in various work load. Effect of exercise. Special metabolism of the muscle.

10th week:
Lecture: Biochemistry of the extracellular matrix: function and components. Glucosaminoglycans and proteoglycans. Collagens: structure, function and genetic origin. Synthesis of type I. collagen. Macromolecular organization of collagen monomers. Disorders in the synthesis of collagen. Collagenases. Structure and function of elastin. Elastase. Structure and functional domains of fibronectins. Plasma and tissue fibronectins, genetic background: alternative splicing. Receptors of fibronectins: integrins and other type of receptors. Role of fibronectins. Other adhesion proteins (laminin, entactin, thrombospondin, von Willebrand factor, tenascin, etc).
Neurobiochemistry I: Blood-brain barier and the transport processes in the CNS

11th week:
Lecture: Neurobiochemistry II: Metabolical processes in the CNS, synthesis of neurotransmitters. Enzymathic processes in the production and degradation of neurotransmitters. Metabolism of the central nervous system, energy prodocing pathways of neurons.

12th week:
Lecture: Neurobiochemistry III: Biochemical background of Alzheimer disease and bichemical bases of its therapy. Dentist biochemistry: Molecular determinant of tooth development. Molecular determinants expressed during molar tooth development. Cytodifferentiation during tooth development. Odontoblast differentiation. General interpretation of interactions of mesenchymal cytodifferention for epithelial cells. Growth factors and hormone-like molekules influence dentin and enamel biomineralization. Function of salivary gland, salivary secretation and its neural and hormonal control, signal transduction pathways. Functions of salivary proteins. Biochemical mechanism of plaque and salivary calculus formation
Composition of saliva: inorganic, organic and macromolecules. Saliva-bacterium interactions in oral microbial ecology. Pathobiochemical effects of salivary molecules degradation.
Self Control Test

Requirements

Requirements for signing the semester: attendance in seminars.
Required knowledge from Biochemistry II.:topics of cell- and organ biochemistry presented at the lectures (slides are available at the https://elearning.med.unideb.hu website, login with your

University ID and password) and topics discussed in the seminars.

Attendance on the **lectures** is recommended, but not compulsory. Note, that getting the points on the seminars will be very difficult without proper understanding of the material, for which the attendance on the lectures is essential.

On the **seminars** the lectures of the previous week can be discussed. On the seminars 20 points can be collected by the seminar tests. Based on the test results, from 60% 8 points, from 65% 10 points, from 70% 12 points, from 75% 14 points, from 80% 16 points, from 85% 18 points, from 90% 20 points can be collected (please ask for more details the seminar teachers). The seminar points will be added to the total points collected during the semester, but can't be added to the points of the written exam. In case of the seminars maximum three absences are accepted. Further absences can't be accepted even with medical paper. Students can't make up seminar with another group. Seminars are not obligatory for repeaters (if they have got signature previously). Only those students can collect seminar points in this semester, who don't miss more than three seminars. There is no practice in this semester.

Achievement during the semester will be evaluated in term of points. During the semester 110 points can be collected by the seminar tests (20 points) and by the two control tests from the material of the lectures (90 points). Control tests consist of all together 72 single- and multiple choice test questions (each for 1.25 points).

Semester points will be automatically erased of those students, who break the rules of test writings. Those students who finally reach 65 points in this semester, will get 10 exam bonus points, those who reach 75 points will get 16 exam bonus points that will be added to the results of the written part of the exam.

Those students, who reaches at least 210 points during the three semesters (Molecular Biology, Biochemistry I., II.), will be exempted from the written part of the final exam (for this exemption at least 55 points must be collected separately in each semester).

Final exam. The final exam consists of a written and oral part. The written exam consists of single- and multiple choice test questions: 25 questions from "Cell- and organ biochemistry" and 5 questions from "Dentist biochemistry" (each question for 3.33 points). On the written exam maximum 100 points can be earned. Oral exam can be taken only if the student collects at least 60% (60 points) in the written part. The successful result of the written part is valid for the "B" and "C" exams. In case of unsuccessful written "C" exam, students will get oral questions, too.
The oral part of the examination starts with two short „starting" questions of „molecular biology" and a question about a basic „medical orientation problem" (containing questions connected to basic metabolism as well). The „starting" questions have to be answered immediately. After properly answering the „starting" questions, students will have two theoretical questions (from cell- and from organ biochemistry). Questions of the oral examination will posted on the website of the department at the end of the semester.

Please follow the announcements of the department on the announcement table (LSB downstairs 1st corridor), and on the elearning site of the Department (https://elearning.med.unideb.hu, login with your university network ID and password)

Subject: **DENTAL PHYSIOLOGY II.**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **30**
Seminar: **26**

1st week:
Lecture:
Neural regulation of gastrointestinal functions
Endocrine and paracrine regulation of gastrointestinal functions
Secretion of saliva, chewing, swallowing

2nd week:
Lecture:
Motor functions of the gastrointestinal tract
Exocrine functions of stomach, pancreas, liver and intestines
Absorption of nutrients

3rd week:
Lecture:
Food intake and its regulation
Energy balance, Regulation of body temperature
Quantitative description of kidney functions

4th week:
Lecture:
Glomerular filtration
Tubular transports
Urinary concentration & dilution
Self Control Test

5th week:
Lecture:
Water-balance, osmoregulation
Control of body fluid volume
Acid-base balance

6th week:
Lecture:
Acid-base disturbances, Calcium homeostasis I.
Calcium homeostasis II; Physiology of bone
K+-homeostasis, Micturition

7th week:
Lecture:
General principles of endocrinology
Hypothalamus-pituitary system , Growth hormone
The thyroid gland

8th week:
Lecture:
The hormones of adrenal cortex
The hormones of adrenal medulla
The hormones of pancreatic islets

9th week:
Lecture:
Regulation of pancreatic islet function
General principles in the regulation of gonadal functions
Female & Male gonadal functions
Self Control Test

12th week:
Self Control Test

Requirements

1. Verification of the semester
Attendance of lectures and seminars is compulsory. The signature of the semester may be refused in case of more than three absences from the seminars. In cases of more than four lecture absences these special advantages are withdrawn (see below). Completion of a missed seminar with a different group is not possible.
Each student must attend on seminars with the group specified by the Education Office. For continuous updates on all education-related maters, please check the elearning.med.unideb.hu web site (Department of Physiology menu item).

The Dental Physiology II lectures are listed at the elearning.med.unideb.hu web site, too.

2. Evaluation during the semester
The knowledge of students will be tested 3 times during the 2nd semester in the form of a written test (multiple choice questions). Participation on mid-semester written tests is compulsory and the results of all mid-semester tests will be presented to the examiner during the final exam. During this semester there will be no remedial test. We do not provide any possibilities to improve or make-up for missed tests.

3. Examination
The second semester is closed by the final exam (FE), which is composed of a written test plus an oral section, covering the topics of all lectures, seminars and laboratory practices of the full academic year. The result of the exam is failed if the student fails either on the written part or on the oral part. The list of exam questions is available on the elearning.med.unideb.hu web site (Department of Physiology menu item).

- If one wishes to improve his/her former Physiology exam mark, it is possible to take improvement exam. Note that the mark of improvement exam depends on the actual actual performance, even if it is worse than the previous result!

Depending on the average result of the self-controls of 2021/2022 academic year, the following special advantages are granted:
The average score of the six mid term SCTs (three in the first term and three in the second semester) is calculated. (If one took the end-semester examination, the calculation of his/her average is detailed below.)

a). If the average score is 80% or higher, there is no need to take the written part of the final exam, and only the oral examination will be performed.
b). If the average score is between 70% and 80%, 10 bonus points will be added to the result of the written part of the final examination.
c). If the average score is between 60% and 70%, 5 bonus points will be awarded.

These special advantages are withdrawn
- if the signature of the semester is refused; or
- in cases of more than four lecture absences.
- If the result of the written examination together with the bonus points does not reach the 60% limit, the examination attempt will be regarded as a failed exam, without giving the chance to perform the oral part.

If one took the end-semester examination during the 2021/2022 academic year, the mark of the oral exam is converted into percentage scores in the following way (each 1st term self-control will be replaced with these percentage scores):
- If the examination was attempted because no score could be offered (i.e. one had to take the exam): 2: 65%; 3: 75%; 4: 85%; 5: 95%.
- If one had an offered grade and it was improved, then the conversion is: 2: 69%; 3: 79%; 4: 89%, and 5: 100%.

Department of Foreign Languages

Subject: **HUNGARIAN LANGUAGE II/2.**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Practical: **28**

1st week:
Practical: Emlékszel?

2nd week:
Practical: Testrészek

3rd week:
Practical: Tünetek

4th week:
Practical: Gyógyszerek

5th week:
Practical: Klinikák és szakorvosok

6th week:
Practical: Lassítsunk egy kicsit

7th week:
Practical: Összefoglalás, Midterm test

8th week:
Practical: Szoktál kanapészörfölni?

9th week:
Practical: Jó és rossz szokások

10th week:
Practical: Instrukció

11th week:
Practical: Tessék mondani!

12th week:
Practical: Anamnézis

13th week:
Practical: Összefoglalás, End term test

14th week:
Practical: Oral exam

Requirements

Attendance

Attending language classes is compulsory. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions. If they miss 6 occasions, the final signature may be refused and the student must repeat the course.

The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time the attendance is refused.

Testing, evaluation

In each Hungarian language course, students must sit for 2 written language tests and an oral exam. Students must appear at the lecture hall at least 15 minutes before the exam. If students are late, they are not allowed to write a test.

A further minimum requirement is the knowledge of 200 words per semester divided into 10 word quizzes. There are five word quizzes before and another five after the midterm test. If students fail or miss any word quizzes they cannot start their written test and have to take a vocabulary exam that includes all 100 words before the midterm and end term tests. A word quiz can be postponed by a week and students can take it only with their own teacher. Students can get bonus points (5-5%) by

taking two extra quizzes containing 20 sentences each, before the midterm and end term tests. The sentences are taken from the units of the coursebook.

The oral exam consists of a role-play from a list of situations covered in the coursebook. If students fail the oral exam, they fail the whole course. The results of the written tests and the oral exam are combined and averaged.

Based on the final score the grades are given as follows.

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

If the final score of the written tests is below 60, the student can take a written remedial exam once covering the whole semester's material.

Coursebook: See the website of the Department of Foreign Languages: **ilekt.med.unideb,hu.**

Audio files to the course book, oral exam topics and vocabulary minimum lists are also available on the website.

CHAPTER 18
ACADEMIC PROGRAM FOR THE 3RD YEAR

Department of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS III.: PROPEDEUTICS OF TOTAL AND PARTIAL REMOVABLE DENTURES**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **37**

1st week:
Lecture: Anatomical and final impression taking. Clinical anatomy
Practical: Impression taking in the phantom lab.

2nd week:
Lecture: Functional cast
Practical: Clinical anatomy. Planning the borders of the denture.

3rd week:
Lecture: Centric relation position
Practical: Video of a final impression and CR's measurement.

4th week:
Lecture: Total denture's try-in. Total denture's correction. Instructing patients with dentures.
Practical: Practice of final impression.

5th week:
Lecture: Reasons and consequences of tooth loss. Classification of the RPD
Practical: Measuring the centric relation.

6th week:
Lecture: Parts of the RDP, and their function
Practical: Repeater practice.

7th week:
Lecture: Support and anchorage of the denture.
Practical: Repeater practice.

8th week:
Lecture: Clasp retention, casted clasps
Practical: Try-in denture.

9th week:
Lecture: Clinical phases of the RDP fabrication I
Practical: Impression taking for RPDs.

10th week:
Lecture: Clinical phases of the RDP fabrication II
Practical: Total renture's try-in. Total denture'S correction at the first control appointment.

11th week:
Lecture: Combined dental prosthesis I
Practical: Planning of an RPD on a cast. Factors of RPD's planning.

12th week:
Lecture: Combined dental prosthesis II
Practical: Repeater practice.

13th week:
Lecture: Broken denture reparation
Practical: Repeater practice.

14th week:
Lecture: Consultation
Practical: Repeater practice.

Requirements

The aim of acquiring the professional content of the subject: The aim of the course is to provide knowledge on removable dentures, and to enable students to perform the clinical phases of removable dentures on a basic level during their 4th year complex practices.
Brief course programme: During the course, students will learn to use impression materials in the fabrication of removable dentures, as well as learn about materials used in removable cases.
Students will learn the clinical phases of removable dentures including treatment planning, patient examination and clinical phases. They also receive training on how to deliver dentures, on patient instruction and on how to communicate with patients.
Competences: The student gains competence to treat simple totally and partially edentulous cases including treatment planning.
Requirements:
* Attendance of lectures is highly recommended, attendance of practices is compulsory. For information about time and place please see the timetable.
* The ratio of missed practices cannot exceed 20 %. All the missed practices must be certified.
* There is no possibility to compensate for missed practices.
* Practical work will be evaluated at the end of each practice separately, as ‘accepted’ or ‘not-accepted’. Certain practices will be evaluated with five grade marks, ‘fail’ (1) grade automatically means ‘not-accepted’ practice. The number of accepted practices must be above 50% of all practices.
* A missed practice is ‘not-accepted’.
* Two written or oral self-control tests will be held during the semester in the 8th and 14th week. The result of a missed self-control is ‘fail’(1). Missed self-control tests cannot be made up.
* The ESE grade will be offered - from 4.00 as good (4), from 4.51 as excellent (5) - based upon the result of the two self-controls and the grades received on the practices.
The offered grade will be calculated in the following form:
(average result of practical grades + grade of the 1st SCT + grade of the 2nd SCT)/3.
The average result of practical grades will be rounded from x.71, rounded down below x.71).
* Students who have not achieved an offered grade, or achieved, but have not accepted it, will take an exam in the exam period. Students must indicate the acceptance or rejection of the offered grade in the Neptun system. Students who would like to improve their offered grade in the exam period must reject the offered grade in the Neptun system before applying for an exam.
During the semester the student's performance will be evaluated at least twice (in the 6th and 12th week). If the student's performance does not reach the required level, the student will receive a documented notification of her/his poor performance. If the student's performance in the 12th week is still unsatisfactory, the subject's lecturer will notify the head of the department
Assessment: End of semester exam (ESE) covering the topics of lectures and practices. A topic list will not be issued. The exam starts with an online entrance test. Students must complete this test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is “failed” (1).

Subject: **ODONTOTECHNOLOGY I.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **10**
Practical: **37**

1st week:
Lecture: Custom tray, functional cast
Practical: Introduction to the instruments, occupational safety. Custom tray fabrication.

2nd week:
Lecture: Tooth setup. Denture processing
Practical: Occlusal rims fabrication

3rd week:
Lecture: Clasp retention
Practical: Mounting into articulator

4th week:
Lecture: Laboratory phases of partial removable denture I
Practical: Tooth setup

5th week:
Lecture: Laboratory phases of partial removable denture II
Practical: Denture processing

6th week:
Lecture: Broken denture reparation
Practical: Denture processing

7th week:
Lecture: Combined dental prosthesis I
Practical: Polishing / Cast fabrication

8th week:
Lecture: Combined dental prosthesis II
Practical: Surveying / Pre-duplicating

9th week:
Lecture: Combined dental prosthesis III
Practical: Duplicating

10th week:
Lecture: High-tech in dentistry
Practical: RPD's wax pattern

11th week:
Practical: Spruing / Investing

12th week:
Practical: RPD metal framework processing

13th week:
Practical: RPD metal framework finishing / Polishing

14th week:
Practical: Broken denture fixing

Requirements

The aim of acquiring the professional content of the subject:
To introduce students to the technology of basic removable dentures. Students get acquainted with the technology of basic removable denture fabrication, as well as with materials, techniques and methods used in dental technology. They enrich their knowledge by gaining theoretical and practical experience.

Brief course programme:
In the frame of the course students will be familiarised with the technology of removable denture fabrication. During the practices, students will learn and practice the steps of the removable denture fabrication.

Competences:
Students will be able to perform basic odontotechnological steps, processes and understand their theoretical background.

Requirements:
Attendance of lectures is highly recommended but not compulsory. Active participation in the

practices is required. There is no possibility to compensate for missed practices. All absences must be certified. The amount of missed practices cannot exceed 2 practices.

Exam: AW5

Method of assessment: AW5 grade based on the result of the practical and theoretical tests.
The practical and theoretical tests will be held according to the conditions announced in the first week of the semester. The signature will be refused, if the student's practical performance does not meet the requirements.

Department of Basic Medical Sciences

Subject: **CLINICAL BIOCHEMISTRY I.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **8**
Practical: **6**

1st week:
Lecture: 1. Introduction: pathobiochemistry, clinical chemistry, laboratory diagnostics
2. Different levels of laboratory diagnostics (reference values, requesting test, interpretation of results)

2nd week:
Lecture:
3. Laboratory aspects of investigating human disorders
4. Pathochemistry and laboratory signs of cell damage

8th week:
Practical: Hematology I. Bood collection, anticoagulants. Preparation of a blood smear, staining.

11th week:
Lecture: 5. Blood group serology, biochemistry, inheritance, antigens and antibodies of AB0 blood group system
6. Biochemistry, inheritance, antigens and antibodies of Rh blood group system and its clinical significance. Compatibility testing.

12th week:
Lecture:
7.Other blood group system (Kell, Kidd, Duffy, MN, Ss, Ii). Regulation of transfusion
8. Blood products.

Practical: Determination of AB0 and Rh blood groups.

13th week:
Practical: Detection of irregular antibodies, antibody screening, compatibility testing.

Requirements

Participation in practices is obligatory. In case of further absences practices should be made up for by attending the practicals with another group on the same week, or a medical certificate needs to be presented. Please note that strictly only a maximum of 2 students are allowed to join another group to make up for an absence.

Requirements for signing the Lecture book: The Department may refuse to sign the Lecture book if the student is absent from practices. The materials of Clinical Biochemistry subject are uploaded on

the e-learning website (www.elearning.med.unideb.hu)
Assessment: At the end of the first and second semester there is a written examination (test) assessed by a five grade evaluation.

Requirements for examinations: The examination is based on the lecture and practical material (Practicals in Laboratory Medicine, eds.: János Kappelmayer and László Muszbek, 2016) as well as the relevant chapters from the textbook of William J. Marshall: Clinical Chemistry (8th edition, 2017).

Subject: **DENTAL MICROBIOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **28**
Practical: **28**

1st week:
Lecture: 1. The science of microbiology. Major groups of microorganisms. Prokaryotic taxonomy and cell structure.
2. Morphology and physiology of bacteria. Bacterial genetics. Pathogenesis and infection.

Practical: Laboratory safety instructions. Sampling. Bacterial morphology.

2nd week:
Lecture: 3. Host defenses against bacteria.
4. Immunization, vaccines.

Practical: Culture and identification techniques.

3rd week:
Lecture: 5. Principles of chemotherapy I.
6. Principles of chemotherapy II.
Practical: Sterilization and disinfection.

4th week:
Lecture: 7. Gram positive cocci (Staphylococcus, Streptococcus).
8. Gram positive rods (Corynebacterium, Lactobacillus).
Practical: Determining the sensitivity of bacteria to antibiotics.

5th week:
Lecture: 9. Neisseria, Bordetella, Actinobacillus.
10. Actinomyces, acid fast bacteria (Mycobacterium, Nocardia).
Practical: Spirochaetes.

6th week:
Lecture: 11. Anaerobic bacteria.
12. Development of the oral microflora.
Practical: The oral microflora.

7th week:
Lecture: 13. The dental plaque.
14. Dental caries.
Practical: Enterobacteriaceae.

8th week:
Lecture: 15. Periodontal diseases.
16. Dentoalveolar infections.
Practical: Diagnosis of viral infections.

9th week:
Lecture: 17. The structure and classification of viruses.
18. Replication strategies of viruses.
Practical: Viral infections of relevance to dentistry I.

10th week:
Lecture: 19. Host defences against viruses.
20. Virus vaccines, antiviral drugs.
Practical: Viral infections of relevance to dentistry II.

11th week:
Lecture: 21. Hepatitis viruses.

22. Herpesviruses.
Practical: Infection control in dentistry.

12th week:
Lecture: 23. Adenoviruses, poxviruses.
24. Picornaviruses, viral enteritides.
Practical: Diagnosis of fungal infection.

13th week:
Lecture: 25. Human immunodeficiency virus.
26. Human tumour viruses.
Practical: Protozoal diagnostic methods, chemotherapy of protozoal infections.

14th week:
Lecture: 27. Fungal structure. Candida
28. Antifungal drugs. Protozoa
Practical: Case reports of infections with dental importance

Requirements

Participation in the practical courses is obligatory. The Department may refuse to sign the students' Lecture book if they are absent from more than two practices or seminars in a semester. At the end of the semester the student is required to take a final examination (consisting of a written entry test and an oral examination) based on the whole material (lectures, practices and book) taught in the Dental Microbiology course.

Subject: **DOSIMETRY, RADIATION HEALTH EFFECTS**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Seminar: **24**

1st week:
Seminar: Types and origin of ionizing radiation
Interactions of charged particles with matter

2nd week:
Seminar: Interactions of electromagnetic radiation with matter
Detection of X-ray, gamma and beta radiation by inducing light

3rd week:
Seminar: Gas ionization detectors
Dose concepts and dosimeters

4th week:
Seminar: Consultation: physics of ionizing radiation
How to use dosimeters (practice)

5th week:
Seminar: Biological effects of radiation
Forms of radiation injury

6th week:
Seminar: Constituents of population dose
Radiation protection rules, dose limits

7th week:
Seminar: How to work with unsealed radioactive preparations?
Protection against external radiation

8th week:
Seminar: Classification and equipment of workplaces applying ionizing radiation
How to work with X-ray devices?

9th week:
Seminar: Radiation protection of patients
Consultation: radiation biology and protection

10th week:
Seminar: Operations in case of nuclear/radiological incidents bookkeeping
Supervision by the authorities

11th week:
Seminar: Radiation protection in a CT lab
Demonstration of the radiation protection system

12th week:
Seminar: Requirements for staffing

Consultation, exam
Self Control Test

Requirements

Attendance of at least 75% of the seminars. Usable understanding of the basic physical phenomena, the concepts of radiation effects and protection, as well as the regulations and practical solutions is required.
Chance "A" is a computer-based exam. Chance "B" and "C" are oral.
Electronic materials:
https://elearning.med.unideb.hu/course/view.php?id=707

Subject: **GENERAL PATHOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **28**
Seminar: **14**
Practical: **28**

1st week:
Lecture: -Introduction to anatomical pathology. Macropsy, autopsy-Surgical pathology: Methods and reporting
Practical: Introduction

2nd week:
Lecture: -Adaptation on cellular level-Morphology of the reversible cell injury and cell death (swelling, fatty change and necrosis)
Practical: 1. Acute myocardial infarction (coagulation necrosis) 2. Gangrene in the lower leg 3. Fat necrosis in the pancreas4. Caseous necrosis (lymphadenitis tuberculosa)

3rd week:
Lecture: - Abnormal glycogen and protein accumulation. Storage diseases. Amyloidosis. Pigments.- Oedema. Hyperemia. Congestio. Shock.
Practical: 5. Fatty change in the liver 6. Fatty change in the liver (lipid staining) 7. Atheromatous plaque 8. Cholesterolosis in the gallbladder 9. Atrophia brunea cordis

4th week:
Lecture: - Haemorrhage. Thrombosis. Embolism. DIC. - Morphological patterns of acute inflammatory response.
Practical: 10. Simple endometrial hyperplasia 11. Atrophia endometrii et myometrii 12. Nodular hyperplasia in the prostate 13. Bile stasis in the liver due to extrahepatic bile duct obstruction

5th week:
Lecture: - The role of macrophages in inflammation. Granulomatous inflammation. Amyloidosis. - Tissue regeneration. Reparation and wound healing. Calcification.
Practical: 14. Amyloidosis (Kongó staining) 15. Arterias thrombus 16. Necrosis of the small bowel due to incarceration 17. Hemorrhagic infarct in the lung

6th week:
Lecture: - Dysplasia, preneoplastic conditions. - Characteristic of benign and malignant tumors.

Differentation and anaplasia.
Practical: 18. Pulmonary edema 19. Nutmeg liver 20. Appendicitis acuta suppurativa 21. Meningitis purulenta

7th week:
Lecture: - Characteristics of tumor cell populations (clonality, heterogenity and progression). - Tumor dignity. Proliferation. Grading and staging.
Practical: 22. Bronchopneumonia with lung abscess 23. Septic abscesses in the myocrdiumban due to systemic fungal infection (PAS staining) 24. Chronic non-specific salpingitis 25. Foreign body granuloma

8th week:
Lecture: - Prognostic and predictive tumor markers. -Mechanisms of local and distant tumor spread. Angiogenesis.
Practical: 26. Keratoachantoma 27. Condyloma 28. Bowen's disease 29. Invasive cervical cancer

9th week:
Lecture: - The biology of tumor growth. Heredity in cancer. - Opportunistic infections. Systemic effects of neoplasia.
Practical: 30. Signet ring cell carcinoma in the stomach (PAS) 31. Krukenberg type ovarian metastasis (PAS) 32. Liver metastasis 33. Teratoma adultum (cysticum) ovarii 34. Leiomyoma

10th week:
Lecture: -Mono-, and polyclonal disorders. - Immunodeficiencies. Tuberculosis.
Practical: 35. Allergic vasculitis 36. Polyarteritis nodosa 37. End stage lesion in Burger's disease 38. Gouty tophus

11th week:
Lecture: - Humoral and cellular immunopathological mechanisms. - The pathology of transplantation. Autoimmunity.
Practical: 39. Polymiositis 40. SLE lymphadenopathy 41. Chronic synovitis (Rheumatoid arthritis) 42. Rheumatoid nodule (Rheumatoid arthritis)

12th week:
Lecture: - Systemic autoimmune diseases (SLE, Sjögren, RA, SS).- Vasculitis.
Practical: 43. Gaucher's disease 44. Toxoplasma lymphadenitis 45. Chronic lyphocytic leukemia (CLL) 46. Follicular lymphoma (FL)

13th week:
Lecture: - Pathology of the lymphatic system. - Malignant lymphomas, lymphoid leukaemias.
Practical: 47. Diffuse large B-cell lymphoma (DLBCL) 48. Gastric lymphoma (MALT type) 49. Hodgkin's disease (HL) 50. Myelofibrosis

14th week:
Lecture: - AML. Chronic myeloproliferative disorders. - Myelodysplasia. Anaemias. Pigments.
Practical: Repeating practice

Requirements

Pathology I-II.

Learning stuff:
Textbook: Robbins' Basic Pathology, 10th Edition (Elsevier)
Lectures: PPT slides of all lectures (uploaded for the actual week)
Practicals (weekly packages):
- **histopath slides**
- **macro preps**
- **topic-wise supporting content**

Test bank: continously available from the e-learning site
Downloadable material: https://elearning.med.unideb.hu Department of Pathology

Validation of Semester:

- Histopathology and macro pathology (autopsy) classes are compulsory.
- Participation should be warranted electronically right before the class using the barcode based mobile approach.
- Missing of two practical classes (histo and macro pathology together) is tolerable.
- Intracurricular replacement of histo and/or macro pathology classes is possible on the same week.

Examination:

1st semester (Pathology 1): **End of Semester Examination** (ESE)
2nd semester (Pathology 2): **Final exam** (FE).

The Exam consists of: online test, practical exam and oral test.

Written and practical exams (proposed timing):

Pathology theory test (week 13):
- The test bank of the written pathology test can be found on the departmental E-learning website
- 85% is to be reached for pass.
- In the 2nd semester the questions comes from the 1st and the 2nd semester

Histopathology exam (computerized - week 14):
- The computerized histopathology exam consisted of 6 microscopic slides with related questions.
- Digital slides and learning material public on the E-learning and http://histopractice.med.unideb.hu/casecentersite.
- 85% correct answers are required for pass.
- In the 2nd semester exam slides come from the 1st and 2nd semester.

Macro practical exam (autopsy room - week 14):
- This practical exam takes place in the autopsy room.
- Oral presentation and interpretation of macro preparations is expected.
- 1-5 grades. Grade 2 (pass) is required for the successful exam.

Pass of all 3 exams are required for entry to the ESE and FE.
Any failed test is to be repeated on the exam day before starting the oral part

Oral exam:

Oral presentation and discussion of topics chosen from the topic list.
ESE: Two randomly chosen 1st semester topics to be presented.
FE: Three randomly chosen topics (one from the 1st semester, and two from the 2nd semester).

The knowledge of students is judged on the five-grade evaluation scale (1-5 grades).

During the oral exam fail on any (possible) substation (written, practical, oral) means termination of the chance. The exam must be repeated from the part that failed.
During improvement exam only the oral exam topics must be repeated (the student can get worse grade than the previous one or possibly can fail).

For further information: http://pathol.med.unideb.hu
https://elearning.med.unideb.hu

Subject: **IMMUNOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Seminar: **28**

1st week:
Seminar: Elements of the immune system. The structure of lymphoid tissues, primary and secondary lymphoid organs.

2nd week:
Seminar: Components and cells of the innate response. Characteristics and function of the innate immune response.

3rd week:
Seminar: Antigen presentation, The polimorphism of MHC molecules, structure and function of proteins encoded by the major histocompatibility (MHC) gene complex.

4th week:
Seminar: T-lymphocytes. T cell types.

5th week:
Seminar: B-lymphocytes. An introduction to antibody structure and function.

6th week:
Seminar: Inflammation and the acute phase response. Mucosal immune system.

7th week:
Seminar: Naive and effector T cells. Functions of T-lymphocytes.

8th week:
Seminar: Antigen-dependent differentiation of B-lymphocytes.
Self Control Test

9th week:
Seminar: The development of immunological memory. Immunotolerance. Tumor immunology, tumor immunotherapy.

10th week:
Seminar: The immune response to intracellular pathogens. The immune response to extracellular pathogens. Oral inflammatory diseases..

11th week:
Seminar: Hypersensitivity reactions, allergy.

12th week:
Seminar: Mechanisms of the development of autoimmune diseases.

13th week:
Seminar: Oral manifestation of autoimmunse diseases.

14th week:
Seminar: The molecular basis of antigen recognition by B and T-lymphocytes. B and T cell development.
Self Control Test

Requirements

Signing of the Lecture Book:
Participation in the Seminars is compulsory. The Department shall refuse to sign the students' Lecture book if he/she is absent from more than three seminars during semester. However, students can make up for a missed seminar with another group; yet, only on the same week. Making up for a seminar should be communicated to both seminar teachers prior to the seminar.
Self control tests (SCTs), offered grades, end-term exam:
During the semester two self control tests (SCT) will be organised (weeks 8 and 14).
The first SCT contains the material of seminars on weeks 1-7. To ensure a solid basic knowledge of immunology, students must score higher than 60% to qualify for the 2nd SCT, hence for an offered

grade.
The 2nd SCT contains the material of seminars on week 8-13.
If a student's score for the first SCT is higher than 60% and is higher than 50% for the 2nd SCT, she/he will be offered a grade. Should student accept this offered grade, she/he will be exempted from the end-term exam.
The offered grades are calculated by the following algorithm, based on the cumulative percentage points of the two SCTs (i.e. 200 points maximum).
110 - 139: pass (2)
140 - 159: satisfactory (3)
160 - 179: good (4)
180 - 200: excellent (5)
Those students who have not qualified for an offered grade must take the end-term exam during the exam period. The end-term exam consists of a written and an oral part.
"A" exam: To qualify for the oral part of an "A" exam, students must score higher than 70% on the written (entry) exam. Students who score less than 70% on the written part will fail (thus, the oral exam will not take place).
"B" exam: "B" exams are identical to "A" exams except when the student failed the oral, but not the written, part of the "A" exam. With a score of higher than 70% on the written part of the "A" exam, the student is exempt from the written exam on the "B" exam.
"C" exam: "C" exams are oral exams only, without a written entry test.
Those students who would like to improve the grade of a successful ("A" or "B" exam) or do not accept the offered grade, are also exempted from the entry test.
The list of exam topics is available on the departmental website (www.elearning.med.unideb.hu).
Lecture materials and other information concerning education can be found on our website at www.elearning.med.unideb.hu.

Department of Foreign Languages

Subject: **MEDICAL HUNGARIAN I.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Practical: **28**

1st week:
Practical: Introduction, orientation

2nd week:
Practical: The tooth / A fog anatómiája

3rd week:
Practical: The oral cavity / A szájüreg anatómiája

4th week:
Practical: Numbering / A fogak számozása

5th week:
Practical: Dental materials / Fogászati anyagok

6th week:
Practical: Dental tools / Fogászati eszközök

7th week:
Practical: Dental specialists / Fogászati szakterületek

8th week:
Practical: MIDTERM ORAL TEST

9th week:
Practical: Dental problems / Fogak betegségei, tünetek

10th week:
Practical: General history taking / Általános anamnézis

11th week:
Practical: Dental history taking / Fogászati anamnézis

12th week:
Practical: Instructions / Utasítások a betegnek

13th week:
Practical: Complaints / Panaszok

14th week:
Practical: End term oral exam, evaluation, grades

Requirements

Requirements of the course:
Attendance

Attending language classes is compulsory. If a student late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions.

The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time the attendance is refused.

Testing, evaluation

In each Medical Hungarian language course, students must sit for 2 oral exams. A further minimum requirement is the knowledge of 200 words per semester divided into 10 word quizzes. There are five word quizzes before and another five after the midterm test. If a student fails or misses any word quizzes he / she cannot take the midterm and end term exams. A word quiz can be postponed by a week and students can take it only with their own teacher.

The oral exam consists of a role-play from a list of situations covered in the coursebook. If students fail the oral exam, they fail the whole course.
Based on the final score the grades are given as follows.

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

Coursebook: See the website of the Department of Foreign Languages: **ilekt.med.unideb,hu.**
Audio files to the course book, oral exam topics and vocabulary minimum lists are also available on the website.

Department of Operative Dentistry and Endodontics

Subject: **ORAL BIOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **14**
Seminar: **14**

1st week:
Lecture: Craniofacial development
Seminar: Film on craniofacial development

2nd week:
Lecture: Amelogenesis
Seminar: Written test

3rd week:
Lecture: Dentinogenesis.
Seminar: The fibres and extracellular matrix in calcified dental tissues

4th week:
Lecture: Pain due to dentin sensitivity
Seminar: Dentin permeability

5th week:
Lecture: Tooth displacement, jaw remodelling
Seminar: Cementogenesis

6th week:
Lecture: Eruption
Seminar: Discussion of the eruption

7th week:
Lecture: Development of the dental pulp. Pulp matrix
Seminar: Blood and nerve supply to the pulp

8th week:
Lecture: The salivary glands
Seminar: Composition of saliva

9th week:
Lecture: The gingival crevice. Gingival crevicular fluid (GCF)
Seminar: Dental plaque and calculus

10th week:
Lecture: Temporomandibular joint (TMJ)
Seminar: Discussion of the TMJ

11th week:
Lecture: Mastication and deglutition
Seminar: Speech

12th week:
Lecture: Oral mucosa. Oral sensation
Seminar: Taste

13th week:
Lecture: Nutrition in relation to Oral Biology. Vitamins
Seminar: Metabolism of fluoride. Toxic effects of fluoride

14th week:
Lecture: Theories of ageing. The ageing mouth
Seminar: Effects of ageing in relation to the mouth (hard and soft tissues, oral functions)

Requirements

Requirements for signing the lecture book:
The seminars start and finish in accordance with the timetable, arriving late is not allowed. Students are required to stay at the premises of the seminar from the beginning to the end of the class.
Missed classes cannot be more than 1 out of the total seminar classes.
A certification is required for any absences which has to be handed to the leader of the seminar course.
Missed seminar classes cannot be made up for.
During the semester, in accordance with the course requirements there is 1 written test. Missed test result in a fail (1) grade.
The results of the written test impact on the outcome of the end of semester exam.
Examination: at the end of the semester.
Materials for exam preparation: official lecture book, lectures and materials of the seminars.
Course exemption
With previously obtained valid signature the attendance exemption of the practices can be requested

till the end of the first week (email: konzervalo@unideb.hu).
Requirements for taking up the subject:
Odontology, Dental Physiology II, Oral Anatomy, Histology and Embryology II. Lecture

Subject: **RESTORATIVE DENTISTRY PROPEDEUTICS I. (CARIOLOGY)**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **56**

1st week:
Lecture: Dental caries characteristics, hystopathology. Caries and cavity classification, nomenclature. Basic rules of cavity preparation
Practical: Subject, aims and methods of propedeutics. Labour health regulations and rules of the Phantom lab. Handing out the instruments. Introduction of Fantom head. Practice in drilling. Positions

2nd week:
Lecture: Class I. cavity preparation for amalgam restoration. Lower and upper premolars and molars
Practical: Introduction of dental materials. Mixing, insertion and usage of the dental materials in practice

3rd week:
Lecture: The protective role of liners and bases. Amalgam restorations in cavity class I. cases. Finishing, polishing of amalgam restorations
Practical: Preparation of cavity class I. for amalgam restoration with mirror using technique

4th week:
Lecture: Preparation of cavity class V., VI. for amalgam restoration. Lower and upper premolar and molar cases. Amalgam restorations in cavity class V., VI. cases
Practical: Placement of liners and bases. Amalgam restoration in cavity class I. case

5th week:
Lecture: Preparation of cavity class II. for amalgam restoration. Lower and upper premolar and molar cases
Practical: Finishing, polishing of amalgam restorations. Preparation of cavity class V. for amalgam restoration

6th week:
Lecture: Matrices, retainers, wedge placement. Separation of the teeth. Amalgam restorations in cavity class II. cases
Practical: Written exam I.
Removal of amalgam restorations. Preparation of cavity class II. for amalgam restorations with mirror using technique. Matrices and retainers. Placement of guttapercha based temporary restoration

7th week:
Lecture: Composites. Adhesive technique. Adhesion on the enamel and dentin surface
Practical: Removal of gutta-percha based temporary restoration. Placement of amalgam in cavity class V. and II. cases

8th week:
Lecture: Preparation of cavity class III., IV., V. for composite restorations. Lower and upper incisor, canine cases
Practical: Preparation of cavity class III., IV., V. for composite restorations

9th week:
Lecture: Preparation of cavity class I., II., VI. for composite restorations. Lower and upper premolar molar cases
Practical: Preparation of cavity class I., II., IV. for composite restorations

10th week:
Lecture: Composite restoration in cavity class III., IV. V cases

Practical: Composite restoration in cavity class III.,V.

11th week:
Lecture: Composite restoration in cavity class I., II., VI. cases
Practical: Written exam II.
Composite restoration in cavity class I., II.

12th week:
Lecture: Preparation for composite restorations. Conventional, modified conventional, and minimal invasive preparation techniques
Practical: Composite restoration in cavity class IV.

13th week:
Lecture: Self control test
Practical: Insertion of temporary restorative material. Cavity preparation in real tooth, removal of the caries. Introduction of Supermat matrix system

14th week:
Lecture: Registration of dental status. Making a problem orientated treatment plan. Consultation
Practical: Practical exam

Requirements

Examination: Five grade (AW5) practical grade evaluation.

Materials for exam preparation: official lecture book, lectures and materials of the practicals. Requirements for signing the lecture book:

• During the semester one written test will be held in lecture time in accordance with the requirements of the curriculum. The missed test can be made up for in a given time designated by the Department after officially proof of absence. In addition, two pre-announced written tests will take place in practical time. Furthermore, several tests can be held without prior announcement, the results of which will be included in the evaluation of the performance that day. The results of any missed test conclude to failure (1). The result cannot be improved.

• The practices start and finish in accordance with the timetable, arriving late is not allowed.
• Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
• Missed classes cannot be more than 20% of the total practice classes.
• A certification is required for any absences which has to be handed to the leader of the practice course.
• Missed classes cannot be made up for.
• The practical work is evaluated with a grade in each practice which is the average of the all practical grade of the day.
• If one exercise of the practice is graded with failed (1), then the whole practice is evaluated as fail (1)!
• For signing the lecture book it is required to have at least 71% of passed (2) grades.
• Any missed practices result in a fail grade.
• On the 14th week student is required to take a practical exam.

Grade formation:

• The average of the all grades of the 14 week practices classes, +
• The average of the result pre-announced written tests during the practices (2), and the written test taken during a lecture (1), +

• The result of the practical exam, (an average of the grades)
the mean of these grades gives the final AW5 grade.

Requirements for taking up the subject: Odontology, Dental Physiology II, Oral Anatomy, Histology and Embryology II. Lecture

Department of Periodontology

Subject: **PERIODONTOLOGY PROPEDEUTICS I.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **2**
Practical: **8**

1st week:
Lecture: Anatomy and physiology of periodontium, tooth surface deposits, bacterial biofilm
Practical: Fundamentals of periodontal instrumentation I. (Math principles, positioning, instrument grasp, anterior rests, mandibular posterior rests)

2nd week:
Lecture: Periodontal examination, oral hygiene motivation, disclosing agents, plaque and gingival indices
Practical: Fundamentals of periodontal instrumentation II.(maxillary posterior rests, design, adaptation-angulations, activation, instrumentation strokes)

3rd week:
Practical: Fundamentals of periodontal instrumentation III. (probe: basic, explorers, debridement concepts, sickle scalers, periodontal files)

4th week:
Practical: Fundamentals of periodontal instrumentation IV. (universal curets, area-specific curets, instrumentation strategies and patient cases)

11th week:
Lecture: Anatomy and physiology of periodontium
Practical: Periodontal examination (case history, clinical examination, radiography)

12th week:
Practical: Tooth surface deposits, bacterial biofilm

13th week:
Lecture: Etiology and pathogenesis of periodontal diseases
Practical: Oral hygiene, motivation, disclosing agents, plaque and gingival indices

14th week:
Practical: Hand instrumentation, scaling technique for hand instrumentation

Requirements

The aims and objectives of this course:
- learning the basic anatomy and physiology of periodontium
- have knowledge and understanding of the etiology of periodontal diseases
- fundamental characteristics of plaque-induced gingivitis and chronic periodontitis
- achieve basic knowledge about periodontal hand scaling instruments

Short description of the course
Practice a root surface debridement on phantom head prior to seeing their first patient on the clinical sessions.
Assessment
AW5 grade
Requirements
Student attendance is mandatory and a record is taken at each practice. The Department may refuse to sign the students' Lecture book if they are absent from more than 20% of all practical lessons in a semester.
Lectures: As given in the timetable (time & place)
Practices: In the building of Faculty of Dentistry (Phantom lab.)
Course exemption
With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week.
Conditions of signing the lecture book:
- active participation in practices
- no more absence than 20%

Calculation of the practical grade
AW5 grade consists of proper practical work and successful test.

Department of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS IV.: PROPEDEUTICS OF FIXED PROSTHODONTICS**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **37**

1st week:
Lecture: Tooth preparation for bridges. Insertion direction. Evaluation of abutment teeth. Prosthetic value of abutment teeth.
Practical: Preparation for bridge (molar and premolar). Alginate impression of antagonist arch.

2nd week:
Lecture: Impression making for fixed prosthesis I.
Practical: Preparation for bridge. Alginate impression.

3rd week:
Lecture: Impression making for fixed prosthesis II.
Practical: Preparation for bridge.

4th week:
Lecture: Provisional restorations I.
Practical: Preparation for bridge. Impression making of preparation arch.

5th week:
Lecture: Provisional restorations II.
Practical: Preparation for bridge and crown

6th week:
Lecture: Framework try in and biscuit probe of fixed prosthesis.
Practical: Making of provisional crown.

7th week:
Lecture: Cementation. Removal of fixed prosthesis.

Practical: Preparation for bridge and crown

8th week:
Lecture: Post and core restorations I.
Practical: Preparation for bridge.

9th week:
Lecture: Post and core restorations II
Practical: Preparation for bridge. Impression making of preparation arch.

10th week:
Lecture: Indirect inlay, onlay, overlay restorations I.
Practical: Post and core restorations made with direct and indirect techniques.

11th week:
Lecture: Indirect inlay, onlay, overlay restorations II.
Practical: Preparation for inlay restoration in molar tooth.

12th week:
Lecture: Treatment planning of combined prosthesis I. Clasp holder crowns.
Practical: Preparation for bridge and crown.

13th week:
Lecture: Treatment planning of combined prosthesis II. Precision attachments.
Practical: Preparation for bridge and crown.

14th week:
Lecture: Consultation
Practical: Preparation for bridge and crown.

Requirements

The aim of acquiring the professional content of the subject:
The aims of the subject are to practise the clinical steps of basic fixed prosthesis in preclinical (phantom head) circumstances. Students are introduced in the use of different materials, techniques and methods in preparation of the basic fixed prosthesis. Students will acquire the steps of fabrication of basic fixed prosthesis which is necessary to the clinical work.

Brief course programme:
In the course students learn the fabrication process of basic fixed prosthesis, the indications and contraindications of fixed prosthesis. Students will practise the clinical steps of basic fixed prosthesis in phantom head to prepare for the clinical work.

Competences:
The student will be able to do fixed prosthesis including crowns, bridges and dowel core restorations.

Requirements:
Lectures and practices according to the timetable of the subject. It is not allowed to late from practices. Active attendance during practices is required.
The amount of absences cannot exceed two practices.
Each practice between week 6-14 will be evaluated as accepted or non-accepted. If the number of non-accepted practices exceeds 4, the signature will be rejected. In this case the subject cannot be completed during the semester.

Assessment: FE (involving possibility of failure), with electronic tablet test as entrance test. Final exam covering the topics of Introduction to Prosthodontics I-IV and Odontotechnology I-II.
Condition of taking the final exam: successfully completed Odontotechnology II.
The exam starts with an online (tablet) entrance test. Students must complete the entrance test

answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60% the final exam grade is “fail” (1). In case of a ’C’ chance exam the final (oral)exam will be held in the presence of an exam committee, even if the student failed the entrance test.

Subject: **ODONTOTECHNOLOGY II.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **37**

1st week:
Lecture: Working cast and dies
Practical: Working cast and dies

2nd week:
Lecture: Articulators
Practical: Working cast and dies

3rd week:
Lecture: Technology of provisional restoration
Practical: Working cast and dies

4th week:
Lecture: Making wax pattern
Practical: Working cast and dies

5th week:
Lecture: Wax lost technique
Practical: Mounting into articulator

6th week:
Lecture: Processing of the metal
Practical: Making wax pattern

7th week:
Lecture: Technology of casted post and core restoration
Practical: Making wax pattern

8th week:
Lecture: High-tech technology in dental laboratory
Practical: Sprue placement

9th week:
Lecture: Technology of aesthetic covering of metal framework
Practical: Burn out, casting

10th week:
Lecture: Consultation
Practical: Cleaning the casting, sandblasting

11th week:
Practical: Processing of the metal framework

12th week:
Practical: Processing of the metal framework

13th week:
Practical: Ceramic covering of metal framework

14th week:
Practical: Ceramic covering of metal framework

Requirements

The aim of acquiring the professional content of the subject:
To introduce students to the technology of basic fixed dentures. Students get acquainted with the technology of basic fixed denture fabrication, as well as with materials, techniques and methods used in dental technology. They enrich their knowledge by gaining theoretical and practical experience.

Brief course programme:
In the frame of the course students will be familiarised with the technology of fixed denture fabrication. During the practices, students will learn and practice the steps of the fixed denture fabrication.

Competences:
Students will be able to perform basic odontotechnological steps, processes and understand their theoretical background.

Requirements:
Attendance of lectures is highly recommended but not compulsory. Active participation in the practices is required. There is no possibility to compensate for missed practices. All absences must be certified. The amount of missed practices cannot exceed 2 practices.

Exam: AW5

Method of assessment:
AW5 grade based on the result of the practical and theoretical tests.
The practical and theoretical tests will be held according to the conditions announced in the first week of the semester. The signature will be refused, if the student's practical performance does not meet the requirements.

Department of Basic Medical Sciences

Subject: **BASIC SURGICAL TECHNIQUES**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **5**
Seminar: **7**
Practical: **6**

1st week:
Lecture: The role of operative professions in medicine. Surgical deontology. Surgical armamentarium.
Seminar: Classification and handling of the surgical instruments. Tools' order on the instrumental tables. (2 hours)

2nd week:
Lecture: Surgical sutures, suture materials.
Seminar: Conventional hand suturing and knotting techniques. Suture materials in practice. (2 hours)

3rd week:
Lecture: Asepsis, antisepsis. Preparation for operation personnel: scrubbing, gowning, gloving. Isolation. Operating room environment.
Seminar: Preparation for operation personnel. Isolation of the operative field. (1 hour)
Practical: Scrubbing. Wound closure with different suture techniques on biomodels. (2 hours)

4th week:
Lecture: Types of bleeding. Different methods of surgical hemostasis. Vein preparation and cannulation. Injection techniques and blood sampling.
Seminar: Bioplasts and tissue adhesives. (1 hour)
Practical: Ligatures on gauze model.

Demonstration and practising of vein preparation/cannulation, preparation of infusion set, blood sampling and injection techniques (i.m., i.v.) on phantom models. (2 hours)

5th week:
Lecture: Surgical incisions. Conicotomy, tracheostomy.
Seminar: Video-demonstration of median/paramedian laparotomy, conicotomy and tracheostomy. (1 hour)
Practical: Conicotomy on phantom model. Repeat: Wound closure with different suture techniques on surgical training models. Vein preparation/cannulation, preparation of infusion set, blood sampling and injection techniques (i.m., i.v.) on phantom models. (2 hours)
Self Control Test

Requirements

Prerequisite: Oral anatomy, histology and embryology, Dental Physiology II.
The lectures and seminars/practices are built on each other. Consequently, it is difficult to make up the missed classes. Attending the 2nd and 3rd lecture is compulsory. Though according to the Rules and Regulations only 30% of the lectures can be made compulsory, attending the 4th lecture is also strongly recommended. The make-up of the first 3 practices is obligatory. Compensation for the missed seminars should be paid according to the Rules and Regulations of the University of Debrecen. If the student is absent from 2 seminars/practices in a semester (without any acceptable reason), the Department may refuse the signature. Performance is assessed on a five-grade scale (AW5) and is based on the performance over the curriculum and the result of the final test written at the end of the course. It is based not only on the compulsory reading material, but also on the material presented at the lectures.

Subject: **BIOETHICS**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **6**
Seminar: **9**

1st week:
Lecture: General Ethics Introduction – philosophical and conceptual overview

2nd week:
Lecture: Modern Medical Ethics – its evolution, character-traits and relation to its predecessors.

3rd week:
Lecture: Patient Rights – their history, importance and challenges in the modern healthcare systems

4th week:
Seminar: End of Life Decisions – withholding and –drawing treatments, futility, triage

5th week:
Seminar: Fundamental Ethical Questions of Human Trials and Research Integrity

6th week:
Seminar: Casuistry as a Means of Analysis – 1st case analysis

7th week:
Seminar: Questions of Patient Rights and Justice – 2nd case analysis

8th week:
Seminar: Wrap-up: Overviewing and systematizing the semester material

Requirements

Grade: Colloquium
Requirement of the signature: taking part in the seminars, one absence allowed
Compulsory readings:
Gregory E. Pence - Medical Ethics -Accounts of Ground-Breaking Cases McGraw-Hill Education, 2016
Guidry-Grimes, Laura, Veatch, Robert - The Basics of Bioethics – Routledge, 2019

About the course:

The course outlines and explores the basics of modern bioethics. It helps students orienting in the diverse questions of contemporary bioethics – ranging from its ethical foundations, theories and argumentation, through patient rights and the questions of autonomy, to the end of life decisions and research ethics issues.

On top of laying down the theoretical and conceptual grounds of the subject matter, the course aims to map the national and international legal frameworks and policy environment. Besides, the course's purpose is to train those competences which enables the students to interpret and critically reflect upon the actual laws through general and professional ethical norms, by means of developing their rhetorical, logical and philosophical skills.

Subject: **CLINICAL BIOCHEMISTRY II.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **11**
Practical: **6**

1st week:
Lecture: 1. Coagulopathies, (general introduction), haemophilias.
2. von Willebrand disease
3. Platelet function disorders.

2nd week:
Lecture: 4. Inherited thrombophilias
5. Acquired thrombophilias
6. Prethrombotic state, thromboembolias, consumption coagulopathies
Practical: Laboratory diagnostics of coagulopathias

3rd week:
Practical: Laboratory diagnostics of platelet function disorders. Laboratory monitoring of anti platelet therapy

4th week:
Practical: Laboratory diagnostic of Thrombophilia. Laboratory monitoring of anticoagulant therapy.

6th week:
Lecture:
7. Pathogenesis and pathomechanism of diabetes mellitus
8. Pathobiochemistry and clinical biochemistry of the acute complications of diabetes mellitus
9. Laboratory diagnostics of diabetes mellitus

8th week:
Lecture:
10. Laboratory diagnostics of acute coronary syndrome I.
11. Laboratory diagnostics of acute coronary syndrome II.

Requirements

Participation in practices is obligatory. In case of further absences practices should be made up for by attending the practicals with another group on the same week, or a medical certificate needs to be presented. Please note that strictly only a maximum of 3 students are allowed to join another group to make up for an absence.

Requirements for signing the Lecture book: The Department may refuse to sign the Lecture book if the student is absent from practices. The materials of Clinical Biochemistry subject are uploaded on the e-learning website (www.elearning.med.unideb.hu)
Assessment: At the end of the first and second semester there is a written examination (test) assessed by a five grade evaluation. The materials of both semesters are required for the written test at the end of the second semester.

Requirements for examinations: The examination is based on the lecture and practical material (Practicals in Laboratory Medicine, eds.: János Kappelmayer and László Muszbek, 2016) as well as the relevant chapters from the textbook of Marshall: Clinical Chemistry (8th edition, 2017).

Subject: **INTRODUCTION TO DENTAL RADIOLOGY**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **18**
Seminar: **23**

1st week:
Lecture: Head and neck radiology X-ray, ultrasound (General Radiology)
Seminar: Introduction to imaging modalities. Demonstration of radiological equipment.

2nd week:
Lecture: Head and neck CT, CBCT, MRI given opportunities (General Radiology)
Seminar: Anatomical introduction: projectional anatomy with facial bones' X-ray imaging. Sectional anatomy: CT, US, MRI of head and neck region.

3rd week:
Lecture: Musculoskeletal system (General Radiology)
Seminar: Imaging of bone and joint diseases

4th week:
Lecture: Emergency radiology (General Radiology)
Seminar: Emergency radiology

5th week:
Lecture: Neuroradiology (General radiology)
Dento-Alveolar radiology (Dental radiology)
Seminar: Neuroradiology

6th week:
Lecture: Chest (General radiology)
Maxillofacial radiology (Dental radiology)
Seminar: Radiology of chest

7th week:
Lecture: Examination of the GIT system (General radiology)
Periodontal formula of radiological imaging methods (Dental radiology)
Seminar: GIT system (General radiology)
Imaging diagnosis in Dento-Alveolar Surgery (Dental radiology)

8th week:
Lecture: Kidney-bladder system. Screening tests for breast examination, prostate, low dose CT. Cardio CT, radiation protection. (General radiology)
Radiography of periodontal lesions (Dental radiology)
Seminar:
Urinary tract (General radiology)
Imaging diagnosis in Maxillofacial Surgery (Dental radiology)

9th week:
Lecture: Radiology in Restorative Dentistry (Dental radiology)
Seminar: Radiological anatomy of periodontal formulas (Dental radiology)

10th week:
Lecture: Radiology in Restorative Dentistry (Dental radiology)
Seminar: Different mapping methods of periodontal diseases (Dental radiology)

11th week:
Lecture: Radiology in Prosthetic Dentistry (Dental radiology)
Seminar: Radiology in Restorative Dentistry (Dental radiology)

12th week:
Lecture: Radiology in Prosthetic Dentistry (Dental radiology)
Seminar: Dental Radiology: Radiology in Prosthetic Dentistry (Dental radiology)

13th week:
Lecture: Radiology in Pediatric Dentistry (Dental radiology)
Seminar: Radiology in Pediatric and Orthodontic Dentistry (Dental radiology)

14th week:
Lecture: Radiology in Orthodontic Dentistry (Dental radiology)
Seminar: Test (offered grade)

Requirements

Course objectives
The aim of the course is to familiarize with traditional and modern imaging techniques used in general medicine and dental practice.

Short description of the course During the course students will get acquainted with traditional general and dental X-ray equipment and techniques (X-ray, UH, CT, MRI), new digital radiography and dental applications, dosage concepts and radiation protection regulations.

Exam Type: ESE
Written examination in the form of an electronic test / tablet.

Subject requirements:
The attendance on lectures is not obligatory, but recommended.
Participation in seminars is compulsory. It is not possible to make up the absences. Absences shall be verified, the rate of absences shall not exceed 20%.

Conditions for signing the lecture book
If the absence from seminars exceeds 20% (3 seminar days, but the maximum of each two-two occasions for general and dental radiology) the signature of the lecture book shall be refused.

Final grade
An offered grade will be given by writing an electronic test in the last week at the time appointed by the Department (lecture, seminar or predetermined time). The material asked on the test consists of

the lectures, seminars and official textbook.

The electronic test is evaluated as follows:

0-60%	failed	(1)
61-70%	passed	(2)
71-80%	satisfactory	(3)
81-90%	good	(4)
91-100%	excellent	(5)

If the offered grade is failed (1) the student must take an end-semester (electronic) exam as an ‚A', B' chance. If the ‚B' chance exam is failed (1) the student must take an oral exam as a ‚C' chance.

Subject: **MEDICAL PSYCHOLOGY**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **10**

1st week:
Lecture: Health and medical psychology: definition, models, the bio-psycho-social model.
Seminar: The role of psychology in medical practice.

2nd week:
Lecture: Seeking professional help (firstr, encounter, medical history, diagnostic procedure). Doctor-patient interaction, compliance, the "difficult patient".
Seminar: Special problems of medical students and doctors.

3rd week:
Lecture: Health beliefs, models of health, health behaviours, illness cognitions. Models of illness. Health risk behaviours.
Seminar: Phases of doctor-patient consultation.

4th week:
Lecture: Adverse childhood experiences and adult health (ACE).
Seminar: Breaking bad news.

5th week:
Lecture: Pain - psychological and sociocultural factors.
Seminar: Stress management, time management, relaxation.

6th week:
Lecture: Chronic diseases, psychological preparation for surgery, intensive care unit, hospitalization.

7th week:
Lecture: Stress and coping (vulnerabiliy, protective factors). Basics of psychology.

8th week:
Lecture: Crisis, presuicidal syndrome, burnout.

9th week:
Lecture: Somatic symptom and related disorders

10th week:
Lecture: Placebos and the interrelationship among beliefs, behaviour and health.

Requirements

Evaluation: third year students should pass “End of Semester Examination” (ESE) at the end of the first semester. The Department of Behavioural Sciences will adhere to the requirements of the General Academic Regulations and Rules of Examinations. The student must be present and the examination at the designated time. (He/she must explain the reason for any absence from the examination to the Departmental Adviser within 1 days of the day of examination.)
The final mark is the average of the seminar and the lecture results. Both should be better than fail to pass the ESE

Subject: **ORGAN AND ORAL PATHOLOGY**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **50**
Seminar: **14**
Practical: **14**

1st week:
Lecture: - Soft tissue tumors. - Non-neoplastic lesions of the bones. Pathology of the joints. - Bone tumors.
Practical: Introduction

2nd week:
Lecture: - Diabetes mellitus.- Arteriosclerosis. Hypertension and hypertensive vascular disease. - Acute myocardial infarction.
Practical: 63. Nephropathia diabetica 64. Crescentic glomerulonephritis 65. Acute pyelonephritis 66. Clear cell kidney carcinoma

3rd week:
Lecture: - Myocarditis. Cardiomyopathies. - Diseases of the endocardium and the cardiac valves. - Congenital heart diseases. Venous and lymphatic vessel disorders.
Practical: 67. Carcinoma transitiocellulare vesicae urinariae 68. Prostatic adenocarcinoma 69. IRDS 70. Bronchial asthma

4th week:
Lecture: - ARDS. Pneumonia. Pulmonary embolisms. - Chronic obstructive pulmonary diseases. - Interstitial lung disease.
Practical: 71. Boeck’s sarcoidosis 72. Bronchial squamous carcinoma 73. Intrabronchial carcinoid tumor 74. Small cell carcinoma

5th week:
Lecture: - Tumors of the lung and pleura. - Benign, preneoplastic and neoplastic lesions in the oral cavity. Diseases of hte salivary glands. - Esophageal diseases. Gastritis. Gastroduodenal ulcers.
Practical: 75 a és b Barrett’s esophagus (a;HE + b;PAS-AB) 76. Ulcus pepticum ventriculi 77. Crohn’s disease 78. Ulcerative colitis

6th week:
Lecture: - Maldevelopment of intestine. Megacolon. Circulatory intestinal lesions. - Enteritis, enterocolitis. Malabsorption. Inflammatory bowel diseases. - Colorectal cancer.
-Maldevelopment of teeth.
Practical: 79. High grade adenoma in the colon 80. Malignant transformation of adenoma 81. Mucinous adenocarcinoma 82. Liver cirrhosis with HCC

7th week:
Lecture: - Intra- and extrahepatic biliary tract diseases. - Viral hepatitis. Drug induced liver diseases. Acute and chronic liver failure. - Liver cirrhosis.
- Pathology of dental caries
Practical: D1. Follicular cyst of the maxilla. D2. Keratin cyst of the mandibule. D3. Thyreoglossal cyst. D4. Brachiogenic cyst.

8th week:
Lecture: - Tumors and circulatory disorders of the liver. Inhereted metabolic liver diseases. - The pathology of the pancreas and appendix. - Glomerular diseases.
-Pulpitis, periodontitis.
Practical: D5. Mucokele. D6. Dental plaque. Chronic periodontitis. D7. Fissural and cervical caries. D9. Radicular cyst.

9th week:
Lecture: - Diseases affecting tubuli and interstitium. Kidney stones. Hydronephrosis. - Cystic diseases and tumors of the kidney. - Pathology of the urinary tract.
-White patch diseases of the oral mucosa.
Practical: D10. Chronic osteomyelitis of the mandibule. D11. Hyperplastic gingivitis. D12. Traumatic ulcus. D13. Pyogenic granuloma.

10th week:
Lecture: - Hyperplasia and carcinoma of the prostate. - Testicular tumors. - Non-neoplastic and preneoplastic conditions of the breast.
-Odontogenic tumors and cysts.
Practical: D14. Epulis. D15. Leukemic ulceronecrotic stomatitis. D17. Lichen planus. D18. Lupus erythematosus.

11th week:
Lecture: - Breast cancer. - Uterine tumors. - Tumors of the ovarium.
-Ulcerous and vesico-bullous lesions of the oral mucosa
Practical: D19. Pemphigus vulgaris. D23. Leukoparakeratosis. D25. Planocellular papilloma. D27. Planocellular carcinoma of the tongue.

12th week:
Lecture: - Pathology of the pregnancy. Pathomorphological aspects of the most frequent diseases of the newborn. - Melanocytic and epithelial skin tumors. - Pathology of the thyroid and parathyroid.
-Diseases of the lip and tongue. Oral manifestation of granulomatous diseases.
Practical: D33. Schwannoma. D34. Osteoma. D36. Cementifying fibroma. D37. Ameloblastoma of the mandibule.

13th week:
Lecture: - The pathology of the adrenals. - Ophtalmic pathology. Cerebrovascular diseases. - Stroke.
-Oral manifestation of systemic diseases. Diseases of the maxilla and mandible.
Practical: D39. Sialolithiasis; Chronic sialoadenitis. D40. Sjögren syndrome. D41. Adenolymphoma (Warthin-tumor). D43. Adenoid cystic carcinom.

14th week:
Lecture: - Neurodegenerative diseases. Dementias. - Infective diseases of the CNS. - Tumors of the CNS.
Practical: Repeating practice

Requirements

Textbook: Robbins' Basic Pathology, 10th Edition (Elsevier)
Lectures: PPT slides of all lectures (uploaded for the actual week)
Practicals (weekly packages):
- **histopath slides**
- **macro preps**
- **topic-wise supporting content**

Test bank: continously available from the e-learning site
Downloadable material: https://elearning.med.unideb.hu Department of Pathology

Validation of Semester:

- Histopathology and macro pathology (autopsy) classes are compulsory.

- Participation should be warranted electronically right before the class using the barcode based mobile approach.
- Missing of two practical classes (histo and macro pathology together) is tolerable.
- Intracurricular replacement of histo and/or macro pathology classes is possible on the same week.

Examination:
1st semester (Pathology 1): **End of Semester Examination** (ESE)
2nd semester (Pathology 2): **Final exam** (FE).

The Exam consists of: online test, practical exam and oral test.
Written and practical exams (proposed timing):

Pathology theory test (week 13):
- The test bank of the written pathology test can be found on the departmental E-learning website
- 85% is to be reached for pass.
- In the 2nd semester the questions comes from the 1st and the 2nd semester

Histopathology exam (computerized - week 14):
- The computerized histopathology exam consisted of 6 microscopic slides with related questions.
- Digital slides and learning material public on the E-learning and http://histopractice.med.unideb.hu/casecenter site.
- 85% correct answers are required for pass.
- In the 2nd semester exam slides come from the 1st and 2nd semester.

Macro practical exam (autopsy room - week 14):
- This practical exam takes place in the autopsy room.
- Oral presentation and interpretation of macro preparations is expected.
- 1-5 grades. Grade 2 (pass) is required for the successful exam.

Pass of all 3 exams are required for entry to the ESE and FE.
Any failed test is to be repeated on the exam day before starting the oral part

Oral exam:
Oral presentation and discussion of topics chosen from the topic list.
ESE: Two randomly chosen 1st semester topics to be presented.
FE: Three randomly chosen topics (one from the 1st semester, and two from the 2nd semester).

The knowledge of students is judged on the five-grade evaluation scale (1-5 grades).

During the oral exam fail on any (possible) substation (written, practical, oral) means termination of the chance. The exam must be repeated from the part that failed.

During improvement exam only the oral exam topics must be repeated (the student can get worse grade than the previous one or possibly can fail).

For further information: http://pathol.med.unideb.hu
https://elearning.med.unideb.hu

Department of Dentoalveolar Surgery

Subject: **ORAL SURGERY PROPEDEUTICS**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **28**

1st week:
Lecture: Anatomy of the maxillofacial region
Practical: Introduction of Oral Surgery Department and Central Sterilization Unit

2nd week:
Lecture: Patient examination in the maxillofacial region
Practical: Complementary examination methods, oral surgery instruments

3rd week:
Lecture: Asepsis, antisepsis, sterility, sterilization in oral surgery
Practical: X-ray and other imaging techniques in oral surgery

4th week:
Lecture: Local anaesthetics, pharmacology
Practical: Introduction of the local anesthetic methods

5th week:
Lecture: Complications of local anaesthesia
Practical: Local anaesthetic methods at dentoalveolar outpatient department

6th week:
Lecture: Indications and techniques
Practical: Patient examination at dentoalv. outpatient dept.

7th week:
Lecture: Test I.
Practical: Practice of examination, local anaesthesia, and instruments at dentoalv. outpatient dept
Self Control Test

8th week:
Lecture:
Complications of dental extraction
Practical: Practice of extraction at dentoalv. outpatient dept.

9th week:
Lecture: Consultation
Practical: Practice of extraction at dentoalv. outpatient dept

10th week:
Lecture: TEST 2
Practical: Practice of technics of examination and local anaesthesia, dental extraction, instruments
Self Control Test

11th week:
Lecture: Basic techniques in oral surgery I- II.
Practical: Practice of technics of examination and local anaesthesia, dental extraction, instruments

12th week:
Lecture: Importance of systemic diseases, medical emergencies and first aid in the dental office
Practical: Practice of technics of examination and local anaesthesia, dental extraction, instruments

13th week:
Lecture: TEST 3.
Practical: Practice of technics of examination and local anaesthesia, dental extraction, instruments
Self Control Test

14th week:
Lecture: Final consultation.
Practical:
Practice of technics of examination and local

anaesthesia, dental extraction, instruments

Requirements

Course objectives: Theory and practice of patient examination (creates the groundwork of dental and oral surgical care), infection control, acquisition of anesthetic methods, tooth extraction techniques applicable in the maxillofacial region.
Brief course description: To learn the fundaments of Dentoalveolar Surgery within the framework of lectures and practices with the help of phantom heads. (patient examination, anesthesia, extractions, and complications of the latter).
Compulsory reading:
Szabó Gy.: Oral and Maxillofacial Surgery Semmelweiss Publishing House, Budapest, 2004., ISBN: 963-9214-15-9
Recommended Book:
James R. Hupp: Contemporary oral and maxillofacial surgery, Mosby, 2014, ISBN: 978-0-323-09177-0
Stanley F. Malamed: Handbook of Local Anesthesia, 6th Edition, Mosby, 2013, ISBN:978-0-323-07413-1
Exam: ESE (end semester exam)
End semester exam has three parts: I. electronical part, II. practical part, III. theoretical part. The end semester exam starts with an electronical part, which is considered successful if the result is more than 70%. If this test is not successful, the student can not continue the exam. The electronic part has to be repeated on the B chance as well if the practical part is not successful. Parts of the practical exam are: recognition of instruments, patient examination, demonstration of techniques of local anaesthesia and tooth extraction. The first step of the practical exam is the recognition of 5 instruments, in this part it is not acceptable to make any mistake. If any part of the practical exam is unsuccessful, the whole exam is automatically failed. The practical exam has to be repeated if the result of the previous practical part was unsuccessful. If the electronical and practical parts are successful, but the theoretical is failed, than on the next exam only the theoretical part has to be repeated.
On „C" chance exam there is no need to do the electronical part.

The results of the written tests can be taken into consideration when deciding on the end semester grade.

Assessment:
There are three electronical tests during the semester. Missed tests are automatically assessed as fail. If two tests are assessed as 'Fail' out of the total number of three, then the signature will be refused. If the average result of three tests is above 3.51, the student does not have to take the electronic part of the final exam.
Course requirements:
Students are required to attend the practices.
Lectures: As given in the timetable (time and place)
Practices: In the building of the Faculty of Dentistry

Active participation in the practices (there is no possibility to compensate for missed practices). Being late from the practices and lectures is not permitted. Every student has to participate in the practices in their preassigned groups. There is no possibility to switch between the practical groups. With acceptable certificate students may miss practices, but the ratio of missed practices cannot

exceed 20%, even if it is certified.
Prerequisites: Anatomy II., Odontology, Biochemistry II.
Compulsory lectures:
- Local anaesthetics, pharmacology
- Complications of local anaesthesia
- Indications and techniques of dental extraction
- Complications of extraction
- Importance of systemic diseases, medical emergencies and first aid in the dental office

Course exemption:
With previously obtained valid signature the attendance exemption of the practices can't be requested
Conditions of signature in the lecture book: Only one absence may be accepted from the obligatory lectures, in case of more absences the semester won't be accepted.
If the result is „fail" on two tests out of the three that is written during the semester, the lecture book won't be signed.

Missed practices and compulsory lectures should be certified in a credible way within three workdays.
Assessing grades according to test scores:

Result(%)	Grade
0-60%	1
61-70%	2
71-80%	3
81-90%	4
91-100%	5

Department of Foreign Languages

Subject: **MEDICAL HUNGARIAN II.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Practical: **28**

1st week:
Practical: Introduction, orientation

2nd week:
Practical: Pediatric dentistry / Gyermekfogászat

3rd week:
Practical: Pediatric orthodontics / Gyermekkori fogszabályozás

4th week:
Practical: Before treatment / Kezelés előtt

5th week:
Practical: Filling / Tömés

6th week:
Practical: Bleeding gum / Vérző íny

7th week:
Practical: Calculus / Fogkő

8th week:
Practical: MIDTERM TEST

9th week:
Practical: Crown, bridge /Korona, híd

10th week:
Practical: Extraction / Foghúzás

11th week:
Practical: Rootcanal treatment / Gyökérkezelés

12th week:
Practical: Restorations / Protézis, műfogsor

13th week:
Practical: Dental check-up / Fogászati ellenőrzés

14th week:
Practical: ENDTERM ORAL EXAM, Evaluation, grades

Requirements

Requirements of the course:
Attendance

Attending language classes is compulsory. If a student late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions.

The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time the attendance is refused.

Testing, evaluation

In each Medical Hungarian language course, students must sit for two oral exams.

A further minimum requirement is the knowledge of 200 words per semester divided into 10 word quizzes. There are five word quizzes before and another five after the midterm test. If a student fails or misses any word quizzes he / she cannot take the midterm and end term exams. A word quiz can be postponed by a week and students can take it only with their own teacher.

The oral exam consists of a role-play from a list of situations covered in the coursebook. If students fail the oral exam, they fail the whole course.
The grades are given as follows.

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

Coursebook: See the website of the Department of Foreign Languages: **ilekt.med.unideb,hu.**
Audio files to the course book, oral exam topics and vocabulary minimum lists are also available on the website.

Department of Operative Dentistry and Endodontics

Subject: **RESTORATIVE DENTISTRY PROPEDEUTICS II. (ENDODONTICS)**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **56**

1st week:
Lecture: Morphology of the upper and lower teeth: numbers, localizations and shapes of the roots and root canals, accessory root canals, apical delta and apical foramens. Shapes and localizations of the access cavities
Practical: Root canal morphology of the upper and lower teeth

2nd week:
Lecture: Preservation of the pulp vitality (direct and indirect pulp capping)
Practical: Direct and indirect pulp capping methods in the practice

3rd week:
Lecture: The basic principles of the root canal therapy: purpose, indications, contraindications and the steps of it

Practical: Access cavity preparation. Absolute isolation

4th week:
Lecture: Pre-endodontic build-up. Endodontic hand instruments
Practical: Pre-endodontic build up (badly destructed teeth). Endodontic hand instruments and uses

5th week:
Lecture: Radiographic considerations in endodontics

Practical: Determination of the working length. Traditional root canal preparation technique, root canal irrigation and medication, temporary coronal filling

6th week:
Lecture: The role, purpose and general principles of the chemo-mechanical preparation in the root canal system. Manual root canal preparation techniques: traditional and step back preparation
Practical: Step-back preparation technique, root canal irrigation and medication, temporary coronal filling

7th week:
Lecture: Root canal irrigants and medicaments
Practical: Written exam I.
Restorative practice

8th week:
Lecture: Root canal obturation materials and filling techniques: single cone and lateral compaction
Practical: Photographic evaluation of the guttapercha cone fit. Single cone and cold lateral compaction root canal obturation techniques

9th week:
Lecture: Retreatment : removal of root canal obturation materials
Practical: Access cavity preparation and working length determination (human extracted tooth with one canal). Retreatment: removal of the root canal obturation material (eucalyptus essential oil), irrigation, drying, obturation

10th week:
Lecture: Restauration of endodontically treated teeth (considerations)
Practical: Digital dental radiography system: evaluation of working length in a human extracted tooth. Chemo-mechanical preparation, irrigation, drying cold lateral compaction

11th week:
Lecture: Endodontic related traditional surgery
Practical: Written exam II.

Endodontic surgery: root resection and retrograde root canal obturation

12th week:
Lecture: Medical history, patient examination, and treatment plan in endodontics. Documentation
Practical: Medical history, patient examination, and treatment plan in endodontics. Documentation

13th week:
Lecture: WRITTEN EXAM
Practical: Root canal treatment (molar teeth)

14th week:
Lecture: Case presentations
Practical: Case discussion: different pulp diagnoses and differential diagnoses

Requirements

Examination: ESE (oral exam) (involving possibility of failure)

Materials for exam preparation: official lecture book, lectures and materials of the practicals. Requirements for signing the lecture book:

• During the semester, in accordance with the course requirements there is one written test that takes place during a lecture. The self-control tests cannot be repeated only with an adequate proof in a given time. There can be more tests without any previous notification during the practices. The results of these impact on the evaluation of the daily work. The result of any missed test conclude to failure (1). The result cannot be improved.

* The practices start and finish in accordance with the timetable, arriving late is not allowed.
* Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
* Missed classes cannot be more than 20% of the total practice classes.
* A certification is required for any absences which has to be handed to the leader of the practice course.
* Missed classes cannot be made up for.

• At the end of each practical, student's work is evaluated with a grade. For signing the lecture book it is required to have at least 71% of passed (2) grades.

• Each part of the practical is evaluated with a grade. In case of a failed part of the practical, the whole practical is evaluated as failed!

* Any missed practices result in a fail (1) grade.

Grade formation

* If the average of:

- the mark of the semester (14) +
- the result of test (1) during a lecture +
- the average of the 2 pre-announced written tests during the practices.

reach the minimum 3,51 and above to 4,5, the achieved grade is good. The average 4,51 or above conclude to an excellent grade. The achieved grade is offered to the student as an examination grade.

* The student is not obliged to take the offered grade and can ask to take the examination.

Requirements for taking up the subject: Oral biology, Restorative dentistry propedeutics I. (Cariology)

Department of Periodontology

Subject: **PERIODONTOLOGY PROPEDEUTICS II.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **2**
Practical: **15**

1st week:
Lecture: Sonic and ultrasonic scalers in periodontal treatment
Practical: Clinical periodontal assessment and radiographic analysis of the periodontium

2nd week:
Lecture: Decision Making During Treatment Planning for Patients with Periodontal Disease
Practical: Patient's role in nonsurgical periodontal therapy

3rd week:
Practical: The role of antiseptic therapy in the management of periodontal diseases

4th week:
Practical: Introduction to periodontal maintenance

5th week:
Practical: Comprehensive Patient Cases

6th week:
Practical: Scaling technique for ultrasonic instrumentation

7th week:
Practical: Scaling technique for hand instrumentation

8th week:
Lecture: Diagnosis and treatment planning
Practical: Diagnosis of periodontal lesions

9th week:
Practical: Treatment planning

10th week:
Practical: Case reports 1.

11th week:
Practical: Case reports 2.

12th week:
Practical: Case reports 3.

13th week:
Practical: Case reports 4.

14th week:
Practical: Patient' risk assessment
Supportive periodontal therapy

Requirements

The aims and objectives of this course:
- to be able to communicate effectively the impact of local factors on their periodontal health and disease management to the patients.
- be capable of examining, diagnosing, performing risk prediction, treatment planning and managing, in their broadest sense
- to achieve knowledge about periodontal hand scaling instruments in clinical practice

Short description of the course
- to treat and maintain the patient with periodontal disease in a holistic manner

Assessment
AW5 grade

Requirements

Student attendance on clinic is mandatory and a record of clinical attendance is taken at each practice. The Department may refuse to sign the students' Lecture book if they are absent from more than 20% of all practical lessons in a semester.
Lectures: As given in the timetable (time & place)
Practices: In the building of Faculty of Dentistry

Course exemption

With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week.

Conditions of signing the lecture book

- active participation in practices
- no more absence than 20%

Calculation of the practical grade

AW5 grade consists of proper practical work and successful test.

CHAPTER 19
ACADEMIC PROGRAM FOR THE 4TH YEAR

Department of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **5**
Practical: **105**

1st week:
Practical: 1-15 week: Complex dental treatment: restorative, periodontial and extraction procedures according to patients' needs. The minimum requirements declared by the departments to be fulfilled. General nursering procedures during treatments.

2nd week:
Lecture: Nursery procedures during restorative treatment

3rd week:
Lecture: General nursery procedure in the dental surgery

4th week:
Lecture: Nursery procedures during prosthetic treatment

5th week:
Lecture: Extraction related nursery procedures

6th week:
Lecture: Nursery procedures during periodontal treatment

Requirements

Assessment:
AW5. Continuous monitoring of the knowledge during practices. The grade is given on the basis of the student's term-time practical performance and this is considered as the final grade of the end semester exam.
The grade cannot be improved during the exam period

Signature conditions:
-Completion of the required minimums.
-Active participation on the practices (there is no possibility to compensate the missed practices).
-The practices begin/end according to the timetable, delay is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.
-With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 2 patient treatment and 1 assistance practice altogether. All missed practices need to be certified.
-All procedures amongst the practical work will be evaluated with grades. The final grade is calculated on basis of the grade-averages received from all special fields. (The calculations follow the general rule for rounding, from x.51.)
- The student's performance provided on general practices will be evaluated twice, in the 6th and in the 13th week, during the semester and the student will be notified in written form by non-acceptable performance.

- Grades given on the practices, will be the end semester grades, which cannot be improved during the exam period.
- In addition, the supervisor takes the professional attitude and responsibility of the student into account, and his / her effort to earn or maintain professional development, the proper behavior towards the clinical staff, the patients and their relatives. The correct fulfilment of the administrative responsibilities and the appropriate behavior towards of the administrative personnel.
- In case the performance is non-acceptable, the student will be warned in written form. From students with two warnings the signature will be denied. In case of not fulfilling the requirements, the student will be warned with the PROFESSIONALISM EVALUATION REPORT FORM (F118 // 1ST). The student who had to be warned twice during the semester because of inadequate performance due to professional reasons or inadequate professional attitudes his / her the signature will be rejected

The Faculty of Dentistry provides students with 1 white medical coat, 1 suit sluice (trousers and top) and 1 locker key for the duration of the Complex practice. The students undertake to return these items at the end of the practice.
Prerequisites of taking the subject: Oral Surgery Propedeutics, Restorative Dentistry Propedeutics II. (Endodontics), Introduction to Prosthodontics, Periodontology Propedeutics.

Subject: **PROSTHETIC DENTISTRY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st week:
Lecture: Planning and preparation I.

2nd week:
Lecture: Planning and preparation II.

3rd week:
Lecture: Clinical procedures of fixed prosthodontics I.

4th week:
Lecture: Clinical procedures of fixed prosthodontics II.

5th week:
Lecture: Clinical procedures of fixed prosthodontics III.

6th week:
Lecture: Clinical procedures of fixed prosthodontics IV.

7th week:
Lecture: Clinical procedures of fixed prosthodontics V.

8th week:
Lecture: Porcelain fused to metal FPDs.

9th week:
Lecture: Polimer covered FPDs.

10th week:
Lecture: Laboratory procedures I.

11th week:
Lecture: Laboratory procedures II.

12th week:
Lecture: Laboratory procedures III.

13th week:
Lecture: Cements.

14th week:
Lecture: Postoperative care.

Requirements

The aim of acquiring the professional content of the subject:
The aim of the subject is to expand students' knowledge on the field of prosthetic dentistry and to give detailed information on the field of fixed prosthodontics and dental technology. Beside lectures, special practices provide expanded academic education and training of practical skills. The content of the subject is based on already acquired skills and experience.

Brief course programme:
The course involves academic knowledge of formulating appropriate treatment plan for prosthodontics with an emphasis on fixed prosthodontics. It provides details of clinical procedures such as mouth preparation, tooth preparation, impression making, framework trial, fixed prosthodontic device (FPD) trial, or cementation procedures. Based on the skills and experience acquired on propedeutics more detailed information is given on laboratory procedures. Special practices start with an up-to date theoretical summary of the given topics, followed by small-group hands-on courses.

Competences:
At the end of the course the student is able to formulate appropriate treatment plans for complicated clinical cases, as well as to create correct prosthetic plans.

Requirements:
Attendance on the lectures is highly recommended but not compulsory. Active participation in the practices is required. There is no possibility to compensate for missed practices. With acceptable certificate students may miss practices, but the ratio cannot exceed 50%. The presence in practices will be recorded. Practices start and end according to the timetable. If a student is late or leave early it is considered as an absence.

Assessment:
End of semester examination.

Method of assessment:
One written (electronic) self-control test will be held during the semester. The date of the test will be indicated during the first week of the semester. The self-control test covers the topics of lectures and practices of the semester, and includes relevant material from official textbooks.
The result of this self-control test will be offered as the grade of the end of semester exam, according to the following table:
60.01-70 % pass(2)
70.01-80 % satisfactory (3)
80.01-90 %good(4)
90,01-100 %excellent(5)

Students are not obliged to accept the grade offered, they may opt for taking an oral examination during the examination period. The exam starts with an online entrance test. Students must complete the entrance test answering at least 60% of the questions correctly to continue to the oral

exam. If the result of the entrance test is less than 60%, the exam grade is “failed” (1). Oral exam topics will be announced during the first week of the semester.

Department of Orthodontics

Subject: **ORTHODONTICS I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **15**

1st week:
Lecture: Subject of orthodontics.
Terminology.
Growth (cephalocaudal gradient)

4th week:
Lecture: Cephalometric analysis, face aesthetic.
Diagnosis (occlusion).
Treatment planning.

7th week:
Lecture: Self control test.
Tooth movement.
Biomechanics.

10th week:
Lecture: Removable appliances 1. (plates).
Removable appliances 2. (functional appliances).
Removable appliances 3. (thermoplastic, combined appliances).

13th week:
Lecture: The sequence ot tooth eruption.
Treatment timing.
Self-control test.

Requirements

The aims and objectives of this course
To provide an insight for dentistry students into the orthodontist thinking and to present the basic correlations which a dentists ought to know.
Short description of the course:
During the course, the students learn about the causes and treatments of ever-evolving and changing orthodontic and jaw orthopaedic disorders, and the limits of the profession. The first semester aims to give an introduction into the basics, and into the theoretical background.
Compulsory reading:
S.J. Littlewood, L. Mitchell: An introduction to Orthodontics, 5th Ed., Oxford 2019., ISBN:9780198808664
Recommended books:
Proffit W., Fields H., Sarver D.: Contemporary Orthodontics 5th ed., Elsevier 2013
Assessment:
AW 5 grade
Requirements:
Lectures: As given in the timetable (time & place)
Practices: In the building of Faculty of Dentistry
Students attendance at the lectures is not mandatory but recommended.
Active participation in the practices (there is no possibility to compensate the missed practices).
Course exemption:
With previously obtained valid signature the attendance exemption of the practices can be requested

till the end of the first week.

Conditions of signing the lecture book:
The Department may refuse to sign the students' Lecture book if they are absent from more than 20% of all practical lessons in a semester.
The final AW5 marks are decided according to the marks given during the semester. 2 tests will be held during the semester (electronic or written).

Calculation of the grade:
The average mark of the 2 written tests will give the final mark. If it is less then 1,51 then the grade is, failed' (1) and the grade must be improved during the examination period, as a, B' or, C' chance.
Results of the written tests:

0 - 66 %failed (1)
67 - 73 %pass (2)
74 - 87 %satisfactory(3)
88 - 94 %good (4)
95 - 100% excellent (5)

Department of Basic Medical Sciences

Subject: **DERMATOLOGY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**

1st week:
Lecture: Dermatology in oral medicine. Structure of skin.

2nd week:
Lecture: Papulosquamous dermatoses

3rd week:
Lecture: Drug eruption

4th week:
Lecture: Primary and secondary lesions

5th week:
Lecture: Skin tumors

6th week:
Lecture: Vasculitis. Postthrombotic syndrome

7th week:
Lecture: Autoimmune and allergic skin diseases

8th week:
Lecture: Photodermatoses. Mycology. Dermatomycoses.

9th week:
Lecture: Bacterial skin diseases (tuberculosis, leprosy, pyoderma)

10th week:
Lecture: Role of infectious foci, alopecias

11th week:
Lecture: Dermatological surgery

12th week:
Lecture: STD

13th week:
Lecture: Seborrhoic diseases. Local therapy.

14th week:
Lecture: Viral dermatoses, epizoonozes

Requirements

- Presence of the students will be recorded (in the form of a presence sheet).
- It is compulsory to attend the lectures (no possibility for compensation).
- Only those missed lectures will be accepted where written notes (medical, legal, etc.) are presented.
- The lecture book will not be signed in case of more than 2 missed lectures.
- During the lectures medical knowledge will be provided which may not be available elsewhere. These topics will be asked during the exams.
- The final exam is an oral exam about theoretical issues.

Subject: **INTERNAL MEDICINE I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **14**

1st week:
Lecture: Stomatology and internal medicine. Diagnostic procedures in cardiology.
Practical: History taking, physical examination (Department of Internal Medicine building B).

2nd week:
Lecture: Acquired valvular and congenital heart diseases.
Practical: History taking, physical examination (Department of Internal Medicine building B)

3rd week:
Lecture: Infective endocarditis.
Practical: History taking, physical examination (Department of Internal Medicine building B)

4th week:
Lecture: Angina pectoris.
Practical: Examination of cardiac patients (Dept. Cardiology)

5th week:
Lecture: Myocardial infarction.
Practical: Examination of cardiac patients (Dept. Cardiology)

6th week:
Lecture: Arrhythmias, pacemaker treatment.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

7th week:
Lecture: Cardiac failure, antithrombotic treatment in cardiology.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

8th week:
Lecture: Hypertension.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine)

9th week:
Lecture: Venous thromboembolic disorders.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine)

10th week:
Lecture: Arterial thromboses.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

11th week:
Lecture: Pneumonias, tuberculosis, lung cancer.

Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

12th week:
Lecture: COPD, respiratory failure.
Practical: Patients with pulmonary disorders (Dept. Pulmonology)

13th week:
Lecture: Glomerulonephritis, pyelonephritis.
Practical: Patients with pulmonary disorders (Dept. Pulmonology)

14th week:
Lecture: Renal failure.
Practical: Patients with renal disorders (Department of Internal Medicine building A)

Subject: **OTOLARYNGOLOGY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Seminar: **14**

1st week:
Seminar: Anatomy and examination of the external ear.
Symptoms of ear diseases.
Inflammatory diseases of the external ear.
Ear wax.

2nd week:
Seminar: Anatomy and examination of the middle ear.
Acute supparative otitis media.
Acute serous otitis media.

3rd week:
Seminar: Chronic otitis media and its complications.

4th week:
Seminar: Main surgical procedures of middle ear disorders.

5th week:
Seminar: The cochlea and the sound perception

6th week:
Seminar: Audiological examination
Rehabilitation of the hearing loss

7th week:
Seminar: Anatomy and physiology of the vestibular system

8th week:
Seminar: Trauma of the nose and paranasal sinuses (skull base fracture, maxilla fracture)
Epistaxis and its management

9th week:
Seminar: Tumors of the nose and paranasal sinuses and its management

10th week:
Seminar: The pharynx (inflammatory disorders, neoplasm)

11th week:
Seminar: The larynx (inflammatory disorders)

12th week:
Seminar: Benign et malignant disorders of the larynx

13th week:
Seminar: The salivatory glands
Differential diagnosis of neck masses

14th week:
Seminar: Endoscopic procedures in ORL

Requirements

Education: The form of education is seminar. During the semester one seminar is hold every week, so altogether the course consist of 14 seminars. Topics of seminars are given in the English Program Bulletin and on the institutional webpage. Attendance of seminars is compulsory, and there is no possibility for make up or any compensation. In case of missed lectures only those will be accepted, where a written certification (medical, legal, etc.) is presented. Certifications have to be handed to the leader of the seminar, and will be tend at the secretary. The acceptable number of missed seminars is not more than two.
Signing the lecture book. The lecture book will be signed by the leader of the institute only in case of completion of all educational requirements.
Examination: The theoretical knowledge of students in the field of otorhinolaryngology will be examined on oral examination. Exams could be taken only on official examination days during the examination period. The number of students is limited for each day, and only those are accepted for taking exam, who have priory made the registration through the Neptun system. The exams take place in the library of the institute, and start at about 8 o'clock. During the exam two topics have to be worked out and presented orally, where one is related to otology and the other is related either to rhinology, or laryngology or head and neck surgery.

Subject: **PREVENTIVE MEDICINE AND PUBLIC HEALTH**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **28**
Seminar: **24**
Practical: **4**

1st week:
Lecture: 1. The history, scope and methods of public health and preventive medicine, major public health issues in developing and developed countries
2. Introduction to human ecology
Seminar: 1-2.Demographical methods to study the health status of the population

2nd week:
Lecture: 3. Air pollution and health
4. Water pollution and health
Seminar: 3-4. Principles of prevention

3rd week:
Lecture: 5.Health hazards of ionising radiation and radioactive substances
6. Toxicology of organic solvents and pesticides

Seminar: 5-6. Occupational health and safety in dentist practice

4th week:
Lecture: 7. Malnutrition, Nutritional deficiency diseases
8. Foodborne diseases, Diet related chronic diseases, Obesity
Seminar: 7-8. Financing dental services I.

5th week:
Lecture: 9.Health effect of noise and vibration
10. Heavy metals in the human environment
Seminar: 9-10. Financing dental services II.

6th week:
Lecture: 11.Global environmental changes and human health
12. Public health consequences of substance abuse
Seminar: 7-8. Cadmium toxicity, case study

7th week:
Lecture: 13.Socioeconomic determinants of health, inequality and health

14. Lifestyle and health
Seminar: 9-10. Health promotion, Health education

8th week:
Lecture: 15. Introduction into the general epidemiology of non-communicable diseases
16. Epidemiology of mental diseases
Seminar: 15-16. Midterm test

9th week:
Lecture: 17.Epidemiology of neoplastic diseases
18. Epidemiology of cardiovascular diseases
Seminar: 17-18. Epidemiological measures and studies

10th week:
Lecture:
19.Epidemiology of skeletal and dental diseases
20. Epidemiology of chronic respiratory diseases
Seminar: 19-20. Preventive strategies

11th week:
Lecture: 21.Introduction into the general epidemiology of communicable diseases
22.Epidemiology of communicable diseases transmitted through the skin and sexually transmitted
Seminar: 21-22. Reporting and control of communicable diseases, vaccination

12th week:
Lecture: 23.Epidemiology of nosocomial infections
24.Epidemiology of respiratory infectious diseases
Seminar: 23-24. Global Burden of Diseases database

13th week:
Lecture: 25. Epidemiology of viral hepatitis
26. Health policy principles
Seminar: 25-26. Sterilization and disinfection

14th week:
Lecture: 27. Health care systems of developed countries
28. Needs, demands and use of health services
Seminar: 27-28. Hospital infection control

Requirements

Requirements for signing the lecture book:

Attendance of lectures is highly recommended. Attendance of the seminars is obligatory. The academic adviser refuse to sign the lecture book if a student is absent more than two times from the seminars even if he/she has an acceptable excuse. Students should also perform a midterm test on the 8th week of the semester. The midterm test covers the topics of all lectures and seminars held in the first 7 weeks of the semester. There is no possibility to repeat this test during the semester and examination period. The mark of the midterm test will be included in the calculation of the final average mark of the subject.

Requirements for the final exam:

The final exam involves written and oral sections covering the topics of all lectures and seminars of the subject. The oral exam covers the topics of all seminars of the semester. The written exam consists of multiple choice test questions related to Environmental Health, Epidemiology and Health Policy. Each section is evaluated separately. The final exam is assessed on the basis of the average of five marks including the result of midterm test, and the results of Environmental Health, Epidemiology, Health Policy tests, and mark of the oral exam. It is failed if either the oral or any part (Environmental Health, Epidemiology, Health Policy) of the written exam is graded unsatisfactory. Students should repeat only that/those section/sections of the final exam that has/have been previously unsuccessful. In this case the final exam is graded according to the

average of the passing marks obtained on the first and repeated exams.

Type of exam:

final exam after one semester (ESE)

Prerequisites: completion of dental microbiology, organ and oral pathology subjects
Course description
The course covers the main areas of public health: environmental health including the health consequences of air and water pollution, occupational and nutritional health; the principles of epidemiology, the epidemiology and control of communicable and non-communicable diseases. Special attention is given on the main topics underlying nutritional disorders and deficiencies, health hazards of pharmacist' practice and preventive strategies.
Requirements
To acquire knowledge about the principles and the most important issues of environmental health, communicable and non-communicable diseases and health policy.
Methods of education
The education of the subject is based on lectures and seminars. The practical adaptation of the topics of lectures are highly promoted by seminars. Students will learn about the major public health issues in developing and developed countries and organisation of public health services. During the epidemiology seminars students will learn how to calculate the most important indicators for the measurement of morbidity and mortality. In addition, the epidemiology of communicable and non-communicable diseases will be discussed in detail.

Department of Operative Dentistry and Endodontics

Subject: **RESTORATIVE DENTISTRY I. (CARIOLOGY)**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st week:
Lecture: Modern possibilities in dental caries diagnostics

2nd week:
Lecture: Isolation of operative field. Absolute and relative isolation. Rubber dam placement

3rd week:
Lecture: Morphology of the teeth. The physiology of occlusion with special focus on restorative dentistry

4th week:
Lecture: Dental treatments of patients with chronic underlying diseases. Endocarditis prophylaxis. Antibiotics in dental practice

5th week:
Lecture: Special types of cavity preparations: tunnel, box only. Complex preparation for composites in case of a complex caries lesion. Parapulpal pins

6th week:
Lecture: Complex preparation for amalgam restorations. Pins and occlusal coverage with amalgam. Bonded amalgam restorations

7th week:
Lecture: Adhesive technique I.

8th week:
Lecture: Adhesive technique II.

9th week:
Lecture: Layering techniques, light curing possibilities to reduce polimerization shrinkage and improve marginal seal. Rebonding

10th week:
Lecture: Up to date matrice systems

11th week:
Lecture: Treatment of cervical lesions. Sandvich technique

12th week:
Lecture: Written test

13th week:
Lecture: Direct composite inlay, onlay, overlay. Preparation. Adhesive luting

14th week:
Lecture: Dental treatments in elderly. Caries of the roots, treatment options

Requirements

Examination: exam at the end of the mid semester.
Materials for exam preparation: official lecture book, lectures and materials of the special practicals.

Requirements for signing the lecture book
• During the semester, in accordance with the course requirements there is one written test that takes place during a lecture. The self-control tests cannot be repeated only with an adequate proof in a given time. The result of any missed test conclude to failure (1). The result cannot be improved.

• Special practicals:
The practices start and finish in accordance with the timetable, arriving late is not allowed.
Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work. o Absences, in theory, are not allowed.
In reasoned cases, for certified absences the department ensure make up classes on a previously agreed date during the semester.
A certification is required for any absences which has to be handed to the leader of the practice course.
At each practical student's work is evaluated with a grade by the practice course leader based on the student's knowledge on theory, practical work and manuality.
At the end of the semester, student is given a grade for his/her mid term work based on the average of the grades given during the semester.

Special practices (4th 1st semester): 2x5 lessons
Course exemption
With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week (email: konzervalo@unideb.hu).

Grade formation
The result of the test and the grades of the special practicals can impact on the grade of the oral exam.

!!! ATTENTION
ENDODONTICS CASE PRESENTATION (5th year)
During the case presentation, student is required to present the case of his/her own patient (multirouted MOLAR tooth, with multiple root canals) treated with rubber dam isolation.

Presentation requirements:

• Filled signed endodontic form without any missing detail, approved, signed and stamped by the supervisor
• Evaluable radiological documentation
• Logically built up computer presentation

The mandatory endodontics case study is planned according to previously agreed date and is presented in sequence order.

!!! Missing the presentation of case study, or missing any part of the above mentioned listed requirements, results in the refusal of signing the lecture book.
Requirements for taking up the subject: Restorative Dentistry Propedeutics II. (Endodontics), Introduction to Prosthodontics IV.: Prop. of Fixed Prosthodontics together with Prosthetic Dentistry I.

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

2nd week:
Lecture: Surgical treatment of tooth-eruption disorders
Endodontic surgery

3rd week:
Lecture: Oral surgical treatment of patients with hemostatic disorders.

5th week:
Lecture: Odontogenic and non-odontogenic inflammations of the head and neck region and their treatment I.
Odontogenic and non-odontogenic inflammations of the head and neck region and their treatment II.

6th week:
Lecture: TEST I

Self Control Test

8th week:
Lecture: Antibiotics in oral surgery
Osteomyelitis of the jaws
Self Control Test

9th week:
Lecture: Diseases of the salivary glands and their treatment.

11th week:
Lecture: Pathology of head and neck cysts
Therapy of head and neck cysts

12th week:
Lecture: Diseases of the maxillary sinus and their treatment.

14th week: **Lecture: TEST II** Consultation– Remedial test	**Self Control Test**

Requirements

Course Objectives:

The aim of the course is to learn about surgical procedures relating to the pathological conditions of the teeth that are supplementary to dental treatments. To present those dental and maxillofacial diseases for which preoperative preparation and / or postoperative treatment is the dentist' task. During the semester, students will learn about pathological conditions causing symptoms in the adjacent regions of the teeth or on the jaws and their knowledge is essential for the safe practising of the dental profession.

Compulsory reading:

Szabó Gy.: Oral and Maxillofacial Surgery Semmelweiss Publishing House Budapest, 2004., ISBN: 963-9214-15-9

Recommended Books:

R.A. Cawson: Essentials of Oral Pathology and Oral Medicine Churchill Livingstone 1998., ISBN: 0443053480
P.W. Booth, S.A. Schendel, J.E. Hausamen: Maxillofacial Surgery Churchill Livingstone 1999., ISBN: 0443058539
Peterson, Ellis, Hupp, Tucker: Contemporary Oral and Maxillofacial Surgery Mosby, 2003., ISBN 0-323-01887-4

Exam: Oral end semester exam in the exam period. On the exam you can except questions from Oral Surgery Propedeutics and the topics of the first semester presentations and compulsory readings!

Assessment:

During the study period, two electronic tests are written. An unwritten test will be automatically graded as failed. To achieve a passed grade a minimum of 60% is required to reach by the test. By the electronic test it is essential to arrive in time the late-comers are not allowed write the test . No extra date will be given to rewrite the test. During the test loud chatting and announcing the correct answer are strictly forbidden. Those who come to such a misdeed are immediately suspended from their exam and as consequence a failed grade will be given. Great coat, cap, bag, or any electronical devices cannot be kept by the student during the test. Their detection will draw a suspending from the test with it and the result will be automatically a failed grade. Giving back the tablets are done simultaneously on the sign of the lecturer, until that no one can leave his or her location, otherwise the exam is considered insufficient.

If the average of the 2 written tests is less than 1,51, remedial test should be written on the 14th week, the remedial contains the whole material of the 1st semester of the 4th year. If the result of both of the tests are less than 50% both are considered as failed and the index signature will be denied . If the student receives a 'fail' this cannot be corrected in the examination period and the

student will be required to retake the subject.
End semester exam contains the material of the 1st and 2nd semester of the 4th year.
After the inadequate exam, the student can take the B or C exam earliest on the 3rd day.

Course exemption:

With previously obtained valid signature the attendance exemption of the practices can't be requested

Course Requirements:

Active participation in the special practices, and in the obligatory lectures, delays are not permitted. Students being late cannot join the practice or the lecture. Students should take part in the practice from its beginning to the end.
Prerequisites: Pathology II, Oral Surgery propedeutics
OBLIGATORY LECTURES:

2nd week Tooth- eruption disorders and their treatment.
3rd week Oral surgical treatment of patients with hemostatic disorders.
5th week Endodontic surgery.
5th week Odontogenic and non-odontogenic inflammations of the head and neck region and their treatment I.

Requirements for signature in the lecture book:

Only one absence is accepted from the obligatory lectures, in case of more absences the semester won't be accepted.
Active participation in the special practices, and in the obligatory lectures, delays are not permitted. Students being late can not join the practice or the lecture. Students should take part in the practice from its beginning to the end.

Subject: **SURGERY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**

1st week:
Lecture: History of surgery. Wounds, wound healing. Asepsis, antisepsis.

2nd week:
Lecture:
Burns and other thermic injuries. Reconstruction after burns.

3rd week:
Lecture: Indications and contraindications of surgery, legal considerations. Surgical infections, antibiotic treatment

4th week:
Lecture:
Basics of anesthesiology. Blood transfusion, pathophysiology of bleeding.

5th week:
Lecture:
Basics of gynecology (Dental inflammation and dental anesthesia in pregnancy.)

6th week:
Lecture: Bone fractures and their healing. Conservative and operative treatment.

7th week:
Lecture: Diseases of the kidneys and urinary tract

8th week:
Lecture: Surgical gastroenterology (Stomach, intestines, liver, biliary duct and pancreas). Hernia surgery.

9th week:
Lecture: Trauma of the upper and lower extremities; trauma of soft tissue, bones and joints

10th week:
Lecture: Diagnostics and treatment of polytraumatized patients. Head, chest and abdominal injuries

11th week:
Lecture: First-aid, basics of life support, physiology of shock.

12th week:
Lecture: Acute abdomen, types of bowel obstruction

13th week:
Lecture: Surgical oncology. Endocrine and breast surgery.

14th week:
Lecture: End Semester Exam

Self Control Test

Requirements

Aim of the Course

Increasing the general medical awareness of dentistry students. This includes the familiarizing them with some of the most important surgical disciplines and the border areas of surgical disciplines. Emphasis will be given to discuss the surgical issues related to dental practice, reviewing symptoms, exploring some pathophysiological relations, and to be aware of the available therapeutic options. Through this, students as future practitioners of this manual profession will be prepared to acquire surgical approach.

Short description of the course

Students attend weekly one lecture for 13 weeks followed by an examination (in form of a written test) on week 14.

Compulsory literature

Anil Agarwal, Neil Borley, Greg McLatchie (szerk.): Oxford Handbook of Operative Surgery
Kiadó: Oxford University Press,
Kiadás éve: 2017 (3. kiadás)
ISBN: 978-0-19-960891-1

Recommended literature

Anil Agarwal, Neil Borley, Greg McLatchie: Oxford Handbook of Operative Surgery
(Oxford University Press, 2017)

Type of exam

Written examination, based on test questions, which incorporate the discussed surgical diseases

Description of course requirements

Knowledge of what has been said at the lecture is of key importance among the course requirements. A sketch is available from all of the presentations listed in the curriculum and

available on the Faculty's website and they can be downloaded from there. It is suggested that the student prepares the literature on the basis of the presentations from the recommended and compulsory literature.

Disclaimers / information for repeaters

Identical to the rules applied to other non-professional subjects in the education of the FD.

Signature Conditions

Participation on the selected lectures.

Rules for grade calculation

Successful completion of the end-term multiple-choice test, where the grade is better, as more correct answers are given. Who reach 80% or above will be rated with 5 (excellent), fewer than 20% of the answers (0-19%) will fail (1).

Department of Pediatric and Preventive Dentistry

Subject: **PREVENTIVE DENTISTRY II.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Seminar: **14**

1st week:
Seminar: Oral status and indices

2nd week:
Seminar: Caries risk assessment

3rd week:
Seminar: How to plan preventive programs? How to educate patients?

4th week:
Seminar: Preventive programs in practice Fissure sealing

5th week:
Seminar: Fluoride therapy, remineralization techniques

6th week:
Seminar: Dental prevention during pregnancy and infancy

7th week:
Seminar: Mid-semester test

8th week:
Seminar: Oral cancer prevention

9th week:
Seminar: Modification of biofim pathogenicity

10th week:
Seminar: The effect of diet on oral health

11th week:
Seminar: Fissure sealing 2

12th week:
Seminar: Preventive care in conservative dentistry and prosthodontics.

13th week:
Seminar: Up-to-date preventive methods.

14th week:
Seminar: Self-control test.

Requirements

The aims and objectives of the course

The goal of the course is to provide the students with both an introductory knowledge of the

complexities of assessing and addressing disease and prevention at the individual and population level and an understanding of the role of the dental profession in promoting and maintaining oral health.

Short description of the course
Provides an introduction to dental disease, the causes and methods for prevention. An intense focus on dental caries and preliminary information on periodontal disease. Students learn to utilize patient assessment techniques and provide oral health information. The main topics discussed are:
-Application of the basic sciences in maintaining healthy oral tissues
-The principles and control of dental diseases
-The etiology, epidemiology and prevention of dental caries
-Oral hygiene, nutrition and dietary measures, and dental health education as a preventive dental service
-Instruction of the oral hygiene methods
-The metabolic and dental aspects of fluorides in the control of dental caries
-Preventive aspects of prosthodontics and conservative dentistry
-Oral cancer prevention

Compulsory reading
Harris NO, García-Godoy F: Primary preventive dentistry 6th ed. Appleton & Lange 2004

Recommended reading
Limeback H: Comprehensive Preventive Dentistry. Wiley-Blackwell 2012

Assessment
AW 5 grade

Requirements
Active participation in the seminars is obligatory.
With acceptable written (medical, legal, etc.) certificate students may miss 2 seminars. The certificates must be sent to the Educational Secretariat of the Faculty of Dentistry (fokot@dental.unideb.hu) within 3 working days. There is no possibility to compensate the missed seminars.
Two written self-control tests will be held during the semester, the SCTs are obligatory to take. The missed SCT cannot be repeated. The result of the missed SCT is 0% (failed).

Course exemption
With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week of the semester.

Conditions of signing the lecture book
-Participation in all seminars (a maximum of 2 certified absences are allowed)
-Mid-semester and final tests are obligatory to take

Calculation of the AW5 grade
The mark of the course will be calculated according to the average of the result of the mid-semester test and the result of the final test.
If the average of the final test is under 60%, the result of the course is going to be a fail (regardless the grade of the mid-semester test) and the student must take an end-semester (oral) exam as a ‚B'

chance.
60-69.9%pass (2)
70-79.9%satisfactory (3)
80-89.9%good (4)
from 90%excellent (5)

Department of Periodontology

Subject: **PERIODONTOLOGY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st week:
Lecture: Anatomy of the periodontium

2nd week:
Lecture: Dental calculus, bacterial plaque and other deposits. Microbiology of periodontal disease

3rd week:
Lecture: The role of bacterial plaque and other local factors in the etiology of periodontal diseases.

4th week:
Lecture: Etiology of periodontal disease: the role of systemic factors.

5th week:
Lecture: Pathogenesis of periodontal disease I.

6th week:
Lecture: Pathogenesis of periodontal disease II.

7th week:
Lecture: Clinical diagnosis and treatment plan of periodontal disease in general

8th week:
Lecture: Self-control test.

9th week:
Lecture: Classification of periodontal disease. Advanced diagnostic methods in periodontology.

10th week:
Lecture: Gingivitis: Clinical features and diagnosis

11th week:
Lecture: Periodontitis: Clinical features and diagnosis

12th week:
Lecture: Emergencies and acute conditions in periodontology

13th week:
Lecture: Trauma from occlusion

14th week:
Lecture: Advanced diagnostic methods in periodontology

Requirements

The aims and objectives of this course
1. Examination of periodontium
1.1 Physical examination
2. Treatment of periodontal disorders in dental practice
2.1 Instruction and motivation of patients

2.2 Causative treatment of periodontal disorders: Scaling and root planning, curettage
2.3 Periodontal surgery
2.4 Indications and contraindications of periodontal surgery, post surgical treatments
3. Medicaments in periodontal therapy
4. Periodontal aspects of implantology

Short description of the course

- Taking previous medical history-the patients complaint(s)
- Inspection-healthy periodontium-distinction from the diseased
- Clinical examination of periodontium-periodontal probing; probing depth, pocket depth, definition of loss of attachment and their relationship
- Periodontal charting and recording-definition and periodonatl indices
- Disclosing agents and their application in practice
- Demonstration of different tooth brushing methods on model
- Instruments and their usage (hand, rotational and ultra sound scalers; instruments for polishing, polishing pastes, maintenance of instruments)
- Therapy assessment: results, failures, follow up
- Chemical plaque control
- Antibiotics in periodontics
- Subgingival irrigation
- Periodontal dressings, tissue adhesives in practice
- Treatment of root hypersensitivity
- Special oral hygiene aids, instruments

Assessment:

End of Semester Exam

Requirements

Lectures: As given in the timetable (time and place)
Practices: In the building of Faculty of Dentistry (Dept. of Periodontology)

- With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 20% even if it is certificated.
-The number of accepted practices must be above 80% of practices.
- Missed practice is not-accepted.
- Students have to fulfil the minimum practical requirements of the subject.
- The minimum practical requirements of the subject will be handed out in the first week of the semester.

Course exemption

With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week

Conditions of signing the lecture book

- Active participation in the practices (there is no possibility to compensate the missed practices).
- The practical work will be evaluated at the end of each practice separately, as 'accepted' or 'not-accepted'.
- The test written during the semester should be passed. The result of the failed test could be repeated once during the semester.

Calculation of the grade

The result of the written test and the result of the ESE will give the final mark.

Department of Pharmacology and Pharmacotherapy

Subject: **DENTAL PHARMACOLOGY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **30**
Seminar: **14**

1st week:
Lecture: Drug receptors and pharmacodymamics 1.
Seminar: Prescription writing.

2nd week:
Lecture: Pharmacokinetics 1.Pharmacokinetics 2.
Seminar: Prescription writing.

3rd week:
Lecture: Pharmacology of adrenoceptors 1.Pharmacology of adrenoceptors 2.
Seminar: Prescription writing.

4th week:
Lecture: Pharmacology of adrenoceptors 3.Cholinergic drugs 1.
Seminar: Prescription writing.

5th week:
Lecture: Cholinergic drugs 2.Antihypertensive agents 1.
Seminar: Prescription writing.

6th week:
Lecture: Antihypertensive agents 2.ACE inhibitors.
Seminar: WRITTEN EXAMINATION.

7th week:
Lecture: Antianginal drugs. Agents used in hyperlipidemia.
Seminar: Prescription writing.

8th week:
Lecture: Drugs used in congestive heart failure. Antiarrhythmic agents.
Seminar: Prescription writing.

9th week:
Lecture: General anesthetics. Local anesthetics 1.
Seminar: Prescription writing.

10th week:
Lecture: Local anesthetics 2. Local anesthetics 3.
Seminar: Prescription writing.

11th week:
Lecture: Opioid analgesics. Non-opioid analgesics and antipyretics 1.
Seminar: WRITTEN EXAMINATION.

12th week:
Lecture: Non-opioid analgesics and antipyretics 2.Non-steroidal anti-inflammatory drugs 1.
Seminar: Prescription writing.

13th week:
Lecture: Non-steroidal anti-inflammatory drugs 2. Antiasthmatic drugs.
Seminar: Prescription writing

14th week:
Lecture: Drugs used in disorders of coagulation, Antianemic agents. Diuretics. Drugs acting on the gastrointestinal tract 1.
Seminar: WRITTEN EXAMINATION.

Requirements

Attendance at seminars is compulsory. The Department may refuse to accept the semester if they are absent from more than 2 seminars. The current knowledge of the students will be tested in every

month in each semester using a written test. Participation is compulsory, the results of the tests are recorded and will be presented to the examiner during the End of Semester Examination and the Final Examination. At the end of the 1st semester the students are required to take the End of Semester Examination (written and oral), based on the material taught in the semester. At the end of the 2nd semester the students are required to take the written and oral Final Examination, based on the material taught in Pharmacology in both semesters.
In case of declared emergency state the teaching activity will be changed according to the followings:
1. Teaching materials, webinar conference logins, other education related documents are distributed by the official e-learning website of the Medical Faculty (elearning.med.unideb.hu).
2. Lecture slides are uploaded at least in pdf format or in narrated file (e.g. ppsx). Interactive webinar conferences (web lectures) are organized, if proper decision comes into power.
3. Seminars are online and the conference program is the external part of the Moodle system.
4. Seminars are organized for each educational group by the original seminar leader. Joining the seminar is possible and required through the Moodle e-learning system.
5. Participation in seminars is compulsory, only 2x2 hours unjustified absences per semester are allowed and the attendance is automatically registered by the Moodle system. To help the understanding of the presented material, online tests can be organized (polling). These results WILL NOT BE evaluated as a mark, but the discussion can be based on the distribution of the answers.
6. The possibility is open and highly recommended for all of the students to participate in more than one seminar session (2 hours) per week. The upper limit of students to join is 200 persons.
7. Regularly, practice tests are set up in the e-learning system. These result NO mark. Several attempts are allowed, the only goal is to reach better results than 90%.
8. After the withdrawal of emergency state, the original regulations come into power again.

Department of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **5**
Practical: **105**

1st week: **Lecture:** 1-5 week: Case presentation **Practical:** 1-15 week: Complex dental treatment: restorative, periodontial and extraction procedures according to patients' needs. The	minimum requirements declared by the departments to be fulfilled. General nursering procedures during treatments.

Requirements

Assessment:
AW5. Continuous monitoring of the knowledge during practices. The grade is given on the basis of the student's term-time practical performance and this is considered as the final grade of the end semester exam.
The grade cannot be improved during the exam period

Signature conditions:
-Completion of the required minimums.
-Active participation on the practices (there is no possibility to compensate the missed practices).
-The practices begin/end according to the timetable, delay is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.
-With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 2 patient treatment and 1 assistance practice altogether. All missed practices need to be certified.
-All procedures amongst the practical work will be evaluated with grades. The final grade is calculated on basis of the grade-averages received from all special fields. (The calculations follow the general rule for rounding, from x.51.)
- The student's performance provided on general practices will be evaluated twice, in the 6th and in the 13th week, during the semester and the student will be notified in written form by non-acceptable performance.
- Grades given on the practices, will be the end semester grades, which cannot be improved during the exam period.
- In addition, the supervisor takes the professional attitude and responsibility of the student into account, and his / her effort to earn or maintain professional development, the proper behavior towards the clinical staff, the patients and their relatives. The correct fulfilment of the administrative responsibilities and the appropriate behavior towards of the administrative personnel.
- In case the performance is non-acceptable, the student will be warned in written form. From students with two warnings the signature will be denied. In case of not fulfilling the requirements, the student will be warned with the PROFESSIONALISM EVALUATION REPORT FORM (F118 // 1ST). The student who had to be warned twice during the semester because of inadequate performance due to professional reasons or inadequate professional attitudes his / her the signature will be rejected.

The Faculty of Dentistry provides students with 1 white medical coat, 1 suit sluice (trousers and top) and 1 locker key for the duration of the Complex practice. The students undertake to return these items at the end of the practice.

Prerequisites: Complex Dentistry I., Dosimetry, Radiation Health Effects

Subject: **DIGITAL DENTISTRY**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **14**

1st week:
Lecture: History of digital dentistry
Seminar:
Practical: Introduction to digital dentistry

2nd week:
Lecture: Fundamentals of basic 3D scannings I.
Practical: Open source demonstrating applications

3rd week:
Lecture: Fundamentals of basic 3D scannings II.
Practical: Open source demonstrating applications

4th week:
Lecture: Efficient 3D point cloud processing
Practical: Software-based processing of 3D point clouds

5th week:
Lecture: Mesh optimization methods and their geometrical principles
Practical: Mesh optimization in practice

6th week:
Lecture: Introduction to Computer Aided manufacturing (CAx).
Practical: Application of CAD software (FreeCAD as example).

7th week:
Lecture: Introduction to mesh and solid models: coordinate geometry and file formats.
Practical: Mesh and solid modelling with CAD (Computer aided Design/Drawing) application.

8th week:
Lecture: Introduction to cutting (material removal processes): machines, tools and materials; cutting forces, CNC machining. Introduction to additive technologies.
Practical: Machining design with CAM (Computer Aided Manufacturing) applications. Rapid Prototyping with 3D printing.

9th week:
Lecture: Custom-made implant design and fabrication based on 3D printing
Practical: Custom-made implant design and fabrication based on 3D printing

10th week:
Lecture: Digital dentistry in fixed prosthodontics
Practical: Plan of the temporary crown using digital techniques

11th week:
Lecture: Removable partial dentures using digital technologies
Practical: Plan of the temporary crown using digital techniques

12th week:
Lecture: Total upper and lower dentures using digital technologies
Practical: Plan of the temporary crown using digital techniques

13th week:
Lecture: Implant supported prosthesis using digital technologies
Practical: Plan of the temporary crown using digital techniques

14th week:
Lecture: Test
Practical: Practical test

Requirements

Conditions of signature to the lecture book:
Active participation in the practices (there is no possibility to compensate for missed practices).
The practices begin/end according to the timetable, lateness is not permitted.
The signature in the lecture book will be refused in cases of absences from more than 2 practices. All absences must be certified.

Final five grade practical (AW5) evaluation:
The evaluation covers the topics of lectures and practices and consists of a written and a practical part. If the student fails, or does not attend the evaluation, the AW5 grade is „fail”, which can be improved as a „B” or „C” chance during the exam period.

Subject: **PROSTHETIC DENTISTRY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st week:
Lecture: Total dentures: patient examination, examination of soft and hard tissues, diagnosis, treatment plan.

2nd week:
Lecture: Impression techniques, determination of the centric relation position, usage of the facebow.

3rd week:
Lecture: Statical and esthetic considerations of arranging artificial teeth.

4th week:
Lecture: Denture delivering and oral hygiene for total denture patients.

5th week:
Lecture: Definition of removable partial prosthodontics, types of partial dentures, parts of partial dentures. Support and anchorage of the denture.

6th week:
Lecture: Components of a removable denture. Casted clasp systems.

7th week:
Lecture: Clinical procedures of constructing a removable partial denture step by step. Reaction of oral mucosa to bearing the base of a denture. Insertion, counselling, complaints and adjustments, refitting. Procedures and repairs.

8th week:
Lecture: Temporomandibular disorders and their treatments I.

9th week:
Lecture: Temporomandibular disorders and their treatments II.

10th week:
Lecture: Precision attachments for partial dentures.

11th week:
Lecture: Mechanical principles of the partial denture design.

12th week:
Lecture: Biomechanical aspects of wearing a removable partial denture.

13th week:
Lecture: Principles of planning a removable partial denture.

14th week:
Lecture: Dental laboratory relations. Consultation.

Requirements

The aim of the course is to expand knowledge about treatment of totally and partially edentolous cases, including combined restoration, by using the information of „Proshteic dentistry I". Course includes detailed information on clinical and technical phases of treatment. Special practices focus on certain topics in theory and practice.

Brief course programme: Students gain knowledge on the anatomical, clinical anatomical and physiological aspects of treatment of totally and partially edentulous situations. Course includes

expanded knowledge on treatment planning, including necessary fixed components. Detailed information on clinical and technical phases is also part of the course.

Competences:
The student gains competence in creating a treatment plan for total and partial edentolous situations, and to clinically treat such cases.

Requirements:
* Active participation in the practices (there is no possibility to compensate for missed practices).
* The practices begin/end according to the timetable, lateness is not permitted. Attendance can only be accepted if the student is present in the practice room from the beginning until the end of the practice.
* The signature in the lecture book will be refused in cases of absence from more than 50% of any special practice. All absences must be certified.
* A practical mark may be given on the basis of the student's term-time practical performance, which may be considered at the ESE grade.

Assessment:
End of semester examination. The exam starts with an online entrance test. Students must complete this test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is "failed" (1). The complex, and special practical grades may be considered at the ESE grade.

Department of Orthodontics

Subject: **ORTHODONTICS II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **15**
Seminar: **1**
Practical: **15**

1st week:
Lecture: Treatment systems 1. (Angle I)
Treatment systems 2. (Angle II)
Treatment systems 3. (Angle III)

4th week:
Lecture: Fixed appliances 1. (Lingual arch, Goshgarian, Hyrax, Temporary Anchorage Device)
Fixed appliances 2. (Multiband appliance)
Fixed appliances 3. (Phases of Multiband Treatment)

7th week:
Lecture: Interdisciplinary orthodontics 1. (Adult Treatment)
Interdisciplinary orthodontics 2. (Orthodontic Treatment and Periodontology, Prosthetic)
Interdisciplinary orthodontics 3. (Complex Treatment of Patient with Cleft Lip and Palate)

10th week:
Lecture: Orthodontic materials
Relapse
Retention

13th week:
Lecture: Minimum questions

Requirements

The aims and objective of this course
To provide an insight for dentistry students into the orthodontist thinking and to present the basic knowledge and correlations.

Short description of the course:
During the course, the students learn about the causes and treatments of ever-evolving and changing orthodontic and jaw orthopaedic disorders, and the limits of the profession. The second semester aims to introduce the relevant orthodontic treatments.

Compulsory reading:
S.J. Littlewood, L. Mitchell: An introduction to Orthodontics, 5th Ed., Oxford 2019., ISBN:9780198808664

Recommended books:
Proffit W., Fields H., Sarver D.: Contemporary Orthodontics, 5th Ed., Elsevier 2013

Assessment:
Final exam

Requirements:
As given in the timetable (time & place)
Practices: In the building of Faculty of Dentistry
Students attendance at the lectures is not mandatory but recommended.
Active participation in the practices (there is no possibility to compensate the missed practices.

Course exemption:
With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week.

Conditions of signing the lecture book
The Department may refuse to sign the student's lecture book if they are absent from more than 20% of all practical lessons in a semester.

Prerequisites of taking the subject:
Orthodontics I.
Calculation of the grade:
Before the final exam it is compulsory to complete the minimum questions (70%).
The students have to choose from the examination topics.

Department of Basic Medical Sciences

Subject: **INTERNAL MEDICINE II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **28**
Practical: **28**

1st week:
Lecture: Disorders of oesophagus, stomach and bowels.
Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

2nd week:
Lecture: Acute and chronic liver diseases. Liver cirrhosis.
Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

3rd week:
Lecture: Disorders of the gall bladder and pancreas.
Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

4th week:
Lecture: Coagulopathies, von Willebrand1s disease. Drug induced bleedings.
Practical: Patients with hematological disorders and bleedings (Department of Internal Medicine building B)

5th week:
Lecture: Disorders of the platelets: ITP, TTP, HUS, DIC
Practical: Patients with hematological disorders and bleedings (Department of Internal Medicine building B)

6th week:
Lecture: Anaemias. Acute leukaemias.
Practical: Patients with hematological disorders or thrombosis (Department of Internal Medicine building B)

7th week:
Lecture: Chronic leukaemias. Chronic myeloproliferative disorders.
Practical: Patients with hematological and bleeding disorders (Department of Internal Medicine building B)

8th week:
Lecture: Lymphomas (Hodgkin and non-Hodgkin). Myelodysplasia.
Practical: Patients with hematological and bleeding disorders (Department of Internal Medicine building B)

9th week:
Lecture: Disorders of the pituitary gland, adrenal gland and thyroid gland.

10th week:
Lecture: Disorders of the parathyroid gland. Diabetes mellitus.
Practical: Patients with endocrinological disorders and diabetes mellitus (Department of Internal Medicine building A)

11th week:
Lecture: Systemic autoimmune disorders: SLE, Sjögren, systemic sclerosis, polymyositis.
Practical: Patients with endocrinological disorders and diabetes mellitus (Department of Internal Medicine building A)
Patients with immunological disorders (3rd Dept. Medicine).

12th week:
Lecture: Immune deficiency, vasculitis.
Practical: Patients with immunological disorders (Institute of Internal Medicine Building C)

13th week:
Lecture: Rheumatologic disorders. Peripheral circulatory deficiency.
Practical: Patients with immunological disorders (Institute of Internal Medicine Building C)

14th week:
Lecture: Disorders of the orbita. Uveitis.
Practical: Institute of Internal Medicine, Division of Rheumatology

Requirements

Participation in the lectures is recommended, the practicals are obligatory. Following the first

semester an end of semester exam (ESE) is necessary. Final Exam (FE) is compulsory at the end of the 2nd semester. Signature of the lecture book is denied after two missing practicals.
The student is expected to be able to communicate with the patient in Hungarian, including history taking. 1st part is written (minimum test, ≥85%), 2nd part is practical exam; 3rd part is oral exam (two topics). Students attending more than 80% of the lectures, +20% will be calculated at the minimum test.

Department of Emergency Medicine

Subject: **EMERGENCY MEDICINE**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **22**
Practical: **22**

1st week:
Lecture: General approach for emergency care, urgency levels, transportation trauma, etc. Rescue techniques in catastrophe situations

Practical: Initial assessment and treatment with the airway, breathing, circulation, disability, exposure, approach in emergency medicine. Practical approach for emergency medicine. Prehospital Management. Airway management. Symptoms of airway obstruction.

2nd week:
Lecture: Cardiac arrest, levels of cardiopulmonary resuscitation, basic life support, professional basic life support, advanced life support, post resuscitation care.
Practical: BLS.

3rd week:
Lecture: Cardiac rhythm disturbances. Hypertensive emergencies. Syncope, endocrine, metabolic and acid-base emergencies.
Practical: Safe defibrillation. AEDs, manual defibrillators.

4th week:
Lecture: Chest pain, acute coronary syndromes, pulmonary embolism, aortic dissection.
Practical: Indications and limitations of maintaining peripheral veins. Vein puncture. Intraosseous access. Central vein catheterization. Gastric lavage, delivery in the field.

5th week:
Lecture: Shock. Acute severe allergic reactions, anaphylaxis. Respiratory failure.
Practical: CPR practice/ALS.

6th week:
Lecture: Pediatric emergencies cardiac arrest in childhood, acute circulatory and respiratory failure, seizures, etc.
Practical: Pediatric CPR.

7th week:
Lecture: Poisoning psychiatric emergencies.
Practical: Complex rapid trauma survey.

8th week:
Lecture: Abdominal pain. Gastrointestinal bleeding. Vomiting and diarrhea. Obstetric and gynecologic emergencies.
Practical: Complex treatment of critical patients.

9th week:
Lecture: Stroke, headache, subarachnoid hemorrhage, convulsions, altered mental status, coma.
Practical: Complex case situation.

10th week:
Lecture: Abdominal pain. Gastrointestinal tracct bleeding. Vomiting and diarrhea. Obstetric and gynecologic emergencies.
Practical: Complex case situations.

11th week:
Lecture: Disaster medicine. Conception of the mass accident disaster. Organisation of rescue in the field.
Practical: Consultation.

Requirements

Requirements for signing the lecture book:

For obtaining the signature at the end of the semester you are required to attend all practicals. In case of absence you have to do the practical at a chosen time, written excuse is not accepted. Concerning the supplementary practical you have to contact your physician responsible for the practical. Facilities for maximum 2 (two) complementary practicals are available at the Simulation Center in Debrecen. If somebody will have more than 2 missed practices will get no signature. Evaluation: students write a test every week reading previous week lectures topic. The final examination consists of an oral and a practical part. Students can go for the oral exam only if they pass the practical exam. You can register for the exam before the beginning of the examination period. In case you fail to register for the exam we consider it as a failed one. "A" and "B" exam chances are assured.
The subject Emergency medicine (AOOXY03T9) includes course material equivalent to 0.5 credits according to the electronic, Moodle-based teaching program entitled “Basic Life Support module (BLS)” and course material equivalent to 2.0 credits according to the electronic, Moodle-based teaching program entitled “Advanced Life Support module (ALS)”

Department of Operative Dentistry and Endodontics

Subject: **RESTORATIVE DENTISTRY II. (ENDODONTICS)**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st week:
Lecture: The pulp and periapical area: anatomy and histology. The dentin-pulp complex. The principles of endodontology

2nd week:
Lecture: Vital pulp therapy

3rd week:
Lecture: The biology of dental pulp: pathology, symptoms and therapy

4th week:
Lecture: Endodontics in health related problems

5th week:
Lecture: Guidelines in endodontics

6th week:
Lecture: Modern concepts and methods in the course of shaping the root canal (rotary instruments)

7th week:
Lecture: Different materials in endodontics: irrigation materials, intracanal medicaments and root filling materials

8th week:
Lecture: Obturation techniques I.: cold-warm techniques. Evaluation of the root canal filling

9th week:
Lecture: Root canal treatment: problems, failures and complications. Flare-ups in endodontics.

10th week:
Lecture: Endodontic revision (surgical and non-surgical retreatment).

11th week:
Lecture: Restoration of endodontically treated teeth

12th week:
Lecture: Bleaching of non vital teeth

13th week:
Lecture: Traditional and microsurgical techniques in endodontic surgery

14th week:
Lecture: Written exam

Requirements

Examination: exam at the end of the mid semester.
Materials for exam preparation: official lecture book, lectures and materials of the special practicals.
Requirements for signing the lecture book:
• During the semester, in accordance with the course requirements there is one written test that takes place during a lecture. The self-control tests cannot be repeated only with an adequate proof in a given time. The result of any missed test conclude to failure (1). The result cannot be improved.
• **Special practicals:**
The practices start and finish in accordance with the timetable, arriving late is not allowed.
Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
Absences, in theory, are not allowed. o In reasoned cases, for certified absences the department ensure make up classes on a previously agreed date during the semester.
A certification is required for any absences which has to be handed to the leader of the practice course.
At each practical student's work is evaluated with a grade by the practice course leader based on the student's knowledge on theory, practical work and manuality.
At the end of the semester, student is given a grade for his/her mid term work based on the average of the grades given during the semester.

Special practices (4th 2nd semester): 2x5 lessons
Course exemption

With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week (email: konzervalo@unideb.hu).
Grade formation
The result of the test and the grades of the special practicals can impact on the grade of the oral exam.

!!! ATTENTION
ENDODONTICS CASE PRESENTATION (5th year)
During the case presentation, student is required to present the case of his/her own patient (multirouted MOLAR tooth, with multiple root canals) treated with rubber dam isolation.

Presentation requirements:

• Filled signed endodontic form without any missing detail, approved, signed and stamped by the supervisor
• Evaluable radiological documentation
• Logically built up computer presentation
The mandatory endodontics case study is planned according to previously agreed date and is presented in sequence order.
!!! Missing the presentation of case study, or missing any part of the above mentioned listed requirements, results in the refusal of signing the lecture book.

Requirements for taking up the subject: Restorative Dentistry I. (Cariology)

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st week:
Lecture: Maxillofacial traumatology, soft tissue and tooth injuries, pathology of fractures
Practical: Patient examination, anamnesis.

2nd week:
Lecture: Diagnosis and treatment of mandibular fractures I
Practical: Special asking of the patient (anamnesis, complaints from dental suspect)

3rd week:
Lecture: Diagnosis and treatment of mandibular fractures II
Practical: Inspection, palpation, extra- and intraoral examination of the patient

4th week:
Lecture: Central and lateral midface fractures and their treatment
Practical: Palpation examination of the lymph-nodes in the maxillofacial region

5th week:
Lecture: TMJ diseases.
Practical: Ambulant treatment of oral surgical inflammatory diseases

6th week:
Lecture: Test I.
Practical: Aftercare of oral surgical inflammatory diseases
Self Control Test

7th week:
Lecture: Neurological diseases of the face
Practical: Treatment of dental trauma

8th week:
Lecture: Developmental anomalies of maxillofacial region, clefts
Practical: Conservative therapy of jaw-fractures

9th week:
Lecture: Craniofacial surgery
Practical: Post extraction instructions, treatment of complications

10th week:
Lecture: Orthognatic surgery
Practical: Performance of dento-alveolar operations.

11th week:
Lecture: Benign tumours
Practical: Oncological screening in the oral cavity and preventive practice in oral surgery

12th week:
Lecture: Odontogenic tumors
Practical:
Reconstructive surgery in operativetreatment of malignant tumours

13th week:
Lecture: Differential diagnosis of facial pain
Practical: Removal of retainedteeth.

14th week:
Lecture: Test II.
Practical: Closure of antroalveolar communication, minor soft tissue operation
Self Control Test

Requirements

Course Objectives:
The aim of the course is to learn about traumas, developmental disorders of the stomatognath system, treatment options of benign tumors of the oral cavity and their symptoms and their appearance, and to demonstrate the role of the dentist in treating these disorders.
Compulsory reading:
Szabó Gy.: Oral and Maxillofacial Surgery Semmelweiss Publishing House Budapest, 2001., ISBN: 963-9214-15-9
Recommended Books:
R.A. Cawson: Essentials of Oral Pathology and Oral Medicine Churchill Livingstone 1998., ISBN: 0443053480
P.W. Booth, S.A. Schendel, J.E. Hausamen: Maxillofacial Surgery Churchill Livingstone 1999., ISBN: 0443058539
Peterson, Ellis, Hupp, Tucker: Contemporary Oral and Maxillofacial Surgery Mosby, 2003., ISBN 0-323-01887-4
Exam: End semester (oral) exam
On the exam you can expect from Oral Surgery Propedeutics and the topics of the first and second semesters presentations and compulsory reading.
After the inadequate exam, the student can take the B or C exam earliest on the 3rd day.

Assessment: During the study period, two electronic tests are written. An unwritten test will be automatically graded as failed. To achieve a passed grade a minimum of 60% is required to reach by the test. By the electronic test it is essential to arrive in time the late-comers are not allowed write the test . No extra date will be given to rewrite the test. During the test loud chatting and announcing the correct answer are strictly forbidden. Those who come to such a misdeed are immediately suspended from their exam and as consequence a failed grade will be given. Great coat, cap, bag, or any electronical devices cannot be kept by the student during the test. Their detection will draw a suspending from the test with it and the result will be automatically a failed grade. Giving back the tablets are done simultaneously on the sign of the lecturer, until that no one can leave his or her location, otherwise the exam is considered insufficient.

End semester exam contains the material of the 1st and 2nd semester of the 4th year. After the inadequate exam, the student can take the B or C exam earliest on the 3rd day.
Course exemption:

With previously obtained valid signature the attendance exemption of the practices can’t be

requested

Course Requirements:

Practices: As given in the timetable, at the Outpatient Department of Oral and Maxillofacial Surgery.

Requirements for signature in the lecture book:

Active participation in the special practices, and in the obligatory lectures, delays are not permitted. Students being late can not join the practice or the lecture. Students should take part in the practice from its beginning to the end.

OBLIGATORY LECTURES:

1st week Maxillofacial traumatology, soft tissue and tooth injuries, pathology of fractures
5th week Temporomandibular disorders
8th week Developmental anomalies of maxillofacial region, clefts
10th week Orthognath surgical interventions
12th week Odontogenc tumors

Signature Requirements:

Only one absence is accepted from the obligatory lectures, in case of more absences the semester won't be accepted.

All of the absences (practices and obligatory lectures) should be certified in a credible way within three workdays.! Compensations of missed special practices are obligatory, but linked to credible certification of missings. In case of missed practice the semester won't be accepted. If the result of both of the tests are less than 50% both are considered as failed and the index signature will be denied.

Department of Pediatric and Preventive Dentistry

Subject: **PEDIATRIC DENTISTRY PROPEDEUTICS**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Seminar: **5**
Practical: **10**

1st week:
Seminar: Introduction to pediatric dentistry. The child patient.

2nd week:
Seminar: Examination methods in pediatric dentistry. Patient chart and role of dental screening.

3rd week:
Seminar: Dental development and eruption. Teething and eruption problems.

4th week:
Seminar: Comparison of the primary and permanent dentitions (anatomy, physiology)

5th week:
Seminar: Prevention in the pediatric dental practice.

6th week:
Practical: Accurate oral status assessment in case of primary, mixed and permanent dentitions.

7th week:
Practical: Fissure sealing.

8th week:
Practical: Class I preparation in primary molars.

9th week:
Practical: Class II cavity preparation in primary teeth, matrix placement and wedging.

10th week:
Practical: Pulpotomy in primary tooth.

11th week:
Practical: Crown build up preparation for SS crown.

12th week:
Practical: Apexification.

13th week:
Practical: Splinting of traumatized teeth.

14th week:
Practical: Fluoride modalities.

Requirements

The aims and objectives of the course
The goal of the course is to provide the students with an introductory knowledge and manual skills to treat child patients during the 5th year Pediatric Dentistry practicals.

Short description of the course
Topics of the practices:
- Accurate oral status assessment in case of primary, mixed and permanent dentitions
- Fissure sealing
- Class I preparation in primary molars
- Class II cavity preparation in primary teeth, matrix placement and wedging
- Pulpotomy in primary tooth
- Crown build up and preparation for SS crowns
- Apexification
- Splinting of traumatized teeth
- Fluoride modalities

Compulsory reading
Handouts provided by the Pediatric and Preventive Dentistry Department (download from the elearning.med.unideb.hu website)

Recommended reading

Assessment
AW 5 grade

Requirements
Active participation on the seminars.
Participation in practices is obligatory.
With acceptable written certificate students may miss 1 seminar. The missed seminar must be certified within 3 working days to the Educational Office by e-mail (fokot@dental.unideb.hu)
In case of absence, practice should be made up for by attending the practical with another group.

Course exemption

With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week.

Conditions of signing the lecture book
Two written self-control tests will be held during the semester.
All of the SCTs are obligatory to take and cannot be repeated. The result of the missed SCT is 0%

Prerequisites of taking the subject
Preventive Dentistry II.
Orthodontics I.

Calculation of the grade
5 grade (AW5) practical mark will be calculated according to the average of the practical grades (1/4) and the average of the 2 SCTs (3/4).
If the average of the SCTs is under 60% the result of the course is fail (1) and the student must take an end-semester (oral) exam as a ‚B' chance.

60-69,9%pass (2)
70-79,9%satisfactory (3)
80-89,9%good (4)
from 90%excellent (5)

Department of Periodontology

Subject: **PERIODONTOLOGY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st week:
Lecture: Treatment of periodontal diseases: goals, steps

2nd week:
Lecture: Cause-related therapy: Oral hygiene.

3rd week:
Lecture: Cause-related therapy: Root surface debridement.

4th week:
Lecture: Chemical plaque-control. Drugs in periodontology.

5th **week:**
Lecture: Written exam.

6th week:
Lecture: Surgical phase of periodontal therapy: Gingivectomy.

7th week:
Lecture: Surgical phase of periodontal therapy: Flap procedures.

8th week:
Lecture: Surgical phase of periodontal therapy: Mucogingival surgery.

9th **week:**
Lecture: Guided tissue regeneration. Growth factors and biochemical means.

10th **week:**
Lecture: Treatment of furcation-involved teeth.

11th **week:**
Lecture: Connection between periodontology and other subdisciplines.

12th **week:**
Lecture: Written exam
13th week:
Lecture: Effectiveness of periodontal therapy. Maintenance phase.

14th **week:**
Lecture: Biological and clinical aspects of dental implants. Diagnosis and treatment of peri-implant disease.

Requirements

The aims and objectives of this course

1. Examination of periodontium

1.1 Physical examination

2. Treatment of periodontal disorders in dental practice

2.1 Instruction and motivation patients

2.2 Causative treatment of periodonatl disorders: Scaling and root planning, curettage

2.3 Periodontal surgery

2.4 Indications and contraindications of periodontal surgery, post surgical treatments

3. Medicaments in periodontal therapy

4. Periodontal aspects of implantology

Short description of the course

-Taking previous medical history-the patients complaint(s)
-Inspection-healthy periodontium-disticntion from the diseased

-Clinical examination of periodontium- periodontal probing; probing depth, pocket depth, definition of loss of attachment and their relationship
-Periodontal charting and recording - definition and periodontal indices
-Disclosing agents and their application in practice
-Demonstration of different tooth brushing methods on model
-Instruments and their usage (hand, rotational and ultra sound scalers; instruments for polishing, polishing pastes, maintenance of instruments)
-Therapy assessment: results, failures, follow up
-Chemical plaque control

-Antibiotics in periodontics
-Subgingival irrigation

-Periodontal dressings, tissue adhesives in practice
-Treatment of root hypersensitivity

-Special oral hygiene aids, instruments

Assessment: ESE

Requirements:
Lectures: As given in the timetable (time and place).
Practices: In the building of Faculty of Dentistry.

Conditions of signing the lecture book:
- With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 20%, even if it is certificated.
- The number of accepted practices must be above 80% of practices.
- Missed practise is not-accepted.
- Students have to fulfil the minimum practical requirements of the subject.
- The minimum practical requirements of the subject will be handed out on the first week of the semester.

Course exemption

With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week.

Conditions of signing the lecture book

-Active participation in the practices (there is no possibility to compensate the missed practices).

-The practical work will be evaluated at the end of each practice separately, as ‚accepted' or ‚not-accepted'.
-The written test during the semester should be passed. The result of the failed test could be repeated once during the semester.

Calculation of the grade

At least 2 written self-control tests will be held during the semester.

If the offered grade is ‚failed' the student must take an oral exam as a ‚B' chance.

Department of Pharmacology and Pharmacotherapy

Subject: **DENTAL PHARMACOLOGY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **30**
Seminar: **14**

1st week:
Lecture: Introduction to central nervous system. Antipsychotics.
Seminar: Prescription writing.

2nd week:
Lecture: Antidepressant agents. Pharmacological management of parkinsonism.
Seminar: Prescription writing.

3rd week:
Lecture: Sedative-hypnotic drugs 1.Sedative-hypnotic drugs 2.
Seminar: Prescription writing.

4th week:
Lecture: Antiepileptic drugs.The alcohols.
Seminar: Prescription writing.

5th week:
Lecture: Principles and mechanisms of antibiotic therapy. Penicillins 1.
Seminar: WRITTEN EXAMINATION.

6th week:
Lecture: Penicillins 2.Cephalosporins.
Seminar: Prescription writing

7th week:
Lecture: Macrolides. Clindamycin.
Seminar: Prescription writing.

8th week:
Lecture: Tetracyclines and chloamphenicol. Aminoglycosides.
Seminar: Prescription writing.

9th week:
Lecture: Sulfonamides. Quinolones and fluoroquinolones.
Seminar: Prescription writing.

10th week:
Lecture: Antiviral agents. Antifungal agents.
Seminar: Prescription writing.

11th week:
Lecture: Immunotherapy. Antineoplastic drugs.
Seminar: WRITTEN EXAMINATION.

12th week:
Lecture: Anticaries agents. Antiplaque and antigingivitis drugs.
Seminar: Prescription writing.

13th week:
Lecture: Antiseptics and disinfectants. Drugs for medical emergencies 1. Drugs for medical emergencies 2.
Seminar: Consultation.

14th week:
Lecture: Drugs for medical emergencies 3. Toxicological aspects of dental practice 1. Toxicological aspects of dental practice 2.
Seminar: WRITTEN EXAMINATION.

Requirements

Attendance at seminars is compulsory. The Department may refuse to accept the semester if they are absent from more than 2 seminars. The current knowledge of the students will be tested in every month in each semester using a written test. Participation is compulsory, the results of the tests are recorded and will be presented to the examiner during the End of Semester Examination and the Final Examination. At the end of the 1st semester the students are required to take the End of Semester Examination (written and oral), based on the material taught in the semester. At the end of the 2nd semester the students are required to take the written and oral Final Examination, based on the material taught in Pharmacology in both semesters.

In case of declared emergency state the teaching activity will be changed according to the followings:

1. Teaching materials, webinar conference logins, other education related documents are distributed by the official e-learning website of the Medical Faculty (elearning.med.unideb.hu).
2. Lecture slides are uploaded at least in pdf format or in narrated file (e.g. ppsx). Interactive

webinar conferences (web lectures) are organized, if proper decision comes into power.
3. Seminars are online and the conference program is the external part of the Moodle system.
4. Seminars are organized for each educational group by the original seminar leader. Joining the seminar is possible and required through the Moodle e-learning system.
5. Participation in seminars is compulsory, only 2x2 hours unjustified absences per semester are allowed and the attendance is automatically registered by the Moodle system. To help the understanding of the presented material, online tests can be organized (polling). These results WILL NOT BE evaluated as a mark, but the discussion can be based on the distribution of the answers.
6. The possibility is open and highly recommended for all of the students to participate in more than one seminar session (2 hours) per week. The upper limit of students to join is 200 persons.
7. Regularly, practice tests are set up in the e-learning system. These result NO mark. Several attempts are allowed, the only goal is to reach better results than 90%.
8. After the withdrawal of emergency state, the original regulations come into power again.

CHAPTER 20
ACADEMIC PROGRAM FOR THE 5TH YEAR

Department of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY III.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **5**
Practical: **280**

1st week:
Lecture: -
Practical: 1-15 week: Complex dental treatment: restorative, periodontial and extraction procedures according to patients' needs. The minimum requirements declared by the departments to be fulfilled. General nursing procedures during treatments

2nd week:
Lecture: Nursery procedures during restorative treatment

3rd week:
Lecture: General nursery procedure in the dental surgery

4th week:
Lecture: Nursery procedures during prosthetic treatment

5th week:
Lecture: Extraction related nursery procedures

6th week:
Lecture: Nursery procedure during periodontal treatment

Requirements

Assessment:
AW5. Continuous monitoring of the knowledge during practices. The grade is given on the basis of the student's term-time practical performance and this is considered as the final grade of the end semester exam.
The grade cannot be improved during the exam period.

Signature conditions:
-Completion of the required minimums.
-Active participation on the practices (there is no possibility to compensate the missed practices).
-The practices begin/end according to the timetable, delay is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.
-With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 2 patient treatment and 2 assistance practice altogether. All missed practices need to be certified.
-All procedures amongst the practical work will be evaluated with grades. The final grade is calculated on basis of the grade-averages received from all special fields. (The calculations follow the general rule for rounding, from x.51.)
- The student's performance provided on general practices will be evaluated twice, in the 4th and in the 10th week, during the semester and the student will be notified in written form by non-

acceptable performance.
- Grades given on the practices, will be the end semester grades, which cannot be improved during the exam period.
- In addition, the supervisor takes the professional attitude and responsibility of the student into account, and his / her effort to earn or maintain professional development, the proper behavior towards the clinical staff, the patients and their relatives. The correct fulfilment of the administrative responsibilities and the appropriate behavior towards of the administrative personnel.
- In case the performance is non-acceptable, the student will be warned in written form. From students with two warnings the signature will be denied. In case of not fulfilling the requirements, the student will be warned with the PROFESSIONALISM EVALUATION REPORT FORM (F118 // 1ST). The student who had to be warned twice during the semester because of inadequate performance due to professional reasons or inadequate professional attitudes his / her the signature will be rejected.

The Faculty of Dentistry provides students with 1 white medical coat, 1 suit sluice (trousers and top) and 1 locker key for the duration of the Complex practice. The students undertake to return these items at the end of the practice.

Prerequisites: Complex Dentistry II.

Subject: **PROSTHETIC DENTISTRY III.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st week:
Lecture: Rigid and elastic impression materials, advanced impression materials.

2nd week:
Lecture: Working cast and dies.

3rd week:
Lecture: Polymers in dentistry. Techniques for producing dentures made of polymers.

4th week:
Lecture: Adhesive materials in dentistry.

5th week:
Lecture: Dental ceramics.

6th week:
Lecture: Biocompatibility and corrosion.

7th week:
Lecture: Metal alloys in dentistry.

8th week:
Lecture: CAD / CAM systems in dentistry.

9th week:
Lecture: TMI disorders.

10th week:
Lecture: Removing post and core restorations.

11th week:
Lecture: Making a final prosthetic plan.

12th week:
Lecture: Design and fabrication of fixed-and-partial dentures combinations.

13th week:
Lecture: Complex and multidisciplinary

prosthodontic treatment.	used in prosthetic dentistry.
14th week: **Lecture:** Advanced technologies and materials	

Requirements

The aim of acquiring the professional content of the subject:
Students will learn the practical aspects of prosthetic dentistry.

Brief course programme:
Students will learn the practical aspects of prosthetic dentistry.

Competences:
The student will be able to make a prosthetic treatment plan in more complex cases.

Requirements:
Active participation in the practices (there is no possibility to compensate for missed practices). The practices begin/end according to the timetable, lateness is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.

Assessment:
End of semester examination.
One self-control test will be held during the semester based upon the topics of lectures, practices and reading materials, at a date announced later. The result of the self-control test will be offered as the grade of the end of semester exam. Students who have not achieved an offered grade (less than 60%), or achieved, but have not accepted it, will take an exam in the exam period from the material of the titles attached. Students must indicate the acceptance or rejection of the offered grade in the Neptun system. Students who would like to improve their offered grade in the exam period must reject the offered grade in the Neptun system before applying for an exam.
The grade of the test will be calculated as the following:

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

The exam starts with electronic/tablet entrance test. Students must complete this test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is “fail” (1).

Department of Basic Medical Sciences

Subject: **FORENSIC MEDICINE**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **14**

1st week:
Lecture: Forensic Odontology as a discipline and other related forensic sciences (Forensic Pathology, Forensic Anthropology).
Practical: Every week's practical topic is the same as the lecture's topic.

2nd week:
Lecture: Determining identification (facial, dental, oral, dental structure, super-imposition technique, report on dental findings).

3rd week:
Lecture: Age determination (development of tooth, deciduous and adult teeth, Gustafson method)

4th week:
Lecture: DNA techniques (dental application).

5th week:
Lecture: Mass disaster management (forensic odontologic consideration).

6th week:
Lecture: Report on wounds (general/ surgical/description, wound characteristics, healing process, consequences). Bite marks (human and other, examing, reporting, evaluating).

7th week:
Lecture: Child abuse (dentistry's role in reporting and preventing).

8th week:
Lecture: Evaluation of malpractice cases in forensic dentistry.

9th week:
Lecture: Civil and criminal case involvement. Effective medical testifying.

10th week:
Lecture: Dental jurisprudence. Courtroom practice. Dental report on personal injuries.

11th week:
Lecture: Case evaluation. Description of teeth (systematic charting, morphology, marking schemes, caries, filling, missing teeth, bridges, prostheses).

12th week:
Lecture: Death body evaluation on the scene or in the autopsy room (external description, case report).

13th week:
Lecture: Techniques in Forensic Odontology (forensic photography, computer assisted identification).

14th week:
Lecture: An overview on the study of Forensic Odontology.

Subject: **NEUROLOGY**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **10**
Practical: **10**

1st week:
Lecture: Meningeal signs. Examination of cerebrospinal fluid, meningitis, causes of increased cell number and protein content, interpretation of bloody CSF. Infectious diseases of central nervous system.

2nd week:
Lecture: Anatomy and examination of cranial nerves I-XII, I: temporal epilepsy; II: visual field defects, papillaoedema; III-IV-VI: gaze disturbances, diplopia, anisocoria, pathway of pupilla reflex, hemianopic pupillary reaction, cortical blindness.

3rd week:
Lecture: Anatomy and examination of cranial nerves I-XII, V: everything; VII: central and peripheral facial palsy, ageusia, innervation of salivatory glands, herpes zoster geniculi; VIII: peripheral and central type of dizziness, tinnitus, Bell's palsy.

4th week:
Lecture: Anatomy and examination of cranial nerves I-XII, IX-X: glossopharyngeus neuralgia, dysphagia, dysarthria; XI: torticollis; XII: central and peripheral hypoglossus lesion. Bulbar and pseudobulbar signs. Torticollis.

5th week:
Lecture: Motor system, -power -muscle tone -involuntory movements. Epilepsy.

6th week:
Lecture: Sensory system, -disturbance of deep sensation -disturbance of superficial sensation. Tumors of the nervous system.

7th week:
Lecture: Reflexes, -physiological reflexes, -pathological reflexes, -pyramidal signs -primitive reflexes. Autoimmune diseases of nervous system.

8th week:
Lecture: Coordination. Trauma of central nervous system.

9th week:
Lecture: Aphasias (sensory, motor), Gnostic functions, apraxias (anosognosia, dressing apraxia). Stroke

10th week:
Lecture: Headache, facial pain.

Requirements

Educational advisor: Dr. Csapó Krisztina, Dr. Árokszállási Tamás
Teaching materials can be reachedat neurologia.unideb.hu and elearning.med.unideb.hu.

1. There is one lecture and one practical every week in the first ten weeks of the 1st semester.
2. In the exam period an oral exam has to be taken, which is evaluated by a 5-grade mark.

Places for exams are opened every week during the exam period. Students have to register in Neptun for the exam. Without registration the exam cannot be taken. The first exam is the 'A' chance, the second exam is the 'B' chance, both are oral exams. If somebody failed 'A' and 'B' chances, the third possibility is the 'C' chance, which is in front of an exam committee. In this case the student has to fix an appointment with the educational advisor. Teaching materials presented at lectures and seminars are asked at the exams.

If the student wishes to improve the grade, it is possible once in the exam period after registration in

the Neptun for a free exam place.

Subject: **PEDIATRICS**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **14**

1st week:
Lecture: Disorders of the circulation. Lecturer: Gábor Mogyorósy M.D., PhD.
Practical: Infrastructure of the Department of Pediatrics, pediatric history taking. (Boglárka Dankó M.D., Barbara Cseke M.D.)

2nd week:
Lecture: The field of pediatrics, growth and development. Lecturer: Csongor Kiss M.D., PhD., D.Sc.
Practical: Perinatal Intensive care Unit (Petra Varga M.D., Melinda Vojtkó M.D.)

3rd week:
Lecture: Upper respiratory tract disease. Lecturer: Ágnes Papp M.D.
Practical: Infants Department - Examination of patients, prophylaxis and treatment of rickets. (Erika Bálega M.D.)

4th week:
Lecture: Lower respiratory tract diseases. Lecturer: Zsolt Bene M.D.
Practical: Infants Department - Bathing, clothing and feeding of infants. (Erika Bálega M.D.)

5th week:
Lecture: Fluid and electrolyte homeostasis. Metabolic disorders. Lecturer: Tamás Kovács M.D.
Practical: Pediatrics Surgery I. (Vivien Stercel M.D., Adam Radványi M.D.)

6th week:
Lecture: Neuroinfections. Seizures in children. Lecturer: Mónika Bessenyei M.D.
Practical: Pediatric Surgery II. (Vivien Stercel M.D., Adam Radványi M.D.)

7th week:
Lecture: National holiday
Practical: Department of Cardiology - Examination of patients, assessment of EKG. (Andrea Berkes M.D., Fruzsina Erdős M.D.)

8th week:
Lecture: Gastrointestinal disorders. Lecturer: Ilma Korponay-Szabó M.D., PhD.
Practical: Department of Hematology - Transfusion (István Szegedi M.D., Kincső Zoltán M.D.)

9th week:
Lecture: Infant feeding, feeding disorders vomiting in infants. Lecturer: Éva Juhász M.D.
Practical: Department of Hematology - Examination of patients (István Szegedi M.D., Kincső Zoltán M.D.)

10th week:
Lecture: Disorders of the hematopoietic system, tumors of the head and neck region. Lecturer: István Szegedi M.D.
Practical: Department of Pulmonology - Examination of patients, assessment of chest X-ray pictures. (Gergely Balázs M.D., Timea Rózsa M.D.)

11th week:
Lecture: Diseases of salivary glands. Pediatric tumors of the maxillofacial region. Dysphagia. Lecturer: Csongor Kiss M.D., PhD.
Practical: Department of Pediatric Internal Disorders - Examination of patients with nephrologic and neurologic disorders. (István Szegedi M.D., Kincső Zoltán M.D.)

12th week:
Lecture: Contagious infectious diseases in children. Pediatric AIDS. Lecturer: Éva Nemes M.D.
Practical: Emergency Care Unit - Examination of patients, assessment of Astrup test. (Éva Juhász M.D.)

13th week:
Lecture: Disorders of the kidneys. Lecturer: Tamás Szabó M.D., PhD.
Practical: Department of pediatric Internal Diseases - Examination of patients with gastrointestinal and endocrine disorders. (Erzsébet Lakatos M.D., Mariann Márki M.D.)

14th week:
Lecture: Impact of oral health on general health. Lecturer: Csongor Kiss M.D., PhD.
Practical: Department of Pulmonology - Examination of patients. (Gergely Balázs M.D., Timea Rózsa M.D.)

Requirements

Requirements for signing the lecture book: Attendance on practices are mandatory. In case of more than one absence, the signature of the lecture book will be refused. In case of documented serious disease or other reasonable cause, it can be discussed with the senior lecturer in charge for the dental English curriculum. Absences should be made up, compensation will be arranges individually by the senior tutors of the groups. Development of proper skills in pediatric patient's examinations, assessment of the clinical science of pediatric diseases involving the head and neck region with a special emphasis on the oral cavity is expected by the senior tutors on the last (15th week's) practice.
Requirements of the examination: Obtaining signature of the lecture book. Prearranged exam appointment strictly within the exam period as given by the Department of Education (to be obtained from the secretary of the Department, students are kindly requested to come to do the exam in a group of 5-20 students in an exam day; changes in the exam schedule should be made at least 24 hours - 1 working day - prior to the scheduled exam). Type of examination: Colloquium type end-semester exam (ESE), two titles.

Department of Operative Dentistry and Endodontics

Subject: **RESTORATIVE DENTISTRY III. (CARIOLOGY AND ENDODONTICS)**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st week:
Lecture: Up-to date preparation techniques: Laser, oscillating instruments, chemical-mechanical caries removal, air abrasion in restorative dentistry

2nd week:
Lecture: Dentin-hypersensitivity and treatment options. Erosion. Causes, manifestations in oral cavity, diagnosis making and its therapy

3rd week:
Lecture: Activation methods of root canal irrigants

4th week:
Lecture: Modern concepts and methods in the course of shaping the root canal

5th week:
Lecture: Obturation materials - a comparative evaluation

6th week:
Lecture: Pulp-periodontal interrelationship

7th week:
Lecture: Outcome estimation in endodontics

8th week:
Lecture: Written exam

9th week:
Lecture: Case presentation

10th week:
Lecture: Case presentation

11th week:
Lecture: Case presentation

12th week:
Lecture: Case presentation

13th week:
Lecture: Case presentation

14th week:
Lecture: Case presentation

Requirements

Examination: I. semester exam at the end of the mid semester
Materials for exam preparation: official lecture book, lectures and materials of the special practicals.

Requirements for signing the lecture book:
• During the semester, in accordance with the course requirements there is one written test that takes place during a lecture. The self-control tests cannot be repeated only with an adequate proof in a given time. The result of any missed test conclude to failure (1). The result cannot be improved.

ENDODONTICS CASE PRESENTATION
During the case presentation, student is required to present the case of his/her own patient (multirouted MOLAR tooth, with multiple root canals) treated with rubber dam isolation.

Presentation requirements:

• Filled signed endodontic form without any missing detail, approved, signed and stamped by the supervisor
• Evaluable radiological documentation
• Logically built up computer presentation The mandatory endodontics case study is planned according to previously agreed date and is presented in sequence order.

!!! Missing the presentation of case study, or missing any part of the above mentioned listed requirements, results in the refusal of signing the lecture book.

• Special practicals:
o The practices start and finish in accordance with the timetable, arriving late is not allowed.
o Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
o Absences, in theory, are not allowed. o In reasoned cases, for certified absences the department ensure make up classes for students on a previously agreed date during the semester.
o A certification is required for any absences which has to be handed to the leader of the practice

course.
o At the end of each practical student's work is evaluated with a grade based on the knowledge of his/her theory, practice work and manuality.
o At the end of the semester, student is given a grade for his/her mid term work based on the average of the grades given during the semester.

Special practice (5th 1st semester): 2x5 lessons
Course exemption

With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week (email: konzervalo@unideb.hu).
Grade formation
The result of the test and the grades of the special practicals can impact on the grade of the oral exam.
Requirements for taking up the subject: Restorative Dentistry II. (Endodontics), Complex Dentistry II.

Department of Oral Medicine

Subject: **ORAL MEDICINE**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st week:
Lecture: Principles of diagnosis of oral mucosal diseases. Developmental varieties of oral mucosa.

2nd week:
Lecture: Ulcerative, bullous & vesicular oral disorders. Desquamative gingivitis.

3rd week:
Lecture: White and red lesions of oral mucosa. Other discolorations

4th week:
Lecture: Gingival hyperplasia and benign tumours of oral mucosa

5th week:
Lecture: Precancerous lesions. Paraneoplastic lesions

6th week:
Lecture: Disease of salivary glands.

7th week:
Lecture: Lip and tongue diseases

8th week:
Lecture: Written exam

9th week:
Lecture: Oralfacial complaints without physically detectable disorders. (burning mouth syndrome, subjective xerostomy, dysgeusia)

10th week:
Lecture: Cardiovascular and respiratory system: oral symptoms

11th week:
Lecture: Gastrointestinal tract and renal diseases: oral symptoms

12th week:
Lecture: Hematological diseases: oral symptoms and dental care of patients with hemostasis disorders

13th week:
Lecture: Endocrinological and immunological diseases: maxillofacial and general symptoms

14th week:
Lecture: Diseases of TMJ and their therapy

Requirements

The aims and objectives of the course
1. To be aware of the forms and appearance of oral mucosal disease.
2. To know and understand the relationship with their risk factors, diagnostics, and treatment.

Short description of the course
1. Physical examination: inspection, palpation. Special examinations used in oral diagnostics (endoscopy, vital staining, citology, biopsies)
2. Definitions of precancerous lesion and condition. Responsibilities of general practitioners.
3. Oral cancer screening: basic steps.
4. Developmental varieties of oral mucosa.
5. Inflammatory conditions: stomatitises, cheilitises, glossitises.
6. Ulcerative lesions: infectious, traumatic, immunmediated and their differentiation.
7. White lesions of oral mucosa: infectious, immunological and traumatic of origin. Their differential diagnostics. Practice: Patient examination and basic treatments discussion

Compulsory reading:
The content of lectures and the studies handed out by the lecturer

Recommended books:
Any dealing specifically with oral medicine!

Assessment
ESE

Requirements
Lectures: As given in the timetable (time and place)
Practices: In the building of Faculty of Dentistry (Department of Periodontology.)
Active participation on the practices
With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 20%, even if it is certificated.
The Practical work will be evaluated at the end of each practice separately, as 'accepted' or 'not-accepted'.
The number of accepted practices must be above 80% of practices.
Missed practise is not-accepted.

Course exemption
With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week.

Conditions of signing the lecture book
Active participation in the practices (there is no possibility to compensate the missed practices).
Students have to fulfil the minimum practical requirements of the subject.
The minimum practical requirements of the subject will be handed out on the first week of the semester.

Calculation of the practical grade
The test, written during the semester should be passed. The result of the failed test must be repeated once during the semester. The appointment of the remedial will be punctually announced on the

information board. Lecture book signature will be refused by the second test failure.
Written test will be assessed as follows
0-45% fail (not accepted)
45% < accepted

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY III.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st week:
Lecture: Premalignant conditions, precancers

2nd week:
Lecture: Malignant tumours in general.

3rd week:
Lecture: Lip cancer and its treatment.
Cancer of the floor of the mouth and the tongue.

4th week:
Lecture: Cancer of the bucca, the gingiva and the maxillary sinus.

5th week:
Lecture: Tumour metastases, RND.

6th week:
Lecture: Complex therapy of head and neck cancers. Reconstructive surgery of the head and neck region.

8th week:
Lecture: Self control test
Self Control Test

9th week:
Lecture: Radiotherapy and chemotherapy of malignant tumours. Intraoral Side effects.

10th week:
Lecture: Differential diagnosis of swelling of the neck.

11th week:
Lecture: Implantology I-II.

12th week:
Lecture: Preprosthetic surgery.

13th week:
Lecture: General anaesthesia in the dental practice.

14th week:
Lecture: Remedial test
Self control test II.
Self Control Test

Requirements

Course Objectives:
The course organizes the basic dental treatments and knowledge for the practising dentist. Basic oral surgical procedures will be discussed in a practice oriented way, with much greater detail than previously stated. The course takes into account the aspects of medication, the effects of various comorbidities and adverse effects of their treatment on the jaws and minor surgical interventions, and the most common possible iatrogenic harms in general dental practice. Knowing all these is essential for a safe dental practice.
Compulsory reading:

Szabó Gy.: Oral and Maxillofacial Surgery Semmelweiss Publishing House Budapest, 2001., ISBN: 963-9214-15-9

Recommended Books:

R.A. Cawson: Essentials of Oral Pathology and Oral Medicine Churchill Livingstone 1998., ISBN: 0443053480

P.W. Booth, S.A. Schendel, J.E. Hausamen: Maxillofacial Surgery Churchill Livingstone 1999., ISBN: 0443058539

Peterson, Ellis, Hupp, Tucker: Contemporary Oral and Maxillofacial Surgery Mosby, 2003., ISBN 0-323-01887-4

Exam: Oral end semester exam in the exam period.

Course Requirements:

Active participation on the special practices, and in the obligatory lectures any delays are not permitted. Students being late for the special practices cannot join the practice.

Course exemption:

With previously obtained valid signature the attendance exemption of the practices can't be requested

Conditions of signature in the lecture book:

Any make ups on the special practices are permitted in case of certified absence. Without certification and compensation of the missed practice students won't get signature. Only one absence is accepted from the obligatory lectures, in case of more absences the semester won't be accepted.

Department of Pediatric and Preventive Dentistry

Subject: **PEDIATRIC DENTISTRY I.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **15**

1st week:
Lecture: Pain control, topical and local anesthesia, minor oral surgery in childhood.

Practical: Examination methods, treatment planning, normal anatomic structures of oral cavity.

2nd week:
Lecture: Etiology of dental caries and its characteristics in childhood.
Practical: Discuss and recognize common developmental disturbances of the teeth.

3rd week:
Lecture: Caries in the primary dentition, diagnosis, treatment.
Practical: Classify common oral lesions and infections by clinical features.

4th week:
Lecture: Caries and consecutive diseases, diagnosis and treatment.
Practical: Discuss etiological factors influencing the formation of dental caries in children.

5th week:
Lecture: Endodontic treatment in childhood. The treatment of the immature permanent teeth.
Practical: Develop an individualized oral health care program for the child patient.

6th week:
Lecture: Prosthetic dentistry for children
Practical: Do step by step amalgam filling in posterior primary and permanent teeth.

7th week:
Lecture: Common growth and developmental anomalies of the teeth.
Practical: Identify and distinguish morphologic differences in the primary teeth.

8th week:
Lecture: Traumatic injuries to the teeth and supporting tissues I. (primary dentition)
Practical: Prepare cavity in primary posterior teeth. Extract primary tooth.

9th week:
Lecture: Traumatic injuries to the teeth and supporting tissues II. (permanent dention)
Practical: Pulpotomy and pulpectomy. Treatment of dental injuries, splinting.

10th week:
Lecture: Common structural disturbances of the teeth.
Practical: Fabricate a space maintainer. Restore an anterior primary and permanent tooth.

11th week:
Lecture: Periodontology in pediatric dentistry.
Practical: Restore a fractured incisor with composite material. Carry out apexification.

12th week:
Lecture: Oral manifestation of infective diseases
Practical: Seal fissures.

13th week:
Lecture: Oral manifestation of systemic diseases.
Practical: Use preventive methods.

14th week:
Lecture: Test (written examination)

Requirements

The aims and objectives of this course
The goal of the course is to teach knowledge and skills in all subjects relating to pediatric dentistry: behavioral aspects relevant to the treatment encounter with the child, such as emotional and behavioral development, and behavioral principles in treating children; dentition development; and total treatments provided to children, including prevention of oral and dental diseases, various restorative treatments, treating trauma to the teeth and dental inflammations.

Short description of the course
The students during the practical lessons will practice:
1. The methods of examination, instrumentation, treatment planning
2. Describe the normal anatomic structures of oral cavity of the infant
3. Discuss and recognize common developmental disturbances of the teeth
4. Classify common oral lesions and infections by clinical features
5. Discuss etiological factors influencing the formation of dental caries in children
6. Develop an individualized oral health care program for the child patient
7. Do step by step amalgam filling in posterior primary and permanent teeth
8. Identify and distinguish morphologic differences in the primary teeth
9. Do the specific cavity preparation indicated in primary posterior teeth, dependent on the restorative material used
10. Extract primary tooth
11. Use the several clinical procedures available for pulp care
12. Carry out successful pulpectomy
13. Recognize and treat dental injuries

14. Fabricate a simple splinting device
15. Fabricate a space maintainer
16. Restore an anterior primary and permanent tooth with composite restorative material
17. Restore a fractured incisor with composite material
18. Carry out a successful apexification
19. To seal fissures
20. Use preventive methods

Compulsory books
Welbury RR, Duggal MS, Hosey M-T: Paediatric Dentistry. 4th ed. Oxford University Press, 2012. ISBN:0-19 8565836

Recommended books
Cameron A, Widmer R: Handbook of Pediatric Dentistry. 4th ed. Mosby Elsevier, 2013. ISBN:978 0 72343452 8.

Assessment
AW5 grade

Requirements
Attendance to lectures is strongly recommended. All material covered in lectures is an integral part of the subject and therefore included in the self-control tests and the final exam. Some new concepts and ideas are discussed in the lectures only and not present in the handout or the lecture book.
Active participation on the practices is obligatory. With acceptable written certificate students may miss 1 practical lesson. The missed practical can be made up with another group after obtaining the permission from the tutor of the other group.
The practices start and finish in accordance with the timetable, arriving late is not allowed.
A delay of more than ten minutes shall be deemed to be an absence! In this case the missed class cannot be made up for.

Course exemption
With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week.

Conditions of signing the lecture book
During the semester we evaluate the practical work and the theoretical knowledge with grades.
The semester ends with a written examination (test). The result of the test must be at least 60% to pass.

Calculation of the grade
If the result of the test is under 60% the student must take an end-semester (oral) exam as a ‚B' chance.
The practical mark is calculated on basis of the average of the practical grades (1/4) and the test result (3/4).

60-69.9%pass (2)
70-79.9%satisfactory (3)
80-89.9%good (4)
from 90%excellent (5)

Department of Psychiatry

Subject: **PSYCHIATRY**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **5**
Practical: **5**

1st week:
Lecture: Examination of a psychiatric patient Psychopathology.
Practical: Classification of illnesses.

2nd week:
Lecture: Anxiety disorders.
Practical: Affective illnesses.

3rd week:
Lecture: Alcohol and drug.

4th week:
Lecture: Organic psychosyndromes. Border territory of dentistry and psychiatry.

5th week:
Lecture: Schizophrenia. Pharmacotherapy.
Practical: Border territory of dentistry and psychiatry.

Requirements

Psychiatric titles of first term:
1. Basic points in psychopathology. 2. Classification in psychiatry. Nosological systems. 3. The psychiatric interview. 4. Alcoholismus chronicus. 5. Anxiety disorders. 6. Affective illnesses. 7. Schizophrenia. 8. Organic psychosyndromes. 9. Questions from the border territory of dentistry and psychiatry. 10. Psychotherapy and psychopharmacotherapy.

Department of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY IV.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **5**
Practical: **240**

1st week:
Lecture: 1-5 week: Case presentation
Practical: 1-15 week: Complex dental treatment: restorative, periodontial and extraction procedures according to patients' needs. The minimum requirements declared by the departments to be fulfilled. General nursering procedures during treatments

Requirements

Assessment:
AW5. Continuous monitoring of the knowledge during practices. The grade is given on the basis of the student's term-time practical performance and this is considered as the final grade of the end semester exam.

The grade cannot be improved during the exam period

Signature conditions:
-Completion of the required minimums.
-Active participation on the practices (there is no possibility to compensate the missed practices).
-The practices begin/end according to the timetable, delay is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.
-With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 2 patient treatment and 2 assistance practice altogether. All missed practices need to be certified.
-All procedures amongst the practical work will be evaluated with grades. The final grade is calculated on basis of the grade-averages received from all special fields. (The calculations follow the general rule for rounding, from x.51.)
- The student's performance provided on general practices will be evaluated twice, in the 4th and in the 10th week, during the semester and the student will be notified in written form by non-acceptable performance.
- Grades given on the practices, will be the end semester grades, which cannot be improved during the exam period.
- In addition, the supervisor takes the professional attitude and responsibility of the student into account, and his / her effort to earn or maintain professional development, the proper behavior towards the clinical staff, the patients and their relatives. The correct fulfilment of the administrative responsibilities and the appropriate behavior towards of the administrative personnel.
- In case the performance is non-acceptable, the student will be warned in written form. From students with two warnings the signature will be denied. In case of not fulfilling the requirements, the student will be warned with the PROFESSIONALISM EVALUATION REPORT FORM (F118 // 1ST). The student who had to be warned twice during the semester because of inadequate performance due to professional reasons or inadequate professional attitudes his / her the signature will be rejected.

The Faculty of Dentistry provides students with 1 white medical coat, 1 suit sluice (trousers and top) and 1 locker key for the duration of the Complex practice. The students undertake to return these items at the end of the practice.

Prerequisites: Complex Dentistry III.

Subject: **PROSTHETIC DENTISTRY IV.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **12**
Practical: **10**

1st week:
Lecture: Case presentation.

2nd week:
Lecture: Case presentation.

3rd week:
Lecture: Case presentation.

4th week:
Lecture: 4th-12th week: Case presentation

Requirements

Conditions of signature in the lecture book:
* Active participation in the practices (there is no possibility to compensate for missed practices).
* The practices begin/end according to the timetable, lateness is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.
* The signature in the lecture book will be refused in cases of absence from more than 50% of any special practice. All absences must be certified.
* Practical mark may be given on the basis of the student's term-time practical performance, which may be considered at the final exam grade.
* The case report should be presented in the form of a PowerPoint presentation.

Assessment:
Final exam. The exam starts with an online entrance test. Students must complete this test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is "failed" (1). The complex and special practical grades may be considered at the final exam grade.

Department of Operative Dentistry and Endodontics

Subject: **RESTORATIVE DENTISTRY IV. (CARIOLOGY AND ENDODONTICS)**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **12**
Practical: **10**

1st week:
Lecture: Microscope and magnifiers. Minimal invasive non preparation treatment options. Composite repair

2nd week:
Lecture: Esthetic direct restorations I. (Diastema closure, form corrections)

3rd week:
Lecture: Esthetis direct restorations II. (Cavity class IV. direct composite veneer)

4th week:
Lecture: Root resorption (classification and treatment)

5th week:
Lecture: Treatment of fractured teeth (crown and root fractures)

6th week:
Lecture: The importance of follow-up in endodontics (wound healing and repair following endodontic therapy). Focal infection theory

7th week:
Lecture: Written exam

8th week:
Lecture: Case presentation

9th week:
Lecture: Case presentation

10th week:
Lecture: Case presentation

11th week:
Lecture: Case presentation

12th week:
Lecture: Case presentation

Requirements

Examination: Final Examination (FE_oral exam)
Materials for exam preparation: official lecture book, lectures and materials of the special practicals.

Requirements for signing the lecture book:
• During the semester, in accordance with the course requirements there is one written test that takes place during a lecture. The self-control tests cannot be repeated only with an adequate proof in a given time. The result of any missed test conclude to failure (1). The result cannot be improved.

ENDODONTICS CASE PRESENTATION
During the case presentation, student is required to present the case of his/her own patient (multirouted MOLAR tooth, with multiple root canals) treated with rubber dam isolation.

Presentation requirements:

• Filled signed endodontic form without any missing detail, approved, signed and stamped by the supervisor
• Evaluable radiological documentation
• Logically built up computer presentation
The mandatory endodontics case study is planned according to previously agreed date and is presented in sequence order.

!!! Missing the presentation of case study, or missing any part of the above mentioned listed requirements, results in the refusal of signing the lecture book.

• Special practicals:
o The practices start and finish in accordance with the timetable, arriving late is not allowed.
o Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
o Absences, in theory, are not allowed. o In reasoned cases, for certified absences the department ensure make up classes for students on a previously agreed date, during the semester.
o A certification is required for any absences which has to be handed to the leader of the practice course.
o At the end of each practical student's work is evaluated with a grade based on the knowledge of his/her theory, practice work and manuality.
o At the end of the semester, student is given a grade for his/her term work based on the average of the grades given during the semester.

Special practice (5th 2nd semester): 2x5 lessons
Course exemption
With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week (email: konzervalo@unideb.hu).

Grade formation
The result of the test and the grades of special practicals can impact on the grade of the oral exam.

Requirements for taking up the subject: Restorative Dentistry III. (Cariology and Endodontics), Complex Dentistry III.

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY IV.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **12**
Practical: **10**

1st week:
Lecture: Mechanism of acute and chronic pain

2nd week:
Lecture: Pharmacological analgesiain oral surgical practise

3rd week:
Lecture: Local anesthesia in the dentalpractice, allergy and faint

4th week:
Lecture: Differential diagnosis of facial pain and trismus

5th week:
Lecture: Antibiotic treatment and endocarditis prophylaxis in dentistry and oral surgery

6th week:
Lecture: Dental focal disease

7th week:
Lecture: Radiotherapy and medication induced osteonecrosis of the jaws

8th week:
Lecture: Inflammations of dental origin and their treatment in the dentaloffice

9th week:
Lecture: Dental and oral surgical treatment of patients with hemostatic disorders

10th week:
Lecture: Complications of tooth extraction, iatrogenic injuries and their treatment

11th week:
Lecture: Dental trauma

12th week:
Lecture: Final consultation

Requirements

Course Objectives:
The course organizes the basic dental treatments and knowledge for the practising dentist. Basic oral surgical procedures will be discussed in a practice oriented way, with much greater detail than previously stated. The course takes into account the aspects of medication, the effects of various comorbidities and adverse effects of their treatment on the jaws and minor surgical interventions, and the most common possible iatrogenic harms in general dental practice. Knowing all these is essential for a safe dental practice.
Compulsory reading:
Szabó Gy.: Oral and Maxillofacial Surgery Semmelweiss Publishing House Budapest, 2001., ISBN: 963-9214-15-9

Recommended Books:
R.A. Cawson: Essentials of Oral Pathology and Oral Medicine Churchill Livingstone 1998., ISBN: 0443053480
P.W. Booth, S.A. Schendel, J.E. Hausamen: Maxillofacial Surgery Churchill Livingstone 1999., ISBN: 0443058539
Peterson, Ellis, Hupp, Tucker: Contemporary Oral and Maxillofacial Surgery Mosby, 2003., ISBN 0-323-01887-4
Assessment: Final exam
Course Requirements:
Active participation on the special practices, and in the obligatory lectures any delays are not permitted. Students being late for the special practices cannot join the practice.
Course exemption:
With previously obtained valid signature the attendance exemption of the practices can't be requested

Conditions of signature in the lecture book:
Any make ups on the special practices are permitted in case of certified absence. Without certification and compensation of the missed practice students won't get signature. Only one absence is accepted from the obligatory lectures, in case of more absences the semester won't be accepted.

Department of Pediatric and Preventive Dentistry

Subject: **PEDIATRIC DENTISTRY II.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **12**
Practical: **15**

1st week:
Lecture: Oral syndromes in childhood
Practical: Know the methods of examination, instrumentation, treatment planning. Describe the normal anatomic structures of oral cavity of the infant.

2nd week:
Lecture: Differential diagnosis of oral mucosal lesions.
Practical: Discuss and recognize common developmental disturbances of the teeth. Classify common oral lesions and infections by clinical features.

3rd week:
Lecture: Pharmacology in pediatric dentistry
Practical: Do the specific cavity preparation indicated in primary posterior teeth, depending on the restorative material used. Extract primary tooth.

4th week:
Lecture: The importance of age groupsin preventive and pediatric dentistry.
Practical: Discuss etiological factors influencing the formation of dental caries in children. Develop an individualized oral health care program for the child patient.

5th week:
Lecture: Dental fear and anxiety.
Practical: Do step by step amalgam filling in posterior primary and permanent teeth. Identify and distinguish morphologic differences in the primary teeth.

6th week:
Lecture: Behavior management, conscious sedation, general anesthesia.
Practical: Recognize and treat dental injuries. Fabricate a simple splinting device.

7th week:
Lecture: Children with special care and need
Practical: Fabricate a space maintainer

8th week:
Lecture: Child abuse and neglect.
Practical: Restore an anterior primary and permanent tooth with composite restorative material

9th week:
Lecture: Orthodontic pediatric interface
Practical: Restore a fractured incisor with composite crown.

10th week:
Lecture: Minimal intervention dentistry.
Practical: Use the several clinical procedures available for pulp care. Carry out successful pulpectomy.

11th week:
Lecture: Consultation
Practical: Carry out a successful apexification.

12th week:
Lecture: Self-control test
Practical: Seal fissures Use preventive methods

Requirements

The aims and objectives of this course:
The goal of the course is to provide the students with a theoretical knowledge and manual skills to treat child patients, to perform dental prevention, give first aid and refer special cases to specialist.

Short description of the course:
Topics of the practices:
- Know the methods of examination, instrumentation, treatment planning. Describe the normal anatomic structures of oral cavity of the infant.
- Discuss and recognize common developmental disturbances of the teeth. Classify common oral lesions and infections by clinical features.
- Do the specific cavity preparation indicated in primary posterior teeth, depending on the restorative material used. Extract primary tooth
- Discuss etiological factors influencing the formation of dental caries in children. Develop an individualized oral health care program for the child patient.
- Do step by step amalgam filling in posterior primary and permanent teeth. Identify and distinguish morphologic differences in the primary teeth.
- Recognize and treat dental injuries. Fabricate a simple splinting device
- Fabricate a space maintainer
- Restore an anterior primary and permanent tooth with composite restorative material
- Restore a fractured incisor with composite crown.
- Use the several clinical procedures available for pulp care. Carry out successful pulpectomy.
- Carry out a successful apexification
- Seal fissures and use preventive methods

Compulsory reading:
Welbury R, Duggal MS, Hosey MT: Paediatric dentistry (3rd ed.) Oxford University Press, 2005

Assessment:

Final Exam

Requirements:
Attendance to lectures is strongly recommended. All material covered in lectures is an integral part of the subject and therefore included in the self-control tests and the final exam. Some new concepts and ideas are discussed in the lectures only and not present in the handout or the lecture book.
Active participation on the practices is obligatory. With acceptable written certificate students may miss 1 practical lesson. The missed practical can be made up with another group after obtaining the permission from the tutor of the other group.
The practices start and finish in accordance with the timetable, arriving late is not allowed.
A delay of more than ten minutes shall be deemed to be an absence! In this case the missed class cannot be made up for.

Course exemption
With previously obtained valid signature the attendance exemption of the practices can be requested.

Conditions of signing the lecture book:
- Active participation in the practices

Calculation of the grade
The final exam consists of a written and an oral part for everyone. The oral exam can be taken only if the student collects at least 65% in the written part. If the oral exam is unsuccessful but the written part was accepted, the written part must not be repeated prior to the next oral exam.

Prerequisites of taking the subject
Pediatric Dentistry I.

Department of Periodontology

Subject: **PERIODONTOLOGY III.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **12**
Practical: **10**

1st week:
Lecture: Introductory lecture.

2nd week:
Lecture: 2nd - 12th week topic: Case presentation and analysis.

Requirements

The aims and objectives of this course
The aim of case presentations is to know all details and associations concerning the patients.
Short description of the course
Each student has to present the previous medical history and the results of physical examination, x-ray one of his/her own patients. Students must establish a detailed diagnosis. Questions and

therapeutical alternatives are also discussed. List of the names presenting the cases will be announced on the information board during the first week.
Assessment: Final exam
Requirements
If the required cases are not presented during the lectures, the signature of the lecture book will be refused.
Course exemption
With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week.
Conditions of signing the lecture book
- Active participation on the practices (there is no possibility to make up the missed practices).
- Students may miss practices with acceptable certificate, but the ratio of missed practices cannot exceed 20 %, even it is certificated.
- The practical work will be evaluated at the end of each practice separately, as 'accepted' or 'not-accepted'.
- The number of accepted practices must be above 50% of practices.
- Missed practise is not-accepted.
- Students have to fulfil the minimum practical requirements of the subject.
- The minimum practical requirements of the subject will be handed out on the first week of the semester.

CHAPTER 21
REQUIRED ELECTIVE COURSES

DEENK Life Sciences Library

Subject: **LIBRARY SYSTEM**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Practical: **10**

1st week:
Practical: Introduction to the Library and library use:
- Traditional services (registration, rules of library usage, loans, reading room, computer lab).
- Electronic services (the Library's home page, online catalogues).

2nd week:
Practical: Electronic Information Resources:
- Electronic journals.
- Link collections.

3rd week:
Practical: Databases:
- Medline.
- Impact Factors.

4th week:
Practical: Databases

5th week:
Practical: Test

Requirements

The aim of the course: The aim of this course is to acquire a basic theoretical and practical knowledge on library search systems and databases for an effective learning-research activity. Course description: The purpose of this course is to introduce students to the short history of the DEENK, its structure and regulations, and to present its services via the library's own website. Students will learn about the structure of the website, and get an overview of the most important menu items. Students will also become familiar with the use of traditional and electronic library systems and services, databases, and the online catalogue. PubMed: Students will learn about its structure, its role in scientific research activities, and the most important search methods and possibilities in online resources, health websites, and online journals.

Department of Biomaterials and Prosthetic Dentistry

Subject: **ESTHETIC DENTISTRY**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Seminar: **14**

1st week:
Seminar: Introduction to Esthetics Morphopsychology and Facial Esthetics.

2nd week:
Seminar: Esthetic Smile

3rd week:
Seminar: Landmarks and Proportions of the Face. Treatment planning

4th week:
Seminar: Documentation in Esthetic Dentistry

5th week:
Seminar: Esthetics and its Relationship to Function I.

6th week:
Seminar: Esthetics and its Relationship to Function II.

7th week:
Seminar: Morphologic Changes During a Lifetime

8th week:
Seminar: TMetal-Ceramic and All-Ceramic Crows and Bridges.

9th week:
Seminar: Periodontal Esthetic Surgery.

10th week:
Seminar: Oral and Maxillofacial Esthetic Surgery.

11th week:
Seminar: Tooth Color Science, Tooth Color Analysis, Bleaching Methods.

12th week:
Seminar: All-Ceramic Inlays and Onlays.

13th week:
Seminar: Ceramic Veneers.

14th week:
Seminar: Esthetics in Implantology

Requirements

The required minimum number of attendants is 10.

Conditions of signature in the lecture book:

Five grade (AW5) practical grade evaluation. The final AW5 marks are decided according to the marks given during the semester. At least 1 written or oral self-control test will be held during the semester. Any self-control test with a failed (1) result can be repeated once during the semester, in a given time. If the student fails to improve the result, the final AW5 grade is “failed” (1), and the grade must be improved during the examination period, as a “B” or “C” chance.
Assessment: AW5

Subject: **HISTORY OF DENTISTRY, PROSTHETIC DENTISTRY COMPULSORY ELECTIVE I.**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **14**

1st week:
Lecture: Introduction to the history of dentistry.

2nd week:
Lecture: The ancient Orient. Egypt, Mesopotamia, Palestine and Syria. India.

3rd week:
Lecture: The far east: China, Japan.

4th week:
Lecture: Pre-Columbian America: Aztec, Maya, Inca culture.

5th week:
Lecture: Greco-Roman medicine.

6th week:
Lecture: Aftermath of antiquity in east and west.

7th week:
Lecture: The world of Islam.

8th week:
Lecture: High and late middle ages in Europe.

9th week:
Lecture: Awakening of natural sciences.

10th week:
Lecture: The 18th century.

11th week:
Lecture: Dentistry in the industrial ages. Prosthetics.

12th week:
Lecture: Conservative dentistry. Self-control test

13th week:
Lecture: Dental surgery. Orthodontics.

14th week:
Lecture: Research and teaching.

Requirements

The required minimum number of attendants is 10.
Students registered for the course will be informed through the Neptun system regarding date and place of the first seminar.

Conditions of signature in the lecture book: Active participation in the practices (there is no possibility to compensate for missed practices). All absences must be certified.

Assessment: Five grade (AW5) practical grade evaluation
Students should submit an essay through the Department's online exam interface by the given deadline. If the student does not upload the essay by the given deadline, the AW5 will be "fail" (1) and the student must retake the subject. The theme of the essay will be sent through the Neptun system to the students. The signature in the lecture book will be rejected for students, whose essays show significant similarities. The "fail"(1) mark (except caused by similarities) can be improved during the exam period, as a "B" or "C" chance exam. The "B" or "C" chance exams are electronic tablet tests.

Subject: **IMPLANTOLOGY - BASICS OF ORAL IMPLANTOLOGY**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Seminar: **14**

6th week:
Seminar: Complementary surgical techniques, augmentation, sinus lifting, nerve transposition, etc.

7th week:
Seminar: - History of implantology, introduction
- Biology of osseal healing, biocompatibility, osseointegration and materials related to dental implants
- Anatomy, diagnostic techniques preceding

implantation (Department of Dentoalveolar Surgery)

8th week:
Seminar: - Indications, contraindications and planning of dental implants, time of implantation
- Basics of oral surgery regarding dental implantation
- Complementary surgical techniques, augmentation, sinus lifting, nerve transposition, etc. (Department of Dentoalveolar Surgery)

9th week:
Seminar: - Basic techniques of prosthetics fixed on dental implants
- Implant supported fixed prostheses
- Implant supported removable prostheses

10th week:
Seminar: Practice I. (Planning, inserting the dental implant) (Department of Dentoalveolar Surgery)

11th week:
Seminar: Practice II. (Impression techniques: closed tray)

12th week:
Seminar: Practice III. (Impression techniques: open tray)

13th week:
Seminar: Prosthetics fixed on dental implants, maintenance, treatment of complications

14th week:
Seminar: Test
Self Control Test

Requirements

The aim of the course is to introduce students to the surgical, prosthetic and periodontological basics of dental oral implantology and their application in clinical practice.

Short description of the course:
During the course, students will learn about the history of implantology, the biology of osseal healing and osseointegration, and the surgical basics. They can acquire knowledge on implant materials, designing implant surgery and prosthetics, as well as on the theory of their practical implementation, and the main aspects of aftercare and complications. During the practices students will practice implant planning, and inserting, and will carry out different impression techniques.

Assessment:
AW5, electronic (tablet) test

Requirements of the course:
Attendance of seminars and practices is compulsory. There is no possibility to compensate for missed seminars and practices. All absences must be certified within 3 working days. The ratio of absences cannot exceed the 20% of the total number of seminars and practices.

Conditions of signature in the lecture book:
The signature in the lecture book will be refused in cases of absence from more than 20% of seminars and practices.
Credits points can be given only for students, who attended at least 80% of the seminars, and passed the electronic (tablet) test.

Final five grade practical (AW5) evaluation:
Electronic (tablet) test will be held on the last week of the semester, covering the topics of seminars, practices and reading materials.

The grade of the electronic (tablet) test will be calculated as the following:
0-60 % fail (1)
61-70 % pass (2)
71-80 % satisfactory (3)
81-90 % good (4)
91-100 % excellent (5)

If the student fails, or does not attend the evaluation, the AW5 grade is „fail", which can be improved as a „B" or „C" chance during the exam period in the form on an electronic (tablet) test.

Subject: **PRAXIS MANAGEMENT**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **12**

1st week:
Lecture: Course introduction. What is a dental practice?

2nd week:
Lecture: Locating, designing a dental office.

3rd week:
Lecture: Financing a dental practice. Dental insurance.

4th week:
Lecture: Stock control. Staff management. The working team.

5th week:
Lecture: Time management.

6th week:
Lecture: The appointment book.

7th week:
Lecture: Painless paperwork.

8th week:
Lecture: Performance and achievement. Stress management.

9th week:
Lecture: Equipment and maintenance.

10th week:
Lecture: Quality management.

11th week:
Lecture: Summary: How to professionally market your dental practice

Department of Basic Medical Sciences

Subject: **BEHAVIOURAL MEDICINE**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **10**

1st week:
Lecture: Introduction to behavioural medicine: Lifestyle and health

2nd week:
Lecture: The stages of change (The Prochaska-DiClemente model)

3rd week:
Lecture: Psychological aspects of somatic disorders: Asthma and cardiovascular diseases

4th week:
Lecture: Ageing: psychosomatic and health psychological aspects

5th week:
Lecture: Death and dying. Facing with terminal illness

6th week:
Lecture: Effect of childhood aversive experiences on the adult health (ACE study) 1.

7th week:
Lecture: Effect of childhood aversive experiences on the adult health (ACE study) 2.

8th week:
Lecture: Basic of psychotherapy.

9th week:
Lecture: Methods of cognitive-behaviour therapy.

10th week:
Lecture: Relaxation

Requirements

Fourth year students should pass the exam at the end of the first semester (AW5). This examination includes the materials of the lectures. Materials of all lecture will be given to students before the examination. The Department of Behavioural Sciences will adhere to the requirements of the Rules and Regulations for English Program Students. The student must be present and take the examination at the designated time. (He/she must explain the reason for any absence from the examination to the Departmental Adviser within 1 days of the day of examination.)

Subject: **CLINICAL PHYSIOLOGY**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **14**
Seminar: **20**

1st week:
Lecture: Introduction, cellular and molecular factors of pathologic cardiac excitability.

2nd week:
Lecture: Pathologic contractile function of the heart (contractile proteins, intracellular Ca2+-homeostasis and cardiac pumping).

3rd week:
Lecture: Myocardial ischemia, myocardial infarction and new ischemic syndromes

(hibernation, preconditioning, stunning).
Seminar: The basics of ECG.

4th week:
Lecture: Cardiac hypertrophy and failure.
Seminar: ECG diagnosis of arrhythmias I.

5th week:
Lecture: Heart failure (molecular pathophysiology).
Seminar: ECG diagnosis of arrhythmias II.

6th week:
Lecture: Endothelium, smooth muscle, vessels.
Seminar: Differential diagnostics or arrhythmias, evaluation of ECG recordings.

7th week:
Lecture: Hypertension.
Seminar: Conduction disorders, ECG sings of volume and pressure overload.

8th week:
Lecture: New translational perspectives in cardiovascular medicine.
Seminar: Angina pectoris, myocardial infarction.

9th week:
Lecture: Stem cells in cardiovascular medicine.
Seminar: Exercise stress test ECG, Holter ECG.
Self Control Test (Self control test (Bonus points for the exam can be collected during the written mid-semester clinical physiology test during the 9th week.)

10th week:
Lecture: Cellular and molecular elements of the respiratory system with clinical significance.
Seminar: Electronic pacemakers, mechanisms of arrhythmias.

11th week:
Lecture: Clinical physiology of the respiratory system.
Seminar: ECG signs of electrolyte disorders, differential diagnostics, practicing.

12th week:
Lecture: Clinical physiology of nutrition and metabolism
Seminar: Evaluation of ECG recordings (oral ECG exam).

13th week:
Lecture: Clinical physiology of the nervous system I.

14th week:
Lecture: Clinical physiology of the nervous system II.
Self Control Test (Result of the 9th and 14th weeks tests will form the basis for a recommended final mark.)

Requirements

Students are expected to attend lectures and obliged to attend seminars. The Department may refuse the acknowledgement of the semester from this subject if a student is absent for more than two seminars. Seminar attendance is recorded electronically during the first 5 minutes of the seminars, thereby late arrivals by 6 or more minutes result in seminar absences. A successful oral ECG test (during the 12thweek of the second semester) is also a prerequisite for Clinical Physiology.

Third year students are invited to participate in two written tests ("Assessment of the work" (AW)) during the 9th and 14th weeks organized by the Division of Clinical Physiology. Single choice test questions (single right or single false answers should be chosen from five possibilities) will be asked to assess students' proficiency. Bonus points can be collected for the 9th week written exam to be included into the result of the pre-final (14th week exam) and final tests (during examination period). 20 questions covering the materials of lectures and seminars between 1-9 weeks will be asked on the 9th week written self control.

Students reaching higher than passing limits will be offered by a recommended grade following the

14th week self control. This pre-final exam will contain 50 questions where the entire curriculum of Clinical Physiology will be included. The Division cannot ensure opportunities for the inspection of the corrections of the above self controls on a personal basis, nevertheless test questions can be discussed after the tests during independent events organized for all students at the same time. Students are expected to arrange this event where a minimum of 40 students should participate and to contact the academic advisor for technical support.
If a final grade cannot be recommended, written exams will be performed during the examination period. First exams and first repeated exams are in written, while the second repeated exam is in an oral. In addition students can register for an oral improvement provided they exceeded the passing limit of any written tests. There is not a special topic list for oral improvement exam, oral ECG analysis and all the materials of seminars and lectures are asked.
For more information, please visit: klinfiz.unideb.hu. Login requires NEPTUN code and its password.

Subject: **CLINICOPATHOLOGIC CASES DEMONSTRATION**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **20**

1st week:
Lecture: Interesting clinicopathologic cases with slides and video demonstration (10 times/2hrs/t., start: 6th week)

Requirements

Interesting clinicopathologic cases with slides and video demonstration (10 times/2hrs/t.)
Start: 6th week

Subject: **COMPUTER SCIENCE**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Practical: **28**

1st week:
Practical: Exemption Tests.

2nd week:
Practical: Word processor programs, MS Word I.

3rd week:
Practical: Word processor programs, MS Word II.

4th week:
Practical: Word processor programs, MS Word III.

5th week:
Practical: Fundamentals and basic concepts of informatics.

6th week:
Practical: Logical and physical realization of networks.

7th week:
Practical: Internet.

8th week:
Practical: Spreadsheets programs, MS Excel I.

9th week:
Practical: Spreadsheets programs, MS Excel II.

	PowerPoint.
10th week: **Practical:** Spreadsheets programs, MS Excel III.	**13th week:** **Practical:** Summary.
11th week: **Practical:** Spreadsheets programs, MS Excel IV.	**14th week:** **Practical:** Test.
12th week: **Practical:** Computerised presentation, MS	

Requirements

The acquisition of fundamental theoretical and practical knowledge from the function of the modern personal computers. Course description: PC architecture, operating systems, file management, network knowledge, internet and its opportunities of application, word processor, spreadsheet, the usage of presentational programs, the achievement of scientific databases and its use.
Without registration, there is no way to do the course! First year students who missed/skipped the exemption test, but signed up for the course in the Neptun must attend the course and do the final test at the end. For students attending the informatics course a maximum of 4 absences are allowed during the semester to receive a signature (we recommend to use as few as possible, in case an emergency comes up). This is taken very seriously! Missing more than 4 classes automatically means losing the chance to pass the course. There will be a final test at the end of the semester. Students are allowed to make up the missed practices with another group but only on the given week, if there are enough free seats in the room.
The course start with an exemption test. Only first year students are allowed to write the exemption test at the first week of the given semester with their group (appointment should be checked in the given timetable). In any other cases (students older than first year/repeaters/students who are not exempted) students have a final test at week 14 of the given semester. There is no other self control test during the semester. At the end of the course students will write a final test. The exemption and the final tests covers topics and skills in connection with Microsoft office Word, Excel, and PowerPoint (versions:2016) programs, as written in the curriculum. Both of the tests (exemption and the final test) are written tests. The tests are practical tests, conducted in the computer room. Students passing the exemption test will automatically receive 5 (excellent) grade at the end of the semester. Final grades based on the final test score will be given according to the followings: 0-60% = garde 1 (fail); 61%-70% = grade 2 (pass); 71% - 80% = grade 3 (satisfactory); 81% - 90% = grade 4; (good) 91% = garde 5 (excellent). Students should download free Office guide books from the internet offered at the webpage of the course (Email registration is required for downloading files). Students who did not get exemption/did not show up at the exemption test/repeaters/students older than first year MUST ATTEND on the course. They should join to one of the groups mentioned in the timetable. The number of the seats is limited in the classroom. Students who has informatics course in the given appointment (according to the timetable) have priority to attend the lesson. Others are allowed to join to the given group if there are free seats. Older students have to do the whole course as well. Students passing the exemption test will automatically receive 5 (excellent) grade at the end of the semester. Students who failed the exemption test must attend the course and do the final test at the end. Students having ECDL (European Computer Driving Licence) or are not required to write the exemption test, they should show their ECDL certificate to the educational manager of the department and they will be exempted automatically.

Subject: **MEDICAL ANTHROPOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Seminar: **15**

1st week:
Seminar: "Roots" and "shoots" of medical anthropology: the web of basic concepts.

2nd week:
Seminar: Historical - cultural determination of medical concept of man.

3rd week:
Seminar: Medical knowledge: cultural and epistemological background of its legitimity.

4th week:
Seminar: Post-modern knowledge and concept of man in medicine: a critical-interpretive approach to medical anthropology.

5th week:
Seminar: Doctor-patient interaction: a cultural anthropological aspect.

6th week:
Seminar: Explanatory models and illness narratives explaining doctor-patient bonds.

7th week:
Seminar: Cultural definition of anatomical and physiological concepts.

8th week:
Seminar: Medical treatments vs. alternative treatments: the concepts of alternative medicine.

9th week:
Seminar: Death and dying: anthropology of loss and bereavement.

10th week:
Seminar: Biological and social death in Western societies.

11th week:
Seminar: Rituals and their relation to health.

12th week:
Seminar: Ethnomedicine and its European school.

13th week:
Seminar: The concept of man in medicine: a text analysis.

14th week:
Seminar: The nature of the scientific basis in medical knowledge: a test analysis.

15th week:
Seminar: Concluding discussion.

Requirements

Participating in seminars, giving a presentation on a given topic.
Evaluation: Based on the activity at seminars and on a 14th week test.
Course Objectives and Course Outline: The object of medical anthropology is the human being, as he/she appears in the context of health and disease, in the healing processes and in the health-care system. The basic method of medical anthropology is historic-hermeneutical in the sense that man is investigated by this discipline in historical and cross-cultural relations; it is an integrative study and in this role it uses the contributions of different forms of knowledge (philosophical anthropology, social philosophy, cultural anthropology, psychoanalysis, sociology, etc.); the problems of health-illness is discussed in socio-economic dynamics; it deals with biomedical approach as a cultural product and in this way it draws the attention to the relation between

individual experience, cultural meaning and social structure. The medical anthropology semester consists of 15 hours seminar; these are organised in two-hour seminars in every second week.
Method: Every student should actively participate by presenting a short lecture on a chosen topic (possibly in group-work). One hour from the 15 hour course will be reserved for tutorial discussion with the instructor during the preparation period. Every student should read a given paper for every seminar and is expected to put the presenters questions concerning the topic a few days before the seminar. The seminars can only be successful, if students participate actively in the discussions.
Requirement for the AW5 evaluation: Passing the last week test/essay, which is based on the course textbook, the compilation of readings and seminar discussions.

Subject: **MEDICAL GENETICS**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **30**
Practical: **26**

1st week:
Lecture: 1) Introduction to genetics, molecular genetics and genomics. DNA is the genetic material. (2) Molecular organization of chromosomes in prokaryotes and eukaryotes. The human genome. Cell division: mitosis. (3) Cell division: meiosis.
Practical: Seminar. How to study. Required and advised readings. Laboratory safety rules in student's laboratories. The nucleus and the chromatin. Cell division, mitosis and meiosis.

2nd week:
Lecture: (4) Cytogenetics I. Karyogram, ideogram, banding techniques. Human autosomal trisomies. (5) Cytogenetics II. Abnormalities of the X and Y chromosomes. Sex determination in humans. (6) Cytogenetics III. Structural aberrations of human chromosomes. Genomic imprinting. Uniparental disomy. Molecular cytogenetics.
Practical: Seminar on cytogenetics

3rd week:
Lecture: (7) The structure and function of genes. Gene expression. (8) Gene regulation in prokaryotes. (9) Gene regulation in eukaryotes I.
Practical: Seminar on gene structure and function..

4th week:
Lecture: (10) Gene regulation in eukaryotes II. (11) Epigenetics, the genetic role of RNA. (12) Transmission genetics. Genes and alleles. Genotype and phenotype. Monohybrid cross. Mendel's 1st law. Reciprocal cross and test cross. Autosomal and X-linked genes.
Practical: Seminar on mendelian genetics I. Theoretical background, problem solving.

Self Control Test (1st test in extra time on Monday morning.)

5th week:
Lecture: (13) Dihybrid cross. Mendel's 2nd law. Different types of inheritance. Dominant and recessive genes: a molecular view. Genotype and phenotype. Extranuclear inheritance. (14) Gene interactions, epistasis, lethal genes. Multiple alleles. (15) The genetic basis of complex inheritance.
Practical: Study of X chromatin: the Barr body. Demonstration of mammalian chromosomes. Preparation of metaphase spreads. (Facultative laboratory practice.)

6th week:
Lecture: (16) Mutation and repair. (17) Human genetic diversity. DNA polymorphism. (18) Human genetic diversity. Genetics of blood types and MHC.
Practical:
Complementation test. The gene concept. (Facultative laboratory practice.)

7th week:
Lecture: (19) Population genetics. (20) The molecular, biochemical and cellular basis of genetic diseases I. (21) The molecular, biochemical and cellular basis of genetic diseases II.
Practical: Induction of beta-galactosidase in E. coli cells. (Facultative laboratory practice.)

8th week:
Lecture: (22) The treatment of genetic diseases. (23) Cancer genetics and genomics. (24) Pharmacogenetics, pharmacogenomics Ecogenetics and ecogenomics.
Practical: Seminar on mendelian genetics II. Problem solving. Pedigree analysis. Polymorphisms. Molecular genetics of inherited human diseases. Mutation, repair.

9th week:
Lecture: (25) Human gene mapping and disease gene identification I. (26) Human gene mapping and disease gene identification II. (27) Bacterial genetics.
Practical: Seminar on population genetics.
Self Control Test (2nd test in extra time on Monday morning.)

10th week:
Lecture: (28) Developmental genetics and birth defects. (29) Genomics, the human genom project. (30) Prenatal diagnosis. Personalized medicine. Genetic counseling and ethical issues.
Practical: Seminar on treatment of genetic diseases. Cancer genetics. Pharmacogenetics.

11th week:
Lecture: Medical genomics lectures
Practical: Detection of human polymorphism by polymerase chain reaction. (Facultative laboratory practice.)

12th week:
Lecture: Medical genomics lectures
Practical: PCR evaluation of the human polymorphism experiment.
Transformation of E. coli by plasmid DNA. (Facultative laboratory practice.)

13th week:
Lecture: Medical genomics lectures
Practical: Seminar on bacterial genetics. Developmental genetics. Linkage analysis**.**

14th week:
Lecture: Medical genomics lectures
Practical: Medical genomics seminar
Self Control Test (3rd test in extra time on Monday morning.)

Requirements

Conditions of signing the lecture book:
Concerning attendance, the rules are set out in the Rules and Regulations of the University are clear. The presence of students at seminars is obligatory and will be recorded. Students are responsible for signing the list of attendance. If there are more than five absences, the signature is refused. The five laboratory practices are facultative, presence is not recorded.
During the semester there will be three self-control tests offered in the 4th, 9th and 13th weeks. The questions include multiple choice and short essay questions, figures, pedigrees, definitions, etc. Based on the % average of the three tests a final grade will be offered according to the next table:

Percentage (%)	Mark
50.00 - 61.99	pass (2)
62.00 - 69.99	satisfactory (3)
70.00 - 79.99	good (4)
80.00 - 100	excellent (5)

Attendance of at least two of the tests is obligatory and it is a condition for signing the lecture book.

Those students who want a better mark have to take the regular end of semester "A" exam. The result of this ESE is binding, it can be better, the same or worse than the offered mark. Students with lower achievement than 50 % should take the regular ESE.

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

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

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

Percentage (%)	Mark
0 - 49.99	fail (1)
50.00 - 61.99	pass (2)
62.00 - 69.99	satisfactory (3)
70.00 - 79.99	good (4)
80.00 - 100	excellent (5)

The percentage values include the student's performance at the ESE as well as the bonus percentage they have obtained by taking the three mid-semester tests. The bonus percentage is based on the average result of the three mid-semester tests. Absence counts as 0%. Bonuses are calculated only in the year of acquisition.
Maximum number of bonuses is 10.
The slides of the lectures and up-to-date information can be found at https://elearning.med.unideb.hu, username and password is your network-id (same as Neptun-id) and password. You will be able to check the content after the Neptun has registered you to the subject.
Departmental homepage: https://humangenetics.unideb.hu

Subject: **MEDICAL GENOMICS**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **12**
Practical: **2**

11th week:
Lecture: 1. Introduction: genomics before and after the Human Genome Project
2. Traditional Sanger sequencing and next-generation sequencing methods
3. Bioinformatics and Genome Analysis, genomics and BIG DATA

12th week:
Lecture: 4. Major achievements of genome sequencing projects and future perspectives
5. Human genetic variations
6. Cell-free nucleic acids: characteristics and applications

13th week:
Lecture: 7. The genetics of cancer
8. Drug development and Pharmacogenomics
9. Clinical Laboratory Genetics: diagnostic gene/genome sequencing

14th week:
Lecture: 10. Invasive and non-invasive approaches for prenatal diagnosis
11. Importance of biomarkers in disease diagnosis, multivariate diagnostics. Biobanks.
12. Genome-wide association studies (GWAS) in complex genetic diseases. Personalized genome analysis, examples.
Practical: Expression and comprehensive genomics. GWAS.

Requirements

Minimum requirements of the signature:
- Electronic registration through Neptun.
- Active participation on Medical genomics seminars – proved with signed attendance-sheets.
- Those, who do not meet these requirements, cannot take the examination.

It is very much recommended to attend the Medical genomics lectures and to take notes (but it is not the prerequisite of the signature).
- We give assignments at the end of the lectures in connection with the actual topic (altogether 12), and students may answer them for an offered grade. Grades: satisfactory (3): 50.00-64.99%, good (4): 65.00-74.99%, excellent (5): 75.00-100%. If the student rejects the offered grade, bonuses are given to him/her (max. 10).
- The bonuses are percentages that will be added to the result of the examination.

Only those students are eligible to get bonuses, who registered for the subject Medical Genomics electronically.
The bonuses can be used only during the end-of-semester examination period, cannot be transferred to the next school-year.

Second year students may also register for Medical Genomics, they can even take the examination with their valid signature in the Neptun, even if they did not pass last year. Students not having a signature in the Neptun, have to attend classes to earn a signature.
DO NOT register to more groups. If the time of the chosen group is not appropriate we will allow the changing of the group (but of course a permission have to be asked, because the number of computers is limited).

Students, who got signature, can register for an examination through the Neptun. Without registration it is not possible to take the examination. Evaluation of the exam (AW5, assessment of work): fail (1): 0-49.99%, satisfactory (3): 50.00-64.99%, good (4): 65.00-74.99%, excellent (5): 75.00-100%. Repeated examinations are possible according to general university rules.

Lectures will be held at times and locations given for medical genetics lectures, during week 11-14.

Practical: week 14, in a basement computer room of the Educational Center, according to the advertised timetable. (When possible, the seminars will be held the same time as the Medical Genetics seminars/practicals.)

The slides of the lectures and up-to-date information can be found at https://elearning.med.unideb.hu, username and password is your network-id (same as Neptun-id) and password. You will be able to check the content after the Neptun has registered you to the subject.
Departmental homepage: https://humangenetics.unideb.hu

Subject: **MEDICAL SOCIOLOGY**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **8**
Seminar: **7**

8th week:
Lecture: Basic course information

9th week:
Lecture: Introduction to sociology

10th week:
Lecture: Introduction to medical sociology

11th week:
Lecture: Medicalization

12th week:
Seminar: The concept of health measuring health at population level civilisation illnesses. The concept of risk factor

13th week:
Seminar: Presentations I.

14th week:
Seminar: Presentations II.

15th week:
Seminar: Exam

Requirements

Requirements. Making a presentation is prerequisite for the end of course test.
Requirements. Making a presentation is no longer prerequisite for the exam.
EXAM: Written Exam (5AW)

Subject: **MODERN BIOPHYSICAL METHODS IN BIOLOGY AND MEDICINE**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **24**

3rd week:
Lecture: Luminescence spectroscopy. Theoretical and technical background and principles of application of fluorescence spectroscopy. Fluorescence conjugation of biomolecules, techniques based on fluorescence resonance energy transfer.

4th week:
Lecture: Selected applications of Magnetic Resonance Imaging: exploitation of molecular motions.

5th week:
Lecture: Modern microscopy methods for structural and functional characterization of cells. Theoretical background of fluorescence microscopy and image processing. Generation of scanning and wide-field images. Detectors, analog/digital conversion and digital storage of images. Digital image analysis: principles and biological applications. Principles of confocal microscopy. High resolution non-linear optical microscopy.

6th week:
Lecture: Principles and applications of flow cytometry. Structure of a flow cytometer and its application fields: immunogenetics, receptor and antigen research and diagnostics, DNA and cell cycle analysis, measurement of membrane potential, membrane permeability and determination of cytosolic pH and ion concentrations, application of fluorescence resonance energy transfer to determine protein associations. (FCET).

7th week:
Lecture: Structure of the cell membrane, functional consequences of the mobility (lateral and rotational movement) of proteins in the membrane. Novel models for the structure of the cell membrane, lipid domains. Time-dependent fluorescence and phosphorescence spectroscopy, fluorescence recovery after photobleaching (FRAP), fluorescence correlation spectroscopy.

8th week:
Lecture: Modern electrophysiological techniques. Passive and active electrical properties of the cell membrane, structure and function of ion channels. Principles and application of the patch clamp technique: recording ionic currents and membrane potential.

9th week:
Lecture: LSC - Laser-Scanning Cytometry (imaging cytometry, slide-based imaging cytometry). Limitations of flow cytometry and microscopy. Comparing flow cytometry, confocal microscopy and laser-scanning cytometry. How does laser-scanning cytometry work? Strength and limitations of the laser-scanning cytometry. Laser scanning-cytometry in cell biology and clinical research.

10th week:
Lecture: Closing test

Requirements

Aim of the course: Based on the principles covered in biophysics and cell biology discussion of problems with special relevance to medical biology from a modern molecular biophysical and quantitative biological aspect.
Short description of the course topics:1. Application of nuclear magnetic resonance spectroscopy (NMR) and imaging (MRI) in biology and medicine 2.Luminescence spectroscopy. 3. Flow cytometry and its applications. 4. Structure of the cell membrane, mobility of lipids and proteins in the plasma membrane. 5. Advanced microscopy. 6. Modern electrophysiological techniques 7. Slide-based cytometry.

Compulsory literature: course material and lecture slides published on the website of the Department
Recommended reading: Medical biophysics (Damjanovich, Fidy, Szöllősi Eds.), Medicina, 2009;

Web address for the course material:
Type of examination: practical grade, 5 levels

Requirements:
Conditions for signing the lecture book: attending 5 lectures out of 7. Attention! Lecture books are handled exclusively by the study advisor during the dedicated office hours!
Type of examination: practical grade, 5 levels
Examination: Written test. The exam date is shown in the.

below 50%: fail
50%-59%: pass
60-69 % : satisfactory
70-79 %: good
>= 80% excellent
Repeated/improved
exam: during the examination period, one occasion, written test.

Subject: **MODERN TECHNIQUES ALLOWING THE INVESTIGATION OF PHYSIOLOGICAL PHENOMENA**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **30**

1st week:
Lecture: Application of electrophysiological techniques in the investigation of the electric activities of living cells.

2nd week:
Lecture: Methods allowing the monitoring of the intracellular Ca2+ concentration in living cells.

3rd week:
Lecture: Analysis, evaluation and interpretation of current recordings. Biostatistics.

4th week:
Lecture: Preparation of neurones for functional investigation. Possible advantages and disadvantages of the applicable methods.

5th week:
Lecture: Investigation of the signal transducing proteins at the levels of proteins, RNA or DNA (immunocytochemistry, immunohistochemistry, confocal microscopy, Western blot, quantitative [real-time] PCR).

6th week:
Lecture: Cell and tissue culture (primary cultures, cell lines, organ cultures).

7th week:
Lecture: Isolation and identification of contractile proteins by biochemical methods.

8th week:
Lecture: Measurements conducted on isolated ion channels: the bilayer technique.
9th week:
Lecture: tutorial

10th week:
Lecture: Final Assessment.

Requirements

1. Signature of Lecture Book
Lecture attendance may be followed up by the Department. The lecture will not be delivered if 5 or

fewer students show up. Nevertheless, the lecture material is going to be asked in the final assessment.
For continuous updates on all education-related matters, please check the departmental web-site (http://phys.med.unideb.hu)

2. Evaluation during the semester
None.

3. Examination
At the end of the course a written final assessment will be organised in the form of multiple choice questions. The result of this assessment will determine the verification mark of the credit course using the following conversion table:
0-39.9% - Failed
40-54.9 % - Pass
55-69.9% - Satisfactory
70-84.9% - Good
85-100% - Excellent

Subject: **ORALPATHOLOGIC CASES DEMONSTRATION**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **20**

1st week: **Lecture:** Interesting oralpathologic cases with slides and video demonstration (10 times/2hrs/t.,	start: 6th week)

Requirements

Interesting oralpathologic cases with slides and video demonstration (10 times/2hrs/t.)
Start: 6th week

Subject: **PROBLEM BASED LEARNING IN PHYSIOLOGY**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Practical: **28**

1st week: **Practical:** The practices are listed at the web site of the elearning.med.unideb.hu web site	(Department of Physiology menu item).

Requirements

1.Signature of the semester
This is an individual project oriented program. The signature of the semester may be refused if the project report is not submitted before to the deadline.

2.Evaluation during the semester

No mid-semester evaluation.

3.Examination
The evaluation is based on the project report submitted before the deadline. For specifics, see the rules below and consult with the elearning.med.unideb.hu web site (Department of Physiology menu item).

Aims of the course: The program offers carefully selected and designed problems from the field of Physiology. Students can learn how to apply problem solving approach, self-conducted strategy and analytic thinking in resolving selected problems. Skill in team-work is helpful in the program.

RULES FOR THE PROBLEM BASED LEARNING (PBL) CREDIT COURSE

1.The program is conducted between 3rd and 11th academic weeks of the second semester.
2.Students must have a tutor, this is the prerequisite for the program. Tutor can be any professor of the Department, not only the student's seminar/practical instructor. The applicant should contact the chosen professor and request him/her to undertake the tutorship. Professors of the Department maintain the right to accept or refuse to be the tutor of an applicant.
3.Special Rule: the applicant has to organize the chosen project and register at the tutor (NOT via NEPTUN) until the end of first academic week. Applications after the first week are not accepted.
4.Preconditions for the program: mark three (3) or better in Physiology I and permission of the Department (arranged by the tutor).
5.The maximum number of participants in the program cannot exceed 100 students. In case, the number of applicants is higher than 100, the seminar/practical instructor or the course coordinator can refuse applicants with mark three or better.
6.Two students works in team on one project, and prepare one mutual report, thus they get the same score at the end of the program regardless their contribution. The Journal Club and Lab Visit programs are carried out individually.
7.Evaluation of the students is based on the written report or the oral presentation using five grade score system (1-5). Grades are final, no make-up is allowed.
8.The list of offered programs is available at the practical lab of the elearning.med.unideb.hu web site (Department of Physiology menu item).
9.The deadline for the program is the end of the 11th academic week. Reports should be submitted to the tutor. Missing the deadline automatically results grade 1 (fail).
10. Detailed information for the program can be accessed on the elearning.med.unideb.hu web site (Department of Physiology menu item).

Subject: **RADIOTHERAPY IN THE CLINICAL PRACTICE**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Seminar: **14**

1st week:
Seminar: Equipments of teletherapy I.
Equipments of teletherapy II.

2nd week:
Seminar: Teletherapy (processes, clinical aspects)
Locoregional treatment, risk organs

3rd week:
Seminar: Role of radiotherapy (case reports)
Palliative therapy

4th week:
Seminar: Special teletherapy techniques
Brachytherapy I.

5th week:
Seminar: Brachytherapy II.
Brachytherapy III.

6th week:
Seminar: Eye plaque brachytherapy
Isotop therapy

Requirements

The goal is to get to know the process and clinical considerations of radiotherapy (indications, contraindications, equipments).

Subject: **THE REGULATORY ROLE OF THE CELL MEMBRANE IN PHYSIOLOGICAL AND PATHOLOGICAL CONDITIONS**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **20**

1st week:
Lecture: Introduction, a general characterisation of the cell membrane. The electrical and biochemical characteristics of the surface membrane.

2nd week:
Lecture: General description of cardiac ionic currents. The connection between excitatory processes and the regulation of [Ca2+]i

3rd week:
Lecture: [Ca2+]i dependent excitatory processes in the surface membrane of cardiac cells.

4th week:
Lecture: The structure of the skeletal muscle. Ionic channels underlying the excitability of the skeletal muscle. Molecular structure of ionic channels.

5th week:
Lecture: Changes in surface membrane function in inherited skeletal muscle disorders: degenerative forms (muscle dystrophies). Changes in surface membrane function in inherited skeletal muscle disorders: alterations in the muscle tone (myotonies).

6th week:
Lecture: The role of the surface membrane in the regulation of calcium homeostasis in neurons. Pathological conditions arising from abnormal calcium handling in neurons.

7th week:
Lecture: Changes in the membrane properties of the neurons under pathological conditions. Pathological conditions arising from the hyperexcitability of neurons.

8th week:
Lecture: The role of TRP channels in the regulation of biological processes of human skin cells. TRP-pathies.

9th week:
Lecture: The role of the endocannabinoid system in the transmembrane signaling of skin-derived cells. Is the human skin always "high"?

Requirements

1. Signature of the semester
Lecture attendance may be followed up by the Department. The lecture will not be delivered if 5 or fewer students show up. Nevertheless, the lecture material is going to be asked in the final assessment.
For continuous updates on all education-related maters, please check the elearning.med.unideb.hu web site (Department of Physiology menu item).

2. Evaluation during the semester
None.

3. Examination
At the end of the course a written final assessment will be organized in the form of multiple choice questions. The result of this assessment will determine the verification mark of the credit course using the following conversion table:
0-39.9% - Failed
40-54.9 - Pass
55-69.9% - Satisfactory
70-84.9% - Good
85-100% - Excellent

Department of Behavioural Sciences

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

1st week:
Lecture: Introduction to the concept of communication. Channels of communication. Verbal and non-verbal communication. The main non-verbal channels.

2nd week:
Lecture: The helping relationship. Influencing factors. principles. The role of empathy in the communication.

3rd week:
Lecture: Aggressive, passive and assertive communication. Effective communication techniques.

4th week:
Lecture: The importance of communication with people in different situations. Difficulties in communication situations. Persuasive communication.

5th week:
Practical: Empathy, problems of empathy, active listening. Significance of the firs impression.

6th week:
Practical: Aggressive, passive and assertive communication. Persuasive communication.

7th week:
Practical: Movie (2 hours long)

8th week:
Practical: Movie - analyzing its communicational aspects. The role of confidence.

9th week: **Practical:** Presentation of the field practice. Closing the semester, semester-review. Feedbacks. **10th week:** **Practical:** Presentation of the field study.	Feedback for the presenters. Feedback for the teacher. Deadline of giving the essay. Closing the semester.

Requirements

Aims:
Introducing and recognizing fundamental characteristics of human communication and developing basic knowledge, skills and attitudes which are most important in doctor patient relationship. This course serves as a basis for the continuation of third year studies of more specific communicational knowledge needs for healing and curing in the field of medical practice.
Framework and process of learning:
In form of small-group learning discussions, role-plays, observational tasks will be introduced by which students can be active participants in learning by acquiring not only theoretical issues. Because teachers guide semi-structured seminars, student will be facilitated to give feedback, express opinions and propose available topics, which could build into to learning process.
During first seminars individual learning objectives can be elaborated together with teacher and classmates and can be achieved alongside the main objectives of the whole group.
Standpoints of the observational task of communication class:
For the purpose of developing so called observational skills, a special task will be introduced. Students will be requested to watch systematically human behaviours at different places where one can perceive various forms of formal and informal communication (two weeks will be given for completing observations instead of attending seminars during this period. Seminars will be continued after two weeks break).
Sensitivity toward relating phenomena can be enhanced by these observational tasks. Several places of health case system, like wards, surgeries for outpatients, waiting rooms or other places like libraries, the campus where many human interactions can be observed are available.
Students will be asked to prepare a presentation and deliver it in front of the group. (Presentations will be held on the following week after finishing observations) and write an essay on the basis of their experience (volume: 3-4 pages, relevant theoretical background can be embedded. Deadline of giving in is the second week following the presentations).
The presentation will be given for the whole group and classmates will give feedback using structured criteria-system (see formative Assessment table on the back of the sheet. Presentation skills, proper use of nonverbal communicational channels can be assessed by which improvement of personal communicational skills can be facilitated.
After completed observational task the basic verbal communicational skills will be practised using role-plays (or simulated patients- at given groups). Main forms of possible doctor-patient conversations can be discussed, as history taking, problem-, supportive-, and bad-new-conversations.
Oral Presentation: Formative Assessment
Skills and Qualities
Content/Text
Answers the question/deals effectively with the task. Demonstrates appropriate skills in analysis/synthesis/evaluation/application etc. Use of evidence/examples etc.
Structure/Logic
Forecasting e.g. introduction.

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

Department of Dentoalveolar Surgery

Subject: **ORAL SURGERY ELECTIVE I. EXTRACTION PRACTICE**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Practical: **14**

3rd week:
Self Control Test

6th week:
Self Control Test

8th week:
Seminar:
Theoretical: Basic rules of the dental office
History taking and examination of oral surgical patients
Infection control
Preoperative preparation of the patients.
Indications and contraindications for extraction

9th week:
Seminar:
Theoretical: Technique and complications of tooth extraction
Pre-operative information of patient and written consent form
After-care of the oral surgical patients, postexraction instructions
Instrumentation.

10th week:
Seminar:
TEST I
Theoretical: Local anaesthetics
Methods of local anaesthesia, possible adverse reactions and side effects
Self Control Test

11th week:
Seminar:
Theoretical: Treatment of intra- and postoperative complications of tooth extraction, Usage of elevators

12th week:
Seminar: Case reports.

13th week:
Seminar: TEST II. Final consultation

Self Control Test

Requirements

Course Objectives:

Understanding the theoretical and practical basics of Dentoalveolar Surgery and their use in the clinical practice.

Brief Course Description:

During the course, the students meet the basic rules of the dentist's office, as well as the essential aspects of patient care such as the history and implementation of anamnesis, infection control, simple and surgical tooth extraction, anesthetic techniques applicable in the maxillofacial region, and so on. By viewing the case reports, the course also helps you to put these into practice.

Assessment:

Five grade evaluation (AW5) practical grade. Evaluation is based on the results of two written control tests during the semester. (can be electronical SCTs)

Course Requirements:

Active participation on seminars is mandatory. Missed classes cannot be made up for. All of the absences must be verified within 3 business days. The absence rate may not exceed the total 20% of the course-hours.

Signature Requirements:

If the seminar absence exceeds 20%, the course signature will be denied. Credits may be awarded to students only if they attended at least 80% of the seminars and achieved a minimum of 2 (pass) practical grade.
Assessing grades according to test scores:

The grade is based on the result of the 2 SCTs. The test covers the materials of the seminars and the textbook. Tests are evaluated as follows:
0-60% Fail (1)
61-70% Pass (2)
71-80% Satisfactory (3)
81-90% Good (4)
91-100% Excellent (5)

If the results of the two SCTs do not reach the 2 (pass) grade, the student may, as required, resit the exam (B, C chance) in the exam period in the form of a test at the time designated by the Department.

Department of Foreign Languages

Subject: **LATIN LANGUAGE**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Practical: **28**

1st week:
Practical: Class introduction *and* Chapter 1 Introduction to medical terminology

2nd week:
Practical: Chapter 2: Anatomical positions,

planes and directions

3rd week:
Practical: Chapter 3: Parts of the body; Vocab Quiz 1

4th week:
Practical: Grammar 1: Basic elements of Latin grammar; Vocab Quiz 2

5th week:
Practical: Chapter 4: The mouth and the teeth; Vocab Quiz 3

6th week:
Practical: Chapter 5; Regions; Vocab Quiz 4

7th week:
Practical: Formation of adjectives; Vocab Quiz 5

8th week:
Practical: Revision, Midterm Test

9th week:
Practical: Chapter 6: The skeletal system 1

10th week:
Practical: The skeletal system (2); Plural forms; Vocab Quiz 6

11th week:
Practical: Chapter 7: Joints; complex adjectives; Vocab Quiz 7

12th week:
Practical: Chapter 8: The muscular system; Vocab Quiz 8

13th week:
Practical: Chapter 9: Greek roots; Latin and Greek prefixes related to numerals and quantities; Latin numerals; Vocab Quiz 9

14th week:
Practical: Revision 2; Vocab Quiz 10, **End term Test**

Requirements

Attendance

Attending language classes is compulsory. If a student is late it considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions.
The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time attendance is refused.

Testing, evaluation

In each Latin language course, students must sit for 2 written language tests. Students must appear at the lecture hall at least 15 minutes before the exam. If students are late, they are not allowed to write the test.

A further minimum requirement is the knowledge of 300 words per semester. There is a written word quiz in the first 5-10 minutes of the class, every week. If a student fails 4-4 word quizzes till the mid-term and the end-term tests he / she is not allowed to sit in for the test. If a student does not have at least 8 successful word quizzes he / she has to take a vocabulary exam that includes all 300 words. A word quiz can be postponed by a week and students can take it only with their own teacher. Students can obtain bonus points (5-5%) by taking all the word quizzes successfully.
Based on the final score the grades are given as follows.

Final score Grade

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

If the final score is below 60, the student can take a remedial exam once covering the whole semester's material.
Coursebook: See the website of the Department of Foreign Languages: **ilekt.med.unideb.hu.** Minimum vocabulary lists and further details are also available on the website.

Department of Operative Dentistry and Endodontics

Subject: **CARIOLOGY ELECTIVE I.(FUNDAMENTALS OF CARIOLOGY)**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Seminar: **14**

1st week:
Seminar: Morphology of the teeth. Gnatological aspect of occlusal surfaces

2nd week:
Seminar: Partial build-up of molar tooth with wax

3rd week:
Seminar: Partial build-up of molar tooth with wax
Self Control Test

4th week:
Seminar: Restorations step by step. Video demonstration.

5th week:
Seminar: Restorations step by step. Video demonstration.
Self Control Test

6th week:
Seminar: Restorations step by step. Video demonstration.

7th week:
Seminar: Restorations step by step. Video demonstration.

8th week:
Seminar: Computerised monitoring system in propedeutics.

9th week:
Seminar: Computerised monitoring system in propedeutics.

10th week:
Seminar: Computerised monitoring system in propedeutics.

11th week:
Seminar: Computerised monitoring system in propedeutics.

12th week:
Seminar: Examination of the patients. Registration of the dental status.

13th week:
Seminar: Examination of the patients. Registration of the dental status.

14th week:
Seminar: Online test

Requirements

Seminar: 15
The module is taught provided at least 5, max. 25 students sign up for it.
For information about the module contact: Dr. Martos Renata

Requirements for signing the lecture book:
- To attend seminars on a regular basis (there is no place for making up for missed classes.)
- Absences are required to be officially certified which cannot be more than 2 seminars.
- To take the final test of the seminar. The student who does not take this grade offering test his/her lecturebook will be refused to be signed.

Examination: Assessment of work on the 5 grade scale

The method of formation of the assessment of work grade:

Based on the result of the online final test we follow the below conversion to define the grade:

Achieved result in %	Grade
0-39.9 %	fail (1)
40-54.9 %	pass (2)
55-69.9 %	satisfactory (3)
70-84.9 %	good (4)
85-100 %	excellent (5)

Retake of the final test is not allowed. If the final test is below 40%(pass),then the mid semester grade is a fail. This can be amended with B and C exam chances in the exam period.
Requirements for taking up the subject:
Odontology, Introduction to Prosthodontics I.: Dental Materials, Introduction to Prosthodontics II.: Introduction to the Fixed Prosthodontics

Subject: **CARIOLOGY ELECTIVE II.(DIET AND NUTRITION IN ORAL HEALTH)**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Seminar: **14**

1st week:
Seminar: Nutrition as the foundation of general and oral health.

2nd week:
Seminar: Adequate diet. Energy balance and weight control

3rd week:
Seminar: Nutritions and dietary supplements. I.-II.

4th week:
Seminar: Nutrition implication in chronic health conditions

5th week:
Seminar: Nutrition in the growth and development of oral structures

6th week:
Seminar: Diet, nutrition and teeth

7th week:
Seminar: Nutrition and the periodontium

8th week:
Seminar: Immune compromising conditions and

oral lesions

9th week:
Seminar: Nutrition concerns for the dentally compromised patient: oral surgery, orthodontics

10th week:
Seminar: Nutrition concerns for the dentally compromised patient: dentures, dysphagia, tempomandibular disorders

11th week:
Seminar: Nutrition in pregnancy, infancy, childhood and adulthood. The older patient

12th week:
Seminar: Principles of diet screening, assessment and guidance

13th week:
Seminar: How medications and herbal remedies can affect nutrition, diet and oral health

14th week:
Seminar: Self control test

Requirements

No of Seminars: 15
For information about the module contact: Dr. Kelentey Barna
The module is taught provided at least 5 students sign up for it.

Requirements for signing the lecture book:
- To attend seminars on a regular basis (there is no place for making up for missed classes)
- Absences are required to be officially certified which cannot be more than 2 seminars.
- To take the final test of the seminar. The student who does not take this grade offering test his/her lecture book will be refused to be signed.

Examination: Assessment of work on the 5 grade scale

The method of formation of the assessment of work grade:

Based on the result of the final test we follow the below conversion to define the grade:

Achieved result in %	Grade	
0-39.9 %	fail	(1)
40-54.9 %	pass	(2)
55-69.9 %	satisfactory	(3)
70-84.9 %	good	(4)
85-100 %	excellent	(5)

Retake of the final test is not allowed. If the final test is below 40%(pass), then the mid semester grade is a fail. This can be amended with B and C exam chances in the exam period.
Requirements for taking up the subject: Restorative Dentistry I. (Cariology)

Subject: **CARIOLOGY ELECTIVE III. (ESTHETICS IN RESTORATIVE DENTISTRY)**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Seminar: **12**

1st week:
Seminar: Esthetics. Proportions, rules, symmetry and individualisation during composite restorations and build ups. Effects of ageing. Primary, secondary and tertiary morphology.

2nd week:
Seminar: Bioemulation. Direct or indirect methods? Advantages, disadvantages.

3rd week:
Seminar: The four dimension of color. Optical characteristics of enamel and dentin. Optical characteristics of composites.

4th week:
Seminar: Wax-up, mock-up, silicone key and it's Importance before the final build up.

5th week:
Seminar: Composites with high esthetics. Traditional and modern layering techniques. The importance of finishing and polishing.

6th week:
Seminar: Tooth form corrections, diatema closure, veneers associated with case presentations.

7th week:
Seminar: Upper first incisor build up with Vanini's layering technique.

8th week:
Seminar: Upper first incisor build up with Vanini's layering technique.

9th week:
Seminar: Upper first incisor build up with Vanini's layering technique.

10th week:
Seminar: Upper first incisor build up with Vanini's layering technique.

11th week:
Seminar: Upper first incisor build up with Vanini's layering technique.

12th week:
Seminar: Online test

Requirements

No. of Seminars: 12

The module is taught provided at least 5, maximum 15 students sign up for it.
For information about the module contact: Dr. Renáta Martos
Requirements for signing the lecture book:
- To attend seminars on a regular basis (there is no place for making up for missed classes.)
- Absences are required to be officially certified which cannot be more than 2 seminars.
- Tooth build-up with composite
- To take the final test of the seminar.
- The student who does not take this grade offering test his/her lecturebook will be refused to be signed.

Examination: Assessment of work on the 5 grade scale

After this course, the student with an excellent build up result may have a chance to take part in an esthetic restorative dentistry competition.

The method of formation of the assessment of work grade:
Based on the result of the online final test we follow the below conversion to define the grade:

Achieved result in %	Grade
0-39.9 %	fail (1)
40-54.9 %	pass (2)
55-69.9 %	satisfactory (3)
70-84.9 %	good (4)
85-100 %	excellent (5)

If the final essay is below 40% (pass), and the practical part is acceptable the mid semester grade is pass (2). The mid semester grade is a fail (1), can be amended with B and C exam chances in the exam period.

Requirements for taking up the subject: Restorative Dentistry III. (Cariology and Endodontics)

Subject: **ENDODONTICS ELECTIVE I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Seminar: **14**

1st week:
Seminar: Endodontic guidelines I.

2nd week:
Seminar: Endodontic guidelines II.

3rd week:
Seminar: One-visit endodontics I.

4th week:
Seminar: One-visit endodontics II.

5th week:
Seminar: Avulsion I.

6th week:
Seminar: Avulsion II.

7th week:
Seminar: Endodontic adjuncts I.

8th week:
Seminar: Endodontic adjuncts II.

9th week:
Seminar: Endodontic adjuncts III.

10th week:
Seminar: Endodontic adjuncts IV.

11th week:
Seminar: Endodontic case presentation I.

12th week:
Seminar: Endodontic case presentation II.

13th week:
Seminar: Endodontic monoblocks I.-II.

14th week:
Seminar: Test

Requirements

Seminar: 15
The module is taught provided at least 5 students sign up for it.
For information about the module contact: Dr. Juhász Alexander

Requirements for signing the lecture book:

- To attend seminars on a regular basis (there is no place for making up for missed classes.)
- Absences are required to be officially certified which cannot be more than 2 seminars.
- To take the final test of the seminar. The student who does not take this grade offering test his/her lecturebook will be refused to be signed.

Examination: Assessment of work on the 5 grade scale

The method of formation of the assessment of work grade:
Based on the result of the final test we follow the below conversion to define the grade:

Achieved result in %	Grade	
0-39.9 %	fail	(1)
40-54.9 %	pass	(2)
55-69.9 %	satisfactory	(3)
70-84.9 %	good	(4)
85-100 %	excellent	(5)

Retake of the final test is not allowed. If the final test is below 40%(pass),then the mid semester grade is a fail. This can be amended with B and C exam chances in the exam period.
Requirements for taking up the subject:
Restorative Dentistry Propedeutics II. (Endodontics), Preventive Dentistry I.

Subject: **ENDODONTICS ELECTIVE II. (MICROSCOPE IN DENTAL PRACTICE)**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Seminar: **14**

1st week:
Seminar: Microscopy from the beginning (history, magnification, illumination, types). The dental microscopes. I.

2nd week:
Seminar: Microscopy from the beginning (history, magnification, illumination, types). The dental microscopes. II.

3rd week:
Seminar: Ergonomics in dentistry. I.

4th week:
Seminar: Ergonomics in dentistry. II.

5th week:
Seminar: Musculoskeletal Disorders (MSDs) in dentistry. I.

6th week:
Seminar: Musculoskeletal Disorders (MSDs) in dentistry. II.

7th week:
Seminar: Four handed treatment. I.

8th week:
Seminar: Four handed treatment. II.

9th week:
Seminar: Dental microscope in endodontic and restorative dentistry. I.

10th week:
Seminar: Dental microscope in endodontic and restorative dentistry. II.

11th week:
Seminar: Dental microscope in the other fields of dentistry. I.

12th week:
Seminar: Dental microscope in the other fields of dentistry. II.

13th week:
Seminar: Digital photodocumentation and the dental operating microscope. I.-II.

14th week:
Seminar: Writing test.

Requirements

Seminar: 15
The module is taught provided at least 5, max. 10 students sign up for it.
For information about the module contact: Dr. Bágyi Kinga
Requirements for signing the lecture book:
- To attend seminars on a regular basis (there is no place for making up for missed classes.)
- Absences are required to be officially certified which cannot be more than 2 seminars.
- To take the final test of the seminar. The student who does not take this grade offering test his/her lecturebook will be refused to be signed .

Examination: Assessment of work on the 5 grade scale
The method of formation of the assessment of work grade:

Based on the result of the final test we follow the below conversion to define the grade:

Achieved result in %	Grade
0-39.9 %	fail (1)
40-54.9 %	pass (2)
55-69.9 %	satisfactory (3)
70-84.9 %	good (4)
85-100 %	excellent (5)

Retake of the final test is not allowed. If the final test is below 40%(pass), then the mid semester grade is a fail. This can be amended with B and C exam chances in the exam period.

Further reading
Rick Schmidt, Martin Boudro: The Dental Microscope (Why and How)
http://www.kennewickfamilydental.com/the-dental-microscope.html

Requirements for taking up the subject: Restorative Dentistry II. (Endodontics)

Department of Pediatric and Preventive Dentistry

Subject: **PEDIATRIC DENTISTRY ELECTIVE**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Seminar: **12**

1st week:
Seminar: Praxis management in pediatric dentistry. Organizing a dental screening.

2nd week:
Seminar: Anamnesis, patient charts, dental screening in pediatric dentistry (describing symptoms, diagnostics).

3rd week:
Seminar: How to write a referral letter?

4th week:
Seminar: Common dental materials and instruments used in pediatric dentistry.

5th week:
Seminar: Common mistakes in pediatric dentistry.

6th week:
Seminar: Adolescent problems in pediatric dentistry.

7th week:
Seminar: Problem Based Learning, case analysis.

8th week:
Seminar: Problem Based Learning, case analysis.

9th week:
Seminar: Problem Based Learning, case analysis.

10th week:
Seminar: Problem Based Learning, case analysis.

11th week:
Seminar: Problem Based Learning, case analysis.

12th week:
Seminar: Problem Based Learning, case analysis.

Requirements

The aims and objectives of this course
The goal of the course is widen and deepen the knowledge obtained during the compulsory pediatric dentistry lectures and practicals.
Short description of the course
Problem based learning will be used to analyze cases, establish diagnosis and make treatment plan for pediatric dental patients.
Assessment
AW5 grade practical mark
Requirements
Active participations on the seminars.
With acceptable written certificate students may miss 2 hours, there is no possibility to compensate the missed seminars.
The missed seminars shall be verified within 3 working days.
Course exemption
With previously obtained valid signature the attendance exemption of the practices can be requested till the end of the first week.
Conditions of signing the lecture book
During the course every student must present a pediatric case, make differential diagnosis and treatment plan. The presentation will be evaluated with a five grade mark.

CHAPTER 22
TITLES OF THESES

Division of Human Surgery and Operative Techniques

1. Title: Treatment options for perianal abscess
Tutor: Ferenc Győry M.D.
2. Title: Cell-based therapeutic options for burns
3. Title: Difficult-to-treat basal cell cancer: therapeutic possibilities in the era of targeted therapies
4. Title: Forehead reconstructions following skin cancer removal
5. Title: The most common skin tumors in the perioral region and their treatment
6. Title: Therapeutic options for dermal substitution in burns and their importance
7. Title: Treatment options for scars. Current conservative, surgical or combined therapeutic strategies
Tutor: István Juhász M.D., Ph.D., C.Sc.

Division of Dental Medicine

1. Title: Alcoholic liver diseases
2. Title: Diagnosis and treatment of primary biliary cirrhosis
3. Title: Diagnostics and therapy of chronic hepatitis B
4. Title: Epidemiology, diagnostics and therapy of chronic hepatitis C
5. Title: Signs, diagnostics and treatment of portal hypertension
Tutor: István Tornai M.D., Ph.D. habil.

Division of Dental Biochemistry

1. Title: Involvement of the impaired clearance of apoptotic cells in the control of insulin sensitivity
2. Title: Molecular mechanisms participating in the clearance of apoptotic cells
3. Title: Signaling pathways mediating the effect of adenosine in the macrophage chemotaxis
4. Title: The role of apoptotic clearance in muscle regeneration
Tutor: Zsuzsa Szondy M.D., Ph.D., D.Sc.

Department of Anatomy, Histology and Embryology

1. Title: Possible applications of morphofunctional matrices for classification of neurons (computer modelling)
Tutor: Ervin Wolf M.Sc., Ph.D.

2. Title: Correlation analysis of functional brain maps
3. Title: Investigation of contour integration processing in the primary visual cortex using voltage sensitive dye imaging
Tutor: Zoltán Kisvárday M.Sc., Ph.D., D.Sc.

4. Title: Investigation of signalling mechanisms that regulate cartilage development and maturation
Tutor: Róza Zákány M.D., Ph.D.

5. Title: Interrogation of spinal dorsal horn circuits with electrophysiological and optogenetic tools
6. Title: Light- and electron microscopy level analysis of the axons and axon collaterals of spinal lamina I projection neurons
7. Title: Local synaptic connections of projection neurons in spinal lamina I
8. Title: Morphometric analysis of excitatory and inhibitory interneurons in the spinal dorsal horn
Tutor: Péter Szücs M.D., Ph.D.

9. Title: Extracellular matrix in the developing brainstem
Tutor: Ildikó Wéber M.Sc., Ph.D.

10. Title: Matrix metalloproteases in vestibular lesion
Tutor: Botond Gaál M.Sc., Ph.D.

11. Title: Investigation of neuronal network development in the spinal cord
Tutor: Zoltán Mészár M.Sc., Ph.D.

12. Title: The role of the molecular clock in healthy and osteoarthritic chondrocytes
Tutor: Csaba Matta M.Sc., Ph.D.

13. Title: Role of PACAP signalling in cartilage differentiation and regeneration
Tutor: Tamás Juhász M.Sc., Ph.D.
14. Title: Distribution of the extracellular matrix in the red nucleus and pararubral area
Tutor: Éva Rácz M.Sc., Ph.D.
15. Title: The endocannabinoid-mediated modulation of spinal nociception
16. Title: The role of astrocytes in spinal pain processing
Tutor: Zoltán Hegyi M.Sc., Ph.D.
17. Title: Quantitative morphological studies of primary afferent-motoneuron connections in the frog's brainstem
Tutor: András Birinyi M.Sc., Ph.D.
18. Title: Role of pro-inflammatory cytokines in neuron-glia interaction during inflammatory pain states
Tutor: Krisztina Holló M.Sc., Ph.D.
19. Title: Mapping of synapses on dendrites of GABAergic neuron subtypes in the cerebral cortex
Tutor: Petra Talapka Ph.D.

Department of Biochemistry and Molecular Biology

1. Title: The role of the transcription factor BACH1 in macrophage function and tissue homeostasis
2. Title: Transcriptional analysis of the angiogenic effect of macrophages
Tutor: László Nagy M.D., Ph.D., M.H.A.Sc.
3. Title: Characterization of the nuclear tissue transglutaminase
4. Title: The effect of tissue transglutaminase-deficient states on the metabolism of differentiating and terminally differentiated NB4 neutrophil granulocytes
5. Title: The role of tissue transglutaminase in the differentiation of neutrophil granulocytes
Tutor: Zoltán Balajthy M.Sc., Ph.D.
6. Title: Production of dendritic cells and macrophages from embryonic stem cells.
7. Title: Transcriptional programming of dendritic cells
8. Title: Transcriptional programming of embryonic stem cell-derived myeloid cells
Tutor: István Szatmári M.Sc., Ph.D.
9. Title: Bioinformatic analysis of tissue-specific and tumor-specific gene expression regulation
Tutor: László Bálint Bálint M.D., Ph.D.
10. Title: Effects of various coeliac autoantibodies on transglutaminase 2 activities and interactome.
11. Title: Studying structure and function relationship of transglutaminases and its application in translational medicine
Tutor: Róbert Király M.Sc., Ph.D.
12. Title: Epigenetic regulation of homologous recombination
13. Title: Genomic analysis of chromosomal R-loops
Tutor: Lóránt Székvölgyi M.Sc., Ph.D.
14. Title: Analysis of the regulatory elements of the macrophage genome using next generation sequencing data
Tutor: Gergely Nagy M.Sc., Ph.D.
15. Title: Biochemical characterization of retroviral and retroviral-like proteases
Tutor: János Mótyán M.Sc., Ph.D.
16. Title: Analysis of protein interaction networks
17. Title: Metabolomic analysis of saliva
18. Title: Proteomic analyses in diabetes
19. Title: System biology approaches to diabetes
Tutor: Éva Csősz M.Sc., Ph.D.
20. Title: Evaluation of the browning potential and inducibility from human fat tissue biopsies
Tutor: Mária Szatmári-Tóth M.Sc., Ph.D.
21. Title: Regulation and effector functions of alternatively activated macrophages
Tutor: Zsolt Czimmerer M.Sc., Ph.D.
22. Title: Assembly and analysis of the reference genome for the diploid domestic rabbit using PacBio and 10X Chromium sequencing data
23. Title: Bioinformatic meta-analysis of ChIP-seq and ChIA-PET datasets to understand the regulation of transcriptional units
Tutor: Endre Barta M.Sc., Ph.D.

24. Title: Characterization of adipocytes with thermogenic potential
25. Title: Plasticity of the thermogenic potential of adipocytes, identification of key extrinsic and intrinsic factors

26. Title: The effect of environmental factors on the in vitro differentiation and beigeing potential of primary adipocytes
Tutor: Beáta Bartáné Tóth M.Sc., Ph.D.
27. Title: Investigation of novel molecular elements of the browning machinery in different human adipose tissues
28. Title: Investigation of the biological significance of "batokine" secretion in human cell models
Tutor: Endre Károly Kristóf M.D., Ph.D.
29. Title: Analysis of hemoglobin forms in pathologic states
30. Title: Metabolomic analyses in diabetes
Tutor: Gergő Kalló M.Sc., Ph.D.
31. Title: Characterization of genetic risk factors of chronic pancreatitis
Tutor: András Szabó M.Sc., Ph.D.

Department of Biophysics and Cell Biology

1. Title: Investigation of cell surface distribution of erbB-2 oncoprotein in breast tumor cell lines
2. Title: Role of tumor stem cells in trastazumab resistant breast tumors
Tutor: János Szöllősi M.Sc., Ph.D., D.Sc., M.H.A.Sc.
3. Title: Studying the inactivation of voltage gated potassium ion channels in heterologous expression systems
Tutor: György Panyi M.D., Ph.D., D.Sc.
4. Title: Epigenetic regulation of nucleosome-DNA cohesion
Tutor: Gábor Szabó M.D., Ph.D., D.Sc.
5. Title: Mathematical analysis and computer modelling of the topology of cell surface proteins
6. Title: Role of MHC in the organization of cell surface proteins
Tutor: László Mátyus M.D., Ph.D., D.Sc.
7. Title: Cytometry of cytotoxic lymphocytes
8. Title: Physiological roles of the multidrug resistance transporter P-glycoprotein
Tutor: Zsolt Bacsó M.D., Ph.D.
9. Title: Elucidation of the catalytic mechanism of ABC transporters
Tutor: Katalin Goda M.Sc., Ph.D.
10. Title: Development of machine learning-based methods for identification of cellular components
11. Title: Effect of the lipid composition of the cell membrane on membrane protein clustering and on cell biological processes related to the cell membrane
12. Title: Role of changes in the dynamic properties of the cell membrane in the protective role of methane against hypoxia-reperfusion injury
Tutor: Péter Nagy M.D., Ph.D., D.Sc.
13. Title: Membrane biophysical and cell biological effects of cyclodextrins
14. Title: The role of the Hv1 proton channel in vascular smooth muscle cells
Tutor: Zoltán Varga M.Sc., Ph.D., D.Sc.
15. Title: Biophysical analysis and functional significance of cell surface protein patterns in T cell-mediated immune responses
Tutor: Andrea Dóczy-Bodnár M.Sc., Ph.D.
16. Title: Ligand depedence of nuclear receptor function studied by single molecule microsocpy
17. Title: Studying the function and interactions of interleukin-2 and -15 receptors by advanced microscopy
Tutor: György Vámosi M.Sc., Ph.D.
18. Title: Generating and characterizing multicomponent primary human cell cultures for transplantation therapy of stem cell deficient corneas
19. Title: Molecular interactions in histopathological diagnosis: applying FRET in a confocal fluorescence digital pathology slide scanner
20. Title: Optimizing reprogrammed, chimeric antigen receptor (CAR) -transduced human T cells for tumor therapy
21. Title: Role of receptor tyrosine kinases and integrins in the therapy resistance of tumors
Tutor: György Vereb M.D., Ph.D., D.Sc.
22. Title: Ion channel expression of engineered T cells used in cancer immunotherapy
23. Title: Ion channel expression of tumor infiltrating T cell populations
Tutor: Péter Hajdu M.Sc., Ph.D.
24. Title: Genetically engineered NK cells as off-the-shelf living drugs in cancer therapy
25. Title: Universal chimeric antigen receptors (CARs): new weapons for lymphocytes fighting autoimmune diseases
Tutor: Árpád Szöőr M.D., Ph.D.

Department of Anesthesiology and Intensive Care

1. Title: Experimental testing of the neuromuscular junction
Tutor: Ákos Fábián M.D., Ph.D.
2. Title: Preemptive and preventive analgesia
Tutor: Béla Fülesdi M.D., Ph.D., D.Sc.
3. Title: The role of hypotermia in neuroprotection
Tutor: Csilla Molnár M.D., Ph.D.
4. Title: Clinical studies in the field of neuromuscular block and its reversal
Tutor: Adrienn Pongrácz M.D., Ph.D.

Department of Biomaterials and Prosthetic Dentistry

1. Title: Adhesion to zirconium dioxide based dental restorations (SSL)
2. Title: Cementation of Dental Ceramics
3. Title: Diagnosis of temporomandibular disorders
Tutor: Tünde Radics D.M.D., Ph.D.
4. Title: CAD/CAM technology in fabricating total removable dentures
5. Title: Treatment options for total edentoulism
Tutor: István Lampé M.D., L.D.S.
6. Title: In office bleaching
7. Title: Tooth whitening in clinical practice.
Tutor: Tamás Bistey D.M.D., Ph.D.
8. Title: Osteoporotic signs on panoramic x-ray and CBCT
Tutor: Rita Mohácsi D.M.D.
9. Title: Application of pulp derived stem cells in dentistry.
10. Title: Comparative analyzis of one- and two-piece dental implants.
11. Title: Growth factors involved in osteogenic differentiation and their application in dentistry.
Tutor: Edit Hrubi D.M.D.
12. Title: 3D printability of biocompatible or biodegradable polymers (SSL)
13. Title: Electrspinning applicability in dentistry (SSL)
14. Title: Polimers and addition materials in 3D printing (SSL)
15. Title: Roles of initiators in 3D printing (SSL)
Tutor: József Bakó M.Sc., Ph.D.
16. Title: Application of green activated new photoinitiator in dental resin
Tutor: Melinda Szalóki M.Sc., Ph.D.
17. Title: Ceramics in dentistry
18. Title: Different methods of recording centric relation
19. Title: Digital denture making
Tutor: Gábor Suta D.M.D.
20. Title: Accuracy of additive technologies in dentistry
21. Title: CAD/CAM technologies in dentistry
22. Title: Development of intraoral scanners
Tutor: Márton Suta D.M.D.

Department of Behavioural Sciences

1. Title: Basic issues of psy-complex (psychology, psychotherapy, psychiatry)
2. Title: Changing attitudes towards human phenomena in Western medicine
3. Title: Changing attitudes towards human phenomena in Western medicine
4. Title: Contemporary problems of Psy-complex
5. Title: Contemporary problems of Psy-complex
6. Title: Health and disease in cultural context
7. Title: Health and disease in cultural context
8. Title: Medicalization and its social context
9. Title: Medicalization and its social-cultural context
10. Title: Prolongation of life as a modern Western project
11. Title: Prolongation of life as a modern Western project
12. Title: The importance of the point of view of psychoanalysis for a humanistic medicine.
Tutor: Attila Bánfalvi M.A., Ph.D., C.Sc.
13. Title: End of life decisions
Tutor: Sándor Kőmüves M.A., Ph.D.
14. Title: Evolutionary Psychopathology
15. Title: Humor and Mental Health
16. Title: Life History Strategy elements in mate choice, attachment, and mental health
Tutor: Roland Tisljár M.A., Ph.D.
17. Title: Bioethical and biopolitical challenges of modern health care (Faculty of Medicine)
18. Title: Ethical and health policy aspects of the research and clinical use of controlled substances (Faculty of Medicine)
Tutor: János Kristóf Bodnár M.A., Ph.D.

Division of Cardiac Surgery

1. Title: Mid-term results of transcatheter aortic valve implantations - review of the literature
Tutor: Tamás Maros M.D.
2. Title: Composite grafts in coronary surgery - review of the literature
Tutor: Ambrus Horváth M.D.
3. Title: Sutureless aortic valve implantation - review of the literature
Tutor: Lehel Palotás M.D.
4. Title: Non-occlusive mesenteric ischaemia after cardiac surgery-review of the literature
Tutor: Tamás Debreceni M.D.

Department of Public Health and Epidemiology

1. Title: 1. Migration of health workers in the European Union with a focus on regulation 2. Mutual recognition of diplomas in the European Union: a historical overview 3. Prevention and management of diabetes in the EU Member States, with reference to regulation 4. The burden of diabetes in the EU Member States 5. Burden of disease of complications of diabetes mellitus in the EU Member States
Tutor: Orsolya Varga M.D., Ph.D.
2. Title: 1. Mental health of youth 2. Interventions to improve the mental health of youth 3. Mental health of health care workers 4. Interventions to improve the mental health of health care workers 5. Relationship between health literacy and health status (only for dentist students) 6. Relationship between health literacy and medication adherence (only for pharmacist students) 7. Social support among university students
Tutor: Éva Bíró M.D., Ph.D.
3. Title: 1. Sociodemographic, environmental and lifestyle determinants of obesity 2. The effect of neighborhood environment on physical activity and diet 3. The effect of dietary interventions on the risk of chronic non-communicable diseases 4. Use of Healthy Eating index for the characterization of diet quality 5. Prevalence and determinants of dietary supplement use (only for pharmacist students) 6. Patterns and correlates of anabolic androgenic steroid use (only for pharmacist students) 7. Associations between diet quality and dental caries (only for dentist students) 8. Socioeconomic and lifestyle determinants of dental caries (only for dentist students)
Tutor: Helga Bárdos M.D., M.Sc., Ph.D.
4. Title: 1. Contaminants of traditional Chinese and Indian medicines 2. Morbidity and mortality from oral cavity cancers in selected European countries 3. Toxicology of fluorides 4. Effect of smoking on drug metabolism 5. Toxicology of zinc
Tutor: Sándor Szűcs M.Sc., Ph.D.
5. Title: 1. Conducting systematic review on selected diagnostic research topics 2. Conducting systematic review on selected prognostic research topics 3. Conducting systematic review on selected intervention research topics
Tutor: Szilvia Fiatal M.D., Ph.D.
6. Title: 1. Evaluation of chronic care for adult overweighted in general medical practice 2. Evaluation of chronic care for adult smokers in general medical practice 3. Evaluation of chronic care for diabetes mellitus in general medical practice 4. Evaluation of chronic care for hypertension in general medical practice 5. Social inequalities in health 6. Disease burden of rare diseases 7. Evaluating effectiveness of population based screenings 8. Nutritional habit in the first trimester of pregnancy
Tutor: János Sándor M.D., Ph.D.

7. Title: 1. Assessment of health risks of micro- and nano-encapsulated plant protection products: a systematic literature review 2. Investigation of the DNA damaging potential of plant protection products using genotoxicological methods 3. Comparative assessment of the cytotoxic effect of glyphosate and glyphosate based herbicides 4. Assessment of health risks of micro- and nanoencapsulated plant protection products: a systematic literature review 5. Assessment of ergonomic risk factors among workers in different professions
Tutor: Károly Nagy Ph.D.
8. Title: 1. Alcohol consumption and human immunodeficiency virus infection 2. Pharmacological treatment of alcohol use disorders 3. Alcohol use by adolescents in Europe between 1993 and 2019 4. Alcohol use in the European Union 5. Health effects of flame retardants
Tutor: László Pál Ph.D.
9. Title: 1. Analyses of workforce crisis in Hungarian general practices 2. Frequency of influenza vaccination among chronic diseased patients in Hungary: A general practice based investigation 3. Frequency of influenza vaccination among the elderly: A general practice based investigation 4. The effectiveness of hypertension care in Hungary 5. Are serum uric acid levels are associated with cardiovascular risk score among hypertonic patients? 6. Investigation of stroke frequency in adult and mixed general practices 7. Investigation of AMI frequency in adult and mixed general practices
Tutor: Ferenc Vincze M.Sc.
10. Title: 1. Investigation of the global burden of chronic non-communicable diseases 2. Investigation of the global burden of chronic non-communicable diseases regarding socio-economic development 3. Trends in mortality from non-communicable diseases 4. Prevalence of complications due to diabetes mellitus in Europe 5. Socioeconomic determinants of diabetes mellitus complications across Europe
Tutor: Nóra Kovács M.Sc.
11. Title: 1. Health and health behaviour of adolescents 2. Problematic internet use among adolescents 3. Health promotion opportunities among school-aged children
Tutor: Gabriella Pénzes M.Sc.

Division of Cardiology

1. Title: Evaluation of "Flow separation resistance index" in coronary artery disease.
Tutor: Zsolt Kőszegi M.D., Ph.D.
2. Title: Pericardial fat tissue
3. Title: Safety antidiabetic therapy
Tutor: Tibor Fülöp M.D., Ph.D.
4. Title: Feasibility of pulmonary balloon angioplasty in CTEPH patients.
5. Title: Percutaneous interventional strategies in patients with chronic coronary artery occlusion.
Tutor: Tibor Szűk M.D., Ph.D.
6. Title: Structural interventions in cardiology
Tutor: Attila Kertész M.D., Ph.D.
7. Title: Pre-TAVI investigations - CT in focus.
8. Title: The role of cardiac-CT - general overview.
Tutor: Rudolf Kolozsvári M.D., Ph.D.
9. Title: Assessment of the right heart side by 3D echocardiography
10. Title: The role of 3D echocardiography in mitral valve disease
Tutor: Csaba Jenei M.D.
11. Title: Examining the correlation of immunohistochemistry parameters of patients with HER2 positive breast cancer and trastuzumab-induced cardiotoxicity.
Tutor: Dániel Czuriga M.D., Ph.D.
12. Title: Comparison of STEMI and NSTEMI cases after primary PCI: the role of secondary prevention
Tutor: László Fülöp M.D., Ph.D.
13. Title: Atrial fibrillation and new oral anticoagulant therapy
Tutor: Gábor Kolodzey M.D.
14. Title: Gestational hypertension management at the Department of Cardiology, University of Debrecen.
Tutor: Alexandra Kiss M.D., Ph.D.

15. Title: Investigating the effects of therapeutic hypothermia in patients after out-of-hospital arrest.
Tutor: Árpád Kovács M.D., Ph.D.

Division of Clinical Physiology

1. Title: Improvement of myocardial inotropy under physiological and pathological conditions
Tutor: Zoltán Papp M.D., Ph.D., D.Sc.
2. Title: The role of angiotensin II in cardiovascular diseases
3. Title: Vascular alterations leading to hypertension.
Tutor: Attila Tóth M.Sc., Ph.D., D.Sc.
4. Title: Angiotensin converting enzymes in the laboratory diagnostics
5. Title: Endogenous regulation of the renin-angiotensin-aldosterone system and its clinical significance
Tutor: Miklós Fagyas M.D., Ph.D.
6. Title: Investigating mechanisms contributing to the myogenic tone of the coronary arteries
Tutor: Viktória Csató M.Sc., Ph.D.

Division of Nuclear Medicine and Translational Imaging

1. Title: Development of interactive E-learning material for nuclear medicine
Tutor: József Varga M.Sc., Ph.D.
2. Title: Importance of FDG PET/CT in cardiology
3. Title: Metabolic parameters in correlation with different oncological therapies
4. Title: Targeted radionuclide therapies in metastatic prostate cancer
5. Title: Targeted radionuclide therapies in neuroendocrin tumors
Tutor: Ildikó Garai M.D., Ph.D.

Division of Radiology and Imaging Science

1. Title: Analysis of Pediatric Radiology Examinations
Tutor: Nóra Vrancsik M.D.

Department of Medical Imaging

1. Title: Posttherapeutic I-131 whole body SPECT/CT in patients with thyroid cancer
2. Title: The role of Tc99m-Tektrotyd SPECT/CT to evaluate metastatic neuroendocrine tumors
Tutor: Ildikó Garai M.D., Ph.D.
3. Title: Localisation of anatomical regions of CT scans with machine learning methods
Tutor: Zoltán Barta M.D.

Department of Human Genetics

1. Title: Transcriptional regulation of immune responses.
Tutor: Lajos Széles M.Sc., Ph.D.
2. Title: Analysis of mono-ADP-ribosylated proteins from pro- and eukaryotic cells.
Tutor: András Penyige M.Sc., Ph.D.
3. Title: Analysis of an A factor non-producer bald mutant Streptomyces griseus strain with respect of antibiotic production and cell differentiation.
Tutor: Zsuzsanna Birkó M.Sc., Ph.D.
4. Title: Overview of the background of an arbitrary genetic disorder.
5. Title: Overview of the genetic background influencing the pharmacokinetics and pharmacodynamics of a drug.
Tutor: Judit Keserű M.Sc., Ph.D.
6. Title: MiRNA-profiling of regressive Wilms' tumors.
7. Title: Studying the role of long non-coding RNAs in glioblastoma.
Tutor: Gergely Buglyó M.D., Ph.D.
8. Title: Investigation the diet–microbiota interactions due to regular sport and personalized nutrition.
9. Title: Next-generation sequencing for the investigation of the small RNA transcriptome in hemato-oncology patients.
Tutor: Melinda Paholcsek M.Sc., Ph.D.
10. Title: Exosomes, as possible biomarkers.
Tutor: Beáta Soltész M.Sc., Ph.D.
11. Title: Study the role of microRNAs in ovarian cancer.
Tutor: Melinda Szilágyi-Bónizs M.Sc., Ph.D.

Department of Immunology

1. Title: The role of the HOFI/SH3PXD2B adaptor protein in the regulation of the tumor microenvironment
Tutor: Árpád Lányi M.Sc., Ph.D.

2. Title: The role of innate immune cells in the development of allergic responses
3. Title: The role of innate lympoid cells (ILC) in human diseases
Tutor: Attila Bácsi M.Sc., Ph.D., D.Sc.
4. Title: Altered differentiation of monocyte derived dendritic cells and their functional differences
Tutor: Péter Gogolák M.Sc., Ph.D.
5. Title: Investigation of phytocannabinoid effects on human monocyte-derived dendritic cells
6. Title: Investigation of transient receptor potential channels on human monocyte-derived dendritic cells
Tutor: Attila Szöllősi M.D., Ph.D.
7. Title: Identification of new viral senzors and new regulatory mechanisms in the antiviral responses of human dendritic cells
8. Title: Role of dendritic cells in the development of autoimmune diseases
Tutor: Kitti Pázmándi M.Sc., Ph.D.
9. Title: Study of non-apoptotic cytotoxic processes during immune response, new way of killing apoptosis resistant tumor cells
Tutor: Gábor Koncz M.Sc., Ph.D.

Department of Clinical Oncology

1. Title: Prognostic factors in colorectal cancer
Tutor: Csilla András M.D., Ph.D. habil.
2. Title: Treatment modalities in pancreas cancer
Tutor: Péter Árkosy M.D., Ph.D. habil.
3. Title: Current treatment of metastatic bladder cancer
4. Title: Treatment options of metastatic castration-resistant prostate cancer
Tutor: Balázs Juhász M.D.
5. Title: Cardiological side effects of fluorouracyl in oncological patients
Tutor: Anita Árokszállási M.D., Ph.D.
6. Title: Palliation in oncology
Tutor: Éva Szekanecz M.D., Ph.D.
7. Title: Prognostic factors in low grade and high grade gliomas
8. Title: Treatment options in advanced and metastatic breast cancer
Tutor: József Virga M.D., Ph.D.

Department of Laboratory Medicine

1. Title: Evaluation of known and novel autoantibodies in the diagnostics of autoimmune and immune-mediated disorders
2. Title: Identification of novel biomarkers for the detection and prediction of cirrhosis associated infections
Tutor: Péter Antal-Szalmás M.D., Ph.D.
3. Title: Vitamin D status in colorectal carcinoma
Tutor: Harjit Pal Bhattoa M.D., Ph.D.
4. Title: Cytogenetic aberrations in infertility
5. Title: Genetic examinations in t(12;21) positive childhood acute lymphoblastic leukemia
Tutor: Anikó Ujfalusi M.D., Ph.D.
6. Title: Analysis of serum human epididymis protein 4 (HE4) in the follow-up of cystic fibrosis patients
7. Title: Investigation of platelet microRNA expressions in septic conditions
Tutor: Béla Nagy Jr. M.D., Ph.D.

Division of Clinical Laboratory Science

1. Title: Effect of alfa2-plasmin inhibitor heterogeneity on the risk of thrombosis
2. Title: Method development for the detection of various antithrombin isoforms
Tutor: Éva Katona M.Sc., Ph.D. habil.
3. Title: Inherited hemostasis disorders; laboratory and molecular genetic aspects
4. Title: Laboratory monitoring of the new generation oral anticoagulants
Tutor: Zsuzsanna Bereczky M.D., Dr. habil., Ph.D.
5. Title: Characterization of the heparin-antithrombin interaction with surface plasmon resonance
6. Title: New methods for investigating the interactions of blood coagulation proteins
Tutor: Krisztina Pénzes-Daku M.Sc., Ph.D.
7. Title: Fibrinolytic marker levels and polymorphisms in inflammatory bowel diseases
8. Title: Investigation of fibrinolytic markers on the outcome of thrombolytic therapy in patients with ischaemic stroke
Tutor: Zsuzsa Bagoly M.D., Ph.D.

Department of Dermatology

1. Title: Ablative laser treatment in Hailey-

Hailey disease
2. Title: DNA repair mechanisms
3. Title: Indications in ablative Er:YAG laser
4. Title: Methods of sunprotection
Tutor: Éva Remenyik M.D., Ph.D., D.Sc.
5. Title: Chemical burns - special features and treatment options
6. Title: Dermatofibrosarcoma protuberans - therapeutic possibilities
7. Title: Possibilities of skin grafting in the reconstruction of defects after removal of skin tumors
8. Title: Role of NPWT (Negative Pressure Wound Therapy) in the treatment of burns
9. Title: Role of subcutaneous island pedicle flap in the reconstruction of defects after removal of skin tumors
Tutor: István Juhász M.D., Ph.D., C.Sc.
10. Title: Deformities and discolorations of the nails: relation to other medical conditions. Overview of the literature and case reports.
Tutor: Éva Szabó M.D., Ph.D.
11. Title: Different applications of the latissimus dorsi musculocutaneous flap
Tutor: Zoltán Péter M.D.
12. Title: Characteristics of chronic urticaria – analysing our patients' data
13. Title: Methotrexate use in psoriasis – the diagnosis of liver fibrosis as a possible side effect
Tutor: Krisztián Gáspár M.D., Ph.D.
14. Title: Lipid disorder associated dermatological symptoms
15. Title: Pathogenesis and therapy of acne
16. Title: Role of lipid environment in the activation of dermal macrophages
Tutor: Dániel Törőcsik M.D., Ph.D.
17. Title: New therapies in severe psoriasis vulgaris
18. Title: Omalizumab therapy in chronic urticaria
Tutor: Andrea Szegedi M.D., Ph.D., D.Sc.
19. Title: Drug hypersensitivity reactions: types and diagnostic approach
20. Title: Penicillin allergy: diagnostics and management
Tutor: Irina Sawhney M.D.
21. Title: Correlation of clinicopathological classification of melanoma with disease outcome
Tutor: Gabriella Emri M.D., Ph.D.

Department of Medical Chemistry

1. Title: Investigation of Ser/Thr protein phosphatase in pathogenic fungi
Tutor: Viktor Dombrádi M.Sc., Ph.D., D.Sc.
2. Title: Interaction of protein phosphatase 1 catalytic subunit with regulatory proteins
Tutor: Ferenc Erdődi M.Sc., Ph.D., D.Sc.
3. Title: Regulation of macrophage activation
Tutor: László Virág M.D., Ph.D., D.Sc.
4. Title: Signal transduction pathways in pulmonary endothelial cells
Tutor: Csilla Csortos M.Sc., Ph.D., D.Sc.
5. Title: Study of metabolic processes with special regard to the involvement of mitochondrial activity.
Tutor: Péter Bay M.Sc., Ph.D., D.Sc.
6. Title: Application of High-Content Screening in Life Sciences
Tutor: Endre Kókai M.Sc., Ph.D.
7. Title: Overcoming insulin resistance by SMTNL1-mimicking peptide
8. Title: Signalling pathways in endometriosis
Tutor: Beáta Lontay M.Sc., Ph.D.
9. Title: Inhibition of sodium-glucose cotransporter of kidney by glucose-based compounds also interfering with glycogenolysis
Tutor: Tibor Docsa M.Sc., Ph.D.
10. Title: Regulation of protein phosphatase-1 by inhibitory proteins and the translocation of the targing subunit
Tutor: Andrea Kiss M.Sc., Ph.D.
11. Title: High-Throughput Screening
Tutor: Csaba Hegedűs M.D., L.D.S., Ph.D.
12. Title: Autophagy in physiological and pathological processes
Tutor: Katalin Kovács M.Sc., Ph.D.
13. Title: Posttranslational modifications of the mitochondrial fission protein Drp1 and their role on mitochondrial morphology.
14. Title: The effect proteasomal inhibition in Huntington's disease.
Tutor: Krisztina Tar M.Sc., Ph.D.

15. Title: The role of mechanotransduction in the upregulation of CXCL1 in the small intestine
Tutor: Karen Uray M.Sc., Ph.D.

Department of Medical Microbiology

1. Title: Antimicrobial cell-mediated immunity measured by mRNA tests
Tutor: József Kónya M.D., Ph.D., D.Sc.

2. Title: Role of HPV in head and neck cancers
Tutor: Krisztina Szarka M.Sc., Ph.D.

3. Title: Evaluation of fungicidal effect of antifungal agents using time-kill curves
4. Title: New and older agents in antifungal chemotherapy
Tutor: László Majoros M.D., Ph.D.

5. Title: Prevalance of human polyomaviruses
Tutor: Eszter Csoma M.Sc., Ph.D.

6. Title: Effects of human papillomavirus oncoproteins on cellular signaling pathways in keratinocytes
Tutor: Anita Szalmás M.Sc., Ph.D.

7. Title: Molecular epidemiology of aminoglycoside resistance in nosocomial Gram negative bacteria
Tutor: Gábor Kardos M.D., Ph.D.

8. Title: Intratypical variation of human papillomaviruses
Tutor: György Veress M.Sc., Ph.D.

9. Title: The importance of fungal quorum-sensing in antifungal therapy against Candida biofilms.
Tutor: Renátó Kovács M.Sc., Ph.D.

Department of Internal Medicine

1. Title: Immunotherapy of B cell lymphomas.
2. Title: Safety profile of prolonged rituximab therapy in lymphomas.
3. Title: Targeted therapy in non-Hodgkin's lymphomas
Tutor: Lajos Gergely M.D., D.Sc.

4. Title: Lipid abnormalities in hypothyreoidism.
5. Title: The function of LDL in lipid metabolism
Tutor: György Paragh M.D., Ph.D., D.Sc.

6. Title: Diagnostic tests and imaging techniques in endocrinology.
Tutor: Endre Nagy M.D., Ph.D., D.Sc.

7. Title: Adipokines and Insulin Resistance
8. Title: Insulin resistance and non-alcoholic fatty liver disease
9. Title: Obesity: Diagnosis and Treatment
10. Title: Obesity: Etiology and Co-morbidities
Tutor: Péter Fülöp M.D., Ph.D. habil.

11. Title: Diabetic neuropathy and oxidative stress
Tutor: Ferenc Sztanek M.D., Ph.D.

12. Title: Autoimmune disorders and GI tract
Tutor: Zsolt Barta M.D., Ph.D.

13. Title: The disease course after stent inplantation in peripheral arterial disease
Tutor: György Kerekes M.D., Ph.D.

14. Title: Novel therapeutical approaches in multiple myeloma
15. Title: The impact of multi-drug resistance genes in the prognosis of lymphoproliferative disorders
Tutor: László Váróczy M.D., Ph.D. habil.

16. Title: Inherited and acquired thrombophilia
17. Title: New direct oral anticoagulants
18. Title: Stem cell therapy in peripheral arterial disorders
Tutor: Zoltán Boda M.D.,Ph.D.,D.Sc.

19. Title: Gastric cancer: clinics and treatment
20. Title: Gastrointestinal bleeding
21. Title: Gluten sensitive enteropathy
22. Title: Inflammatory bowel diseases.
23. Title: Lymphomas in the gastrointestinal tract.
Tutor: István Altorjay M.D., Ph.D., D.Sc.

24. Title: Langerhans histiocytosis
25. Title: Osteosclerotic myeloma

26. Title: Therapeutic challenges in rare haemostatic disorders
Tutor: György Pfliegler M.D., Ph.D. habil.

27. Title: Epidemiology, diagnostics and therapy of chronic hepatitis C
28. Title: Pathomechanism of alcoholic hepatitis
29. Title: Signs, diagnostics and treatment of portal hypertension.
30. Title: Therapeutic options in primary sclerotizing cholangitis
31. Title: Treatment of autoimmune hepatitis
Tutor: István Tornai M.D., Ph.D. habil.

32. Title: A case history of an interesting acute myeloid leukaemia patient in the 2nd Department of Medicine (connection with the literature data)
Tutor: Attila Kiss M.Sc., Ph.D. habil.

33. Title: Chronic neutrophilic leukaemia
Tutor: Béla Telek M.D., Ph.D.

34. Title: Biological treatment of ulcerative colitis
35. Title: Extraintestinal association in IBD
Tutor: Károly Palatka M.D., Ph.D. habil.

36. Title: The role of Willebrand factor in various internal diseases.
Tutor: Ágota Schlammadinger M.D., Ph.D.

37. Title: Bacterial infection in liver cirrhosis
38. Title: Clinical significance of chronic pancreatitis
39. Title: Current therapeutic options of acute pancreatitis
Tutor: Zsuzsa Vitális M.D., Ph.D.

40. Title: Diagnosis and treatment of chronic lymphocytic leukemia
41. Title: Novel therapeutic approches in the treatment of multiple myeloma
42. Title: Philadelphia negative chronic myeloproliferative neoplasms - novel genetic and therapeutic improvements
43. Title: Recent advances in the management of chronic ITP
Tutor: Péter Batár M.D., Ph.D.

44. Title: Are the bacterial infections predictable in liver cirrhosis?
45. Title: Role of serological markers in prediction of disease course and response to therapy in inflammatory bowel diseases.
Tutor: Mária Papp M.D., Ph.D. habil.

46. Title: Gastoesophageal reflux disease
Tutor: László Dávida M.D.

Department of Pathology

1. Title: Molecular classification of glial neoplasms
2. Title: Overview of non-adenohypophysaer neoplastic lesion within and around the sella
3. Title: Use of IDH-1 immunohistochemistry in surgical neuropathology
Tutor: Péter Molnár M.D., D.Sc.

4. Title: Functional analysis of malignant lymphomas using image analysis
5. Title: Mitotic failures and cancer progression
6. Title: Molecular diagnostics of solid tumors
Tutor: Gábor Méhes M.D., D.Sc.

Department of Internal Medicine

1. Title: Familiar antiphospholipid syndrome
Tutor: Pál Soltész M.D., Ph.D., D.Sc.

Department of Pharmacology and Pharmacotherapy

1. Title: Cardiovascular risk factors
2. Title: Metabolic link between obesity and insulin resistance
Tutor: Zoltán Szilvássy M.D., Ph.D., D.Sc.

3. Title: Anxiety in the dental chair: pharmacological treatment
4. Title: Arrhythmic patient in dentistry
5. Title: Optional title in pharmacology
6. Title: Parkinson patient in the dental chair
7. Title: Pharmacological and clinical significance of adenosine receptor antagonists
8. Title: Pharmacological and non-pharmacological treatment of endothelial dysfunction
9. Title: Pharmacology of antidepressive drugs: dental implications

10. Title: Pharmacotherapy of trigeminal neuralgia
Tutor: József Szentmiklósi M.D., Ph.D.

11. Title: Emerging roles of prostaglandin DP1 and DP2 receptors in acute and chronic aspects of allergic diseases
12. Title: Optional title in pharmacology
13. Title: Pharmacological treatment of acute decompensated heart failure (ADHF)
14. Title: Pharmacology of herbal remedies
15. Title: Pharmacology of neurogenic inflammation
16. Title: Pharmacotherapy of Amyotrophic Lateral Sclerosis (ALS)
17. Title: Pharmacotherapy of Duchenne Muscular Dystrophy (DMD)
18. Title: Possible pharmacological exploitations of TRPV1 receptors
19. Title: Use of Histone deacetylase inhibitors (HDI): Novel advances in cancer treatment
Tutor: Róbert Pórszász M.D., Dr. habil., MBA, Ph.D.

20. Title: Effect of colony stimulating factors or other drugs on bone marrow-derived cell lines
21. Title: How insulin resistance influences drug effects
22. Title: Selected topic in field experimental hemato-oncology
Tutor: Ilona Benkő M.D., Ph.D.

23. Title: Connections between rheumatoid arthritis and periodontal disease with a focus on pharmacotherapy
24. Title: Immune checkpoint inhibitors in advanced oral cancer
25. Title: Optional title on cancer chemotherapy
Tutor: Attila Megyeri M.D., Ph.D.

26. Title: Class I antiarrhythmic agents: dental implications
27. Title: COX-3 inhibitors in the dental practice
28. Title: Optional title in pharmacology
29. Title: Pharmacotherapy of bronchial asthma: dental implications
30. Title: Reflux disease and the dental patient
Tutor: Ágnes Cseppentő M.D.

31. Title: Optional title on antibacterial chemotherapy
Tutor: Zsuzsanna Gál M.Sc., Ph.D.

32. Title: Optional title in pharmacology
Tutor: Béla Juhász D.Pharm., Dr. habil., Ph.D.

33. Title: Optional title in pharmacology
Tutor: Balázs Varga D.Pharm., Ph.D.

34. Title: Optional title in pharmacology
Tutor: Mariann Bombicz D.Pharm.

35. Title: Optional title in pharmacology
Tutor: Dániel Priksz D.Pharm.

Department of Physiology

1. Title: Expression and significance of the TASK channels in physiological and pathological conditions
Tutor: Péter Szücs M.D., Ph.D.

2. Title: Alterations of intracellular calcium concentration in pathological conditions
Tutor: László Csernoch M.Sc., Ph.D., D.Sc.

3. Title: Regional differences in the electrophysiological properties of cardiomyocytes
Tutor: Péter Nánási M.D., Ph.D., D.Sc.

4. Title: Role of afterdepolarization mechanisms in the arrhythmogenesis
Tutor: Tamás Bányász M.D., Ph.D., D.Sc.

5. Title: Electrophysiological properties of mammalian cardiac tissues
Tutor: János Magyar M.D.,Ph.D.,D.Sc.

6. Title: Beat-to beat variability of cardiac repolarization
Tutor: Norbert Szentandrássy M.D., Ph.D.

7. Title: Studies on ion channels incorporated into artificial membranes
Tutor: István Jóna M.Sc., Ph.D., D.Sc.

8. Title: Role of late sodium current in the arrhythmogenesis
Tutor: Balázs Horváth M.D.,Ph.D.

9. Title: Role of potassium channels in neuron function
Tutor: Balázs Pál M.D.,Ph.D.

10. Title: Properties of vanilloid receptors
Tutor: István Balázs Tóth M.Sc., Ph.D.

11. Title: Role of Protein Kinase C isoforms in cell function.
Tutor: Gabriella Czifra M.Sc., Ph.D.

Department of Emergency Medicine

1. Title: Cardiac rhythm disturbances. Hypertensive emergencies.
Tutor: Zoltán Szabó M.D., Ph.D.

Division of Gastroenterology

1. Title: Gastric cancer: clinics and treatment
2. Title: Gastrointestinal bleeding
3. Title: Gluten sensitive enteropathy
4. Title: Inflammatory bowel diseases
5. Title: Lymphomas in the gastrointestinal tract
Tutor: István Altorjay M.D., Ph.D., D.Sc.
6. Title: Epidemiology, diagnostics and therapy of chronic hepatitis C
7. Title: Pathomechanism of alcoholic hepatitis
8. Title: Signs, diagnostics and treatment of portal hypertension
9. Title: Therapeutic options in primary sclerotizing cholangitis
10. Title: Treatment of autoimmune hepatitis
Tutor: István Tornai M.D., Ph.D. habil.
11. Title: Biological treatment of ulcerative cholitis
Tutor: Károly Palatka M.D., Ph.D. habil.
12. Title: Are the bacterial infections predictable in liver cirrhosis?
13. Title: Role of the serological markers in prediction of disease course and response to therapy in inflammatory bowel diseases
Tutor: Mária Papp M.D., Ph.D. habil.

14. Title: Bacterial infection in liver cirrhosis

15. Title: Current therapeutic options of acute pancreatitis
Tutor: Zsuzsanna Vitális M.D., Ph.D.

Department of Internal Medicine

1. Title: Ischemic colitis.
2. Title: Life quality of Raynaud syndrome
Tutor: Zoltán Csiki M.D., Ph.D.

Division of Haematology

1. Title: Immunotherapy of B-cell lymphomas
2. Title: The role of PET/CT imaging in lymphomas
Tutor: Lajos Gergely M.D., D.Sc.

3. Title: Diagnosis and treatment of chronic lymphocytic leukemia
4. Title: Novel therapeutic approaches in the treatment of multiple myeloma
5. Title: Philadelphia negative myeloproliferative meoplasms - novel genetic and therapeutic improvements
6. Title: Recent advances in the management of chronic ITP
Tutor: Péter Batár M.D., Ph.D.

Department of Internal Medicine

1. Title: Langerhans histiocytosis
2. Title: Osteosclerotic myeloma
3. Title: Therapeutic challenges in rare haemostatic disorders
Tutor: György Pfliegler M.D., Ph.D. habil.

Division of Rheumatology

1. Title: Osteoporosis in systemic sclerosis
2. Title: Quality of life in systemic sclerosis
Tutor: Szilvia Szamosi M.D.,Ph.D.
3. Title: Diagnosis and therapy of early arthritis
4. Title: Modern therapy of vasculitides
Tutor: Edit Végh M.D.
5. Title: Extra-articular manifestations in ankylosing spondylitis
Tutor: Nóra Bodnár M.D., Ph.D.
6. Title: Clinical and serological features, therapeutic possibilities of myositis-overlap syndromes at the Department of Rheumatology, University of Debrecen
Tutor: Levente Bodoki M.D., Ph.D.

7. Title: Therapeutic opportunities in psoriatic arthritis
Tutor: Zsófia Pethő M.D.

Department of Neurology

1. Title: Cerebral hemodynamics and cognitive dysfunction in treated and non-treated stroke patients
2. Title: Misdiagnosis in neurology: causes and consequences
3. Title: Neurosonological investigations in acute and chronic stroke patients
4. Title: Non-invasive investigation of endothelial dysfunction.
5. Title: The autopsy as the ultimate yardstick of medicine. Is it still true?
Tutor: László Csiba M.D., Ph.D., D.Sc., M.H.A.Sc.
6. Title: COVID-19 and Multiple Sclerosis
7. Title: Diagnosis and differential diagnosis of multiple sclerosis
8. Title: Exercise in Multiple Sclerosis
9. Title: Multiple sclerosis - treatment in 2021
10. Title: Pregnancy in multiple sclerosis
Tutor: Tünde Csépány M.D., Ph.D.
11. Title: Cerebral vasoreactivity after epileptic seizure
12. Title: Cerebral vasoreactivity after sleep deprivation
13. Title: Clinical outcome of patients with acute ethanol consumption and acute ischemic stroke out of the time window
14. Title: Clinical outcome of patients with acute intracerebral hemorrhage and acute alcohol consumption
15. Title: COVID and stroke
16. Title: Effect of rheology abnormalities on neurovascular coupling
17. Title: Effect of sleep deprivation on neurovascular coupling
18. Title: Short-term changes in cerebral vasoreactivity after decrease of elevated blood pressure
Tutor: László Oláh M.D., Ph.D., D.Sc.
19. Title: Immunological relations of narcolepsy
20. Title: Wearable devices in epilepsy and sleep disorders
Tutor: Norbert Kozák M.D., Ph.D.

Department of Neurosurgery

1. Title: Treatment of silent cerebral aneurysms
Tutor: Sándor Szabó M.D., Ph.D.
2. Title: Craniocerebral injuries of early childhood
3. Title: Surgical strategies in meningiomas invading venous sinuses
4. Title: Treatment of brain tumors of first year of life
Tutor: László Novák M.D., Ph.D. habil.
5. Title: The role of extracellular matrix in neurosurgical pathologies
Tutor: Álmos Klekner M.D., Ph.D. habil.
6. Title: Treatment of trigeminal neuralgia, the role of stereotactic radiosurgery
Tutor: József Dobai M.D.
7. Title: Epidemiology and treatment strategies of spinal tumors
8. Title: Treatment options of spinal metastatic tumors
Tutor: Péter Ruszthi M.D.
9. Title: Diffusion tensor imaging possibilities in deep brain stimulation
Tutor: Gábor Fekete M.D., Ph.D.
10. Title: Instrumentation in spinal degenerative pathologies
Tutor: Rahmani Mohammad Tayeb M.D.

Department of Obstetrics and Gynecology

1. Title: Clinical trials of new drugs for the treatment of osteoporosis
Tutor: Ádám Balogh M.D., Ph.D., D.Sc.
2. Title: Diagnosis and Treatment of Endometrial Cancer
3. Title: Diagnosis and Treatment of Ovarian Cancer
4. Title: Screening /Diagnosis and Treatment of Cervical Cancer
Tutor: Zoltán Hernádi M.D., Ph.D., D.Sc.

5. Title: Non-invasive prenatal testing for chromosomal aneuploidies
Tutor: Olga Török M.D., Ph.D. habil.

6. Title: Efficiency and safety of first line chemotherapy in ovarian cancer
7. Title: Efficiency and safety of second and subsequent line chemotherapy in ovarian cancer

8. Title: Efficiency of HPV vaccination
Tutor: Róbert Póka M.D., Dr. habil., Ph.D.

9. Title: Meiotic abnormalities and their clinical significance in human reproduction
10. Title: Role of Doppler ultrasound in antenatal care
Tutor: Tamás Szilveszter Kovács M.D., Ph.D.

11. Title: Anovulatory infertility
12. Title: Examination of genetic concerns about the safety of assisted reproduction
13. Title: Role of antimullerian hormone (AMH) in clinical practice
14. Title: Ultrasound dating in pregnancy
Tutor: Attila Jakab M.D., Ph.D. habil.

15. Title: Cervical cancer prevention: the role and the future of HPV vaccination besides conventional screening
16. Title: New treatment strategies in ovarian cancer
Tutor: Zoárd Krasznai M.D., Ph.D. habil.

17. Title: Pregnancy in unknown location (PUL)
Tutor: Péter Daragó M.D.

18. Title: Analysis of perioperative results of endometriosis surgery
19. Title: Role of endoscopy in infertility work-up
Tutor: Péter Török M.D., Ph.D. habil.

20. Title: Autoimmune diseases in human reproduction
Tutor: Szilvia Vad M.D., Ph.D.

21. Title: Screening of preeclampsia in the first trimester of pregnancy
Tutor: László Orosz M.D., Ph.D.

22. Title: Pregnancy care in PCOS patients
23. Title: Special aspects of pregnancy care in patients with endocrine disorders
24. Title: Thyroid autoimmunity - clinical significance, prevention and treatment in human reproduction
Tutor: Tamás Deli M.D., Ph.D.

25. Title: Diagnosis and therapy in urogynecology
Tutor: Bence Kozma M.D., Ph.D.

26. Title: Laparoscopic techniques in benign gynecologic pathologies
27. Title: New surgical methods in gynecologic oncology
28. Title: Types and methods of labour induction and correlation with caesarean section rate
Tutor: Rudolf Lampé M.D., Ph.D. habil.

29. Title: Contraception in the 21st century
Tutor: Balázs Erdődi M.D.

30. Title: New methods in radical surgery of ovarian cancer
Tutor: Szabolcs Molnár M.D.

31. Title: Comparative study of caesarean sections in Europe
32. Title: The influence of mode of delivery on neonatal and maternal health
Tutor: Jashanjeet Singh M.D.

Department of Obstetrics and Gynecology

1. Title: Chemotherapy of ovarian cancer
2. Title: Prognostic relevance of HPV-infection in cervical cancer
3. Title: Surgical treatment of HPV-infection
4. Title: The prognostic role of CA-125 in ovarian cancer
Tutor: Zoltán Hernádi M.D., Ph.D., D.Sc.

5. Title: Chemotherapy of cervical cancer
6. Title: Epidemiology and therapy of vulvar cancer
7. Title: Epidemiology of metastatic ovarian cancer
8. Title: Follow-up of endometrial cancer patients, analysis of prognostic factors
9. Title: Prothrombotic states in gynaecologic cancer
10. Title: Superoxid anion production of granulocytes in gynecologic cancer
Tutor: Róbert Póka M.D., Dr. habil., Ph.D.

11. Title: Prognostic factors and treatment of

cervical cancer
12. Title: The role of CA125 and HE4 in the follow-up of ovarian cancer
Tutor: Zoárd Krasznai M.D., Ph.D.

Department of Ophthalmology

1. Title: Advanced dry eye diagnostics
2. Title: Corneal topography/tomography
3. Title: Ocular manifestations of COVID infection
Tutor: László Módis M.D., Ph.D., D.Sc.

4. Title: Intraocular tumors
Tutor: Judit Damjanovich M.D., Ph.D.

5. Title: Presentation of non arteritic ischaemic optic neuropathy, its ophthalmologic and neuro-ophthalmologic importance
Tutor: Valéria Nagy M.D., Ph.D.

6. Title: Examination of keratoconus progression
7. Title: Longitudinal non-contact evaluation of the anterior segment of the eye in healthy humans
8. Title: Ophthalmological manifestations of immune-mediated diseases
9. Title: Treatment of non-infectious uveitis
Tutor: Mariann Fodor M.D., Dr. habil., Ph.D.

10. Title: Contact lens wear and complications
11. Title: Orthokeratology
Tutor: Beáta Kettesy M.D., Ph.D.

12. Title: Corneal measurments with Pentacam
13. Title: Refractive laser-surgical interventions
Tutor: Bence Lajos Kolozsvári M.D., Ph.D.

14. Title: Treatment of Graves' orbitopathy
Tutor: Zita Steiber M.D., Ph.D.

15. Title: Change in treatment of intraocular tumors from the first application of brachytherapy till now in Hungary
16. Title: Investigation of vascular endothelial growth factor level in the tear of uvel melanoma patients
Tutor: Éva Surányi M.D., Ph.D.

17. Title: Pathogenesis of Graves' orbitopathy
18. Title: Proliferation and hyaluronan production of retrobulbar fibroblasts in thyroid associated orbitopathy
Tutor: Bernadett Ujhelyi M.D.,Ph.D.

19. Title: Assessing the safety and efficacy of intravitreal ranibizumab as a preoperative adjunct treatment before vitrectomy surgery in severe proliferative diabetic retinopathy (PDR) compared to standard vitrectomy alone
20. Title: Evaluate and demonstrate the results of the Hungarian Lucentis National Patient Registry
Tutor: Attila Vajas M.D.

21. Title: Ocular manifestations in systemic autoimmune diseases
Tutor: Anikó Rentka M.D., Ph.D.

22. Title: Dry eye in blepharospasm
Tutor: Annamária Nagy M.D., Ph.D.

23. Title: BCVA change after intravitreal ranibizumab injection
24. Title: IOP change after intravitreal ranibizumab injection
Tutor: Erika Papp M.D.

25. Title: Treatment options for intraocular vascular disorders.
Tutor: Szabolcs Balla null

26. Title: Artificial intelligence in ophthalmology, review of the literature
Tutor: Beáta Bajdik M.D.

27. Title: Examination and treatment of diabetic maculopathy
28. Title: Stem cells of the cornea
29. Title: Surgical treatment of retinal diseases
Tutor: Lili Takács M.D., Ph.D.

Department of Orthopedic Surgery

1. Title: Topic will be discussed personally
Tutor: Zoltán Karácsonyi M.D.

2. Title: Topic will be discussed personally
Tutor: Csenge Szeverényi M.D., Ph.D.

3. Title: Topic will be discussed personally
Tutor: Tamás Bazsó M.D.

4. Title: Topic will be discussed personally
Tutor: Zsolt Hunya M.D.

Department of Otorhinolaryngology and Head and Neck Surgery

1. Title: The role of cochlear implant
2. Title: The role of the bone anchored hearing aids
Tutor: László Tóth M.D., Ph.D. habil.
3. Title: Analysis of the aetiology and patomechanism of the development of the otitis media with effusion
4. Title: Modern aspects of tonsillectomy versus tonsillotomy
5. Title: Rehabilitation of speech after total laryngectomy
6. Title: The effectiveness of surgical treatment of focal oto-rhino-laryngological diseases on dermatologic diseases
7. Title: The utility of the neuromonitor during surgeries of the big salivary glands
Tutor: Szilárd Gyula Rezes M.D., Ph.D.
8. Title: Diagnostic possibilities of hearing loss and rehabilitation of sensorineural hearing loss
Tutor: Judit Szilvássy M.D., Ph.D. habil.

Department of Pediatrics

1. Title: Prognostic factors in childhod acute lymphoblastic leukemia
Tutor: Csongor Kiss M.D., Ph.D., D.Sc.
2. Title: Adding an Electrocardiogram to the Pre-participation Examination in Competitive Athletes. Review.
Tutor: Gábor Mogyorósy M.D., Ph.D.
3. Title: Malformations of the central nervous system in newborns.
Tutor: Andrea Nagy M.D.
4. Title: Anti-TNF use in pediatric inflammatory bowel disease
Tutor: Éva Nemes M.D., Ph.D.
5. Title: Characteristics of Graves' disease in childhood
6. Title: Primary immunedeficiency in childhood: case reports
7. Title: Systemic autoimmune diseases in childhood
Tutor: Rita Káposzta M.D., Ph.D.
8. Title: Mutational analysis of x-linked hyperphosphatemic ricket (XLH) in children
Tutor: Tamás Szabó M.D., Ph.D.
9. Title: Treatment options of resistant/relapsed pediatric Hodgkin lymphoma
Tutor: István Szegedi M.D., Ph.D.
10. Title: Diagnosis of medinastinal masses in children
Tutor: Imre Gáspár M.D.
11. Title: Implantable venous access systems in pediatric use: implantation, management and complications
Tutor: Ágnes Magyar M.D.
12. Title: Controversies in the surgical management of congenital diaphragmatic hernias
Tutor: László Sasi Szabó M.D.
13. Title: Prognostic importance of ultrasound in small bowel invagination
Tutor: Klára Nagy-Erdei M.D.
14. Title: Laparoscopic versus open pyeloplasty in children - A single centre experience and rewiev of the literature
Tutor: Levente Szabó M.D.
15. Title: Negative pressure wound therapy (NPWT) in pediatric surgery
Tutor: Péter Juhász M.D.
16. Title: Pediatric haemophilia - diagnostic approaches and novel therapies
Tutor: Zsuzsa Zele M.D.
17. Title: Cytogenetic and molecular genetic alterations in pediatric acute leukemias between 2015 and 2020
Tutor: Zsuzsanna Gaál M.D., Ph.D.
18. Title: Bioinformatic systems in childhood acute lymphoblastic leukemia
Tutor: Katalin Megyesán null

Department of Pediatrics

1. Title: Neurodevelopmental outcome in preterm and low birth weights infants
Tutor: Nóra Katona M.D.
2. Title: In utero circulation and preterm birth
3. Title: Perinatal consequences of maternal autoimmune diseases
4. Title: Respiratory and circulatory adaptation after birth

5. Title: Respiratory treatment of preterm neonates
6. Title: Screening and treatment of perinatal infections
7. Title: Special nutrition of neonates with congenital heart defect
Tutor: Balázs Kovács-Pászthy M.D.
8. Title: Mortality and morbidity of very low birth weight preterm infants
Tutor: Magdolna Riszter M.D.
9. Title: Less Invasive Surfactant Administration - a narrative review
10. Title: Lung ultrasound in the Critically Ill Neonate
Tutor: Gergely Balázs M.D.

Department of Physical Medicine and Rehabilitation

1. Title: Testing the effectiveness of the upper-extremity repetitive task practice and forced aerobic training added to ergotherapy to improve upper limb and cognitive functions
2. Title: The efficiency test of the electromyogram-triggered FES treatment in hemiparetic patients and the visual feedback training in the development of upper limb functions
3. Title: The relationship of physiological and functional changes observed in complex rehabilitation programs (obesity and stroke rehabilitation) with adipocytes
Tutor: Zoltán Jenei M.D., Ph.D.

Department of Psychiatry

1. Title: The dietetic and gastrointestinal basis of autism
Tutor: Csaba Móré E. M.D.
2. Title: Cognitive theory and therapy of depression
3. Title: Cognitive theory and therapy of generalized anxiety disorder
4. Title: Effectiveness of Cognitive Behaviour Therapy in OCD
5. Title: Effectiveness of schema therapy in personality disorders
6. Title: Emotion dependent and independent cognitive functions in unipolar depression
7. Title: Significance of disfunctional attitudes in depression and anxiety disorders
8. Title: Theory of mind and mentalization deficits in patients with personality disorders
Tutor: Anikó Égerházi M.D., Ph.D.

9. Title: Pharmacological and non - pharmacological treatment methods in OCD
10. Title: The psychosocial effects of obesity
Tutor: Katalin Tolvay M.D.

11. Title: Brain imaging in psychiatry.
12. Title: Oxidativ stress and chronic inflamation in psychiatric disorders
13. Title: Post-traumatic stress disorder and post-traumatic growth.
14. Title: The neurobiology of depression.
15. Title: The role of mikrobiota in mental health
16. Title: The therapeutic potentials of psychodelics
Tutor: Ede Frecska M.D., M.A., Ph.D.

Department of Pulmonology

1. Title: New perspectives in the treatment of lung cancer.
Tutor: Andrea Fodor M.D.
2. Title: New perspectives in the treatment of community acqiured pneumonia
Tutor: László Brugós M.D., Ph.D.
3. Title: The role of bronchoscopy in the therapy of lung cancer
Tutor: Imre Varga M.D., Ph.D.
4. Title: Modern Therapy of NSCLC
Tutor: Tamás Kardos M.D.
5. Title: Cachexia as prognostic factor in treatment of NSCLC
Tutor: Attila Lieber M.D.

Department of Surgery

1. Title: Surgical treatment of Graves disease with ophthalmopathy
Tutor: Ferenc Győry M.D.
2. Title: Surgical treatment of bowel obstruction in colorectal diseases
Tutor: László Damjanovich M.D., Ph.D., D.Sc.
3. Title: Surgical and endovascular interventions in critical limb ischemia
Tutor: Sándor Olvasztó M.D.

4. Title: Histopathologic examination of the carotid plaques regarding their possible prognostic value
Tutor: Krisztina Litauszky M.D.
5. Title: Liver resections for metastases of colorectal cancer
Tutor: János Pósán M.D.
6. Title: Prevention of bronchial stump insufficiency after lung resections
Tutor: István Takács M.D.,Ph.D.
7. Title: The surgical treatment of hyper-parathyroidism
Tutor: Roland Fedor M.D., Ph.D.
8. Title: Different forms of hereditary colorectal cancer among our patients.
Tutor: Miklós Tanyi M.D.,Ph.D.
9. Title: Mesh implantation in the surgical treatment of thoracic defects
Tutor: Attila Enyedi M.D.

Department of Operative Techniques and Surgical Research

1. Title: Anesthesia in experimental animals
2. Title: Experimental animal models for metabolic diseases (diabetes, metabolic syndrome) in research
3. Title: Laser-Doppler in experimental surgery
Tutor: Ádám Deák D.V.M., Ph.D.
4. Title: Changes of red blood cells' micro-rheology in surgical pathophysiological processes
5. Title: Microvascular anastomosis techniques
Tutor: Norbert Németh M.D., MBA, Ph.D., D.Sc.
6. Title: Hemostatic agents (bioplasts) in surgery
7. Title: Ischemia-reperfusion injury and its prevention with different methods - experimental models
Tutor: Katalin Pető M.D., Ph.D.
8. Title: Analysis for laparoscopic skills assessment
9. Title: Hand hygiene and surgical scrub
Tutor: Erzsébet Ványolos M.Sc., Ph.D.
10. Title: Instruments and devices used in pharmacological care
Tutor: Tamás Lesznyák M.D., D.Pharm.
11. Title: Basic Microsurgical Training course at the Microsurgical Education and Training Center of the Department of Operative Techniques and Surgical Research
12. Title: Famous surgeons: William Halsted, Halsted principles
Tutor: Irén Mikó M.D., Ph.D.

Department of Urology

1. Title: Role of laparoscopy in urology
Tutor: Tibor Flaskó M.D., Ph.D.
2. Title: Assessment of urinary incontinence
Tutor: László Lőrincz M.D.
3. Title: Different topics regarding prostate and kidney cancer
Tutor: Csaba Berczi M.D., Ph.D.
4. Title: Bladder replacement after radical cystectomy
Tutor: Antal Farkas M.D., Ph.D.
5. Title: Different topics regarding andrology
Tutor: Mátyás Benyó M.D., Ph.D.
6. Title: Pathology of clear cell renal cancer
Tutor: Krisztián Szegedi M.D.
7. Title: Treaement of urethral stricture Reconstructive urological surgeries
Tutor: Mihály Murányi M.D.
8. Title: Assessment of bening prostate hyperplasia
Tutor: József Zoltán Kiss M.D.
9. Title: Effect of ochidopexy on male fertility
Tutor: Gyula Drabik M.D.

Department of Oral and Maxillofacial Surgery

1. Title: Ameloblastoma
2. Title: Treatment of N0 neck in oral cavity squamous cell carcinoma
Tutor: Adrienne Szabó M.D., Ph.D.
3. Title: Orthognathic surgery
4. Title: Reconstructive surgery in maxillo-facial region
Tutor: Róbert Boda M.D.
5. Title: Radial forearm flap
6. Title: Tumors of the parotid gland
7. Title: Possible flap design in dentoalveolar surgery
Tutor: Dóra Horváth M.D.
8. Title: A ten-year retrospective study of metastatic lower lip cancer
9. Title: A ten-year retrospective study of microbiology and antibiotic treatment in

odontogenic infections of head and neck.
10. Title: Complications of mandibular fractures - a 10 -year retrospective study
Tutor: Petronella Révész M.D.

Department of Orthodontics

1. Title: Development and Physiology of the Temporomandibular Joint (TMJ)
2. Title: Mandible condylar hyperplasia
3. Title: Primary failure of eruption (PFE)
Tutor: Judit Török D.M.D.
4. Title: Auxiliary elements of fixed orthodontic treatments
5. Title: Developement and growth of the jaws
6. Title: Extra and intraalveolarly fixed temporary anchorage devices in orthodontics
Tutor: Géza Vitályos D.M.D.
7. Title: Effectiveness of orofacial myofunctional therapy
8. Title: Orthodontics archwires
9. Title: Prevention and early treatment in orthodontics
Tutor: Leila Hamid D.M.D.
10. Title: Biomechanical considerations of Class II. patients in adults
11. Title: Orthodontic treatment's affects on saliva composition
12. Title: Tooth stabilization after orthodontic treatment
Tutor: Judit Hevesi D.M.D.
13. Title: Canine retraction
14. Title: CBCT imaging in orthodontics
15. Title: Diagnostics of TMJ disfunctions
Tutor: Éva Berecz D.M.D.

Department of Periodontology

1. Title: Conection between periodontal diseases and psychological disorders
Tutor: István Varga D.M.D., Ph.D.
2. Title: Minimal invasive tissue preparation in periodontal surgery
Tutor: János Angyal D.M.D., Ph.D.
3. Title: Dental calculus and its role in periodontal diseases
4. Title: New concepts of root surface debridement: hand instruments
5. Title: Smoking in the etiopathogenesis of peridontal diseases
Tutor: Katinka Hernádi D.M.D., Ph.D.
6. Title: Etiology, patogenesis and treatment of acut periodontal diseases
Tutor: Fábián Tar D.M.D.

Department of Operative Dentistry and Endodontics

1. Title: History of composite filling
2. Title: History of dental drills
3. Title: Types of caries and filling techniques in aged people
Tutor: Barna Kelentey D.M.D., Ph.D., C.Sc.
4. Title: Bioceramic sealers
5. Title: The problematics of curved root canal
Tutor: Alexander Juhász D.M.D.
6. Title: Apically extruded sealers
7. Title: New technologies to improve root canal disinfection
Tutor: Kinga Bágyi Dr. habil., D.M.D., Ph.D.
8. Title: Effects of thermocycling on the conversion rate of wear resistant nanohybrid composites(TDK)
9. Title: Influence of preheating on nanohybrid composite wear (TDK)
10. Title: Investigation of Vickers hardness of high wear resistance nanohybrid composites (TDK)
11. Title: Wear of nanohybrid composites (TDK)
Tutor: Renáta Martos D.M.D.
12. Title: Evaluation of different matrix bands
13. Title: Modern concepts of rubber dam isolation
14. Title: TRIP around the oral cavity
Tutor: Rita Marincsák D.M.D., Ph.D.
15. Title: Chemomechanical caries removal methods
16. Title: Environmental impact of dentistry
17. Title: Temporary filling materials in restorative dentistry
Tutor: Bettina Balogh D.M.D.
18. Title: Endodontic treatment in case of special root canal morfology
Tutor: László Nagy M.D., Ph.D.
19. Title: Contemporary working length determination in endodontics
20. Title: Smear layer formation in the root canal
21. Title: Use of CBCT in endodontics
Tutor: Enikő Tóth D.M.D.
22. Title: Chlorhexidine in endodontics
23. Title: Coronal leakage of temporary filling

materials in endodontics
24. Title: Microleakage in endodontics
Tutor: Péter Suta D.M.D.

25. Title: Aspects of Novel Oral Anticoagulants in dentistry
26. Title: Association between genetic polymorphisms and external apical root resorption
27. Title: Radiographic evaluation of external apical root resorption
Tutor: Kitti Sipos D.M.D.

Department of Oral Medicine

1. Title: Desquamativ gingivitis: classification, etiology
2. Title: Oral lichen planus: etiology, pathogenesis, diagnosis
3. Title: Probiotics in periodontal therapy
Tutor: Ildikó Tar Ph.D.

Department of Pediatric and Preventive Dentistry

1. Title: Dental patients with hypophosphatasia
2. Title: Preformed crowns in pediatric dentistry
3. Title: The effect of chemo/radiotherapy on oral health and dental development in childhood
Tutor: Judit Nemes D.M.D., Ph.D.
4. Title: Cellular and molecular mechanisms of eruption
5. Title: Genetic and structural alterations of dentin: dentinogenesis imperfecta and dentin dysplasia
6. Title: SHED: Stem cells from human exfoliated deciduous teeth
Tutor: Gabriella Kovalecz D.M.D., Ph.D.
7. Title: Dental aspects of ectodermal dysplasia
Tutor: Adél Dakos D.M.D.
8. Title: Apexification: Comparison of Ca(OH)2 and MTA
9. Title: Effects of early childhood malnutrition on oral health
Tutor: Zsuzsa Kapusi-Papp D.M.D.

Department of Dentoalveolar Surgery

1. Title: Trigeminus neuralgy
2. Title: Clinical aspects of thooth replantation
3. Title: Sialolithiasis of salvary glands
Tutor: Etelka D. Tóth D.M.D.
4. Title: Alteration of salivary secretory and serum immunoglobulin A levels in patients with moderate and severe dementia (TDK)
5. Title: Changes of serum and salivary osteopontin levels in patients with dementia (TDK)
6. Title: Dental treatment of patients receiving allogeneic peripheral blood stem cell transplantation
Tutor: Enikő Gebri D.M.D.
7. Title: Corticotomy in the maxillofacial surgery
8. Title: MRONJ: prevention and therapy
9. Title: Treatment possibilities of retained canines
Tutor: Levente Lukács D.M.D.
10. Title: Genome sequencing in dentistry
11. Title: Genetical disorders associated with periodontitis
12. Title: Complications of peridontal diseases during pregnancy
Tutor: Boglárka Skopkó D.M.D.
13. Title: Guided bone regeneration in dentoalveolar surgery
14. Title: Importance of systemic diseases in dentistry
15. Title: Potential therapies that aim to help the intraoral wound healing
Tutor: Adrienn Tóth D.M.D.

16. Title: Coronectomy
17. Title: Embryology, clinical appearance and treatment of non-odontogen cysts in the maxillofacial region
18. Title: Possible treatment options of sinus perforation
Tutor: Orsolya Liska D.M.D.

19. Title: Polisher allergy in dentistry
Tutor: Márta Szepesi D.M.D.

CHAPTER 23
LIST OF TEXTBOOKS

BMC

Introduction to Biophysics I.:

Serway/Vuille: College Physics.
10th edition. Cengage Learning, 2014. ISBN: 978-1285737027.
Gáspár R.: Physics for BMC students.
University of Debrecen.

Introduction to Medical Chemistry I.:

McMurry, J., Fay, R.C.: Chemistry.
7th edition. Pearson Education, 2015. ISBN: 978-0321943170.

Introduction to Medical Chemistry II.:

McMurry, J., Fay, R.C.: Chemistry.
7th edition. Pearson Education, 2015. ISBN: 978-0321943170.
F., Erdődi, Cs., Csortos: Organic Chemistry for Premedical Students.
University of Debrecen, 2011.

Hungarian Language for BMC students:

Gerő Ildikó-Kovács Judit: Színesen magyarul.
2017.

Introduction to Biology I.:

Sadava, Hillis, Heller, Berenbaum: Life: The Science of Biology.
10th edition. Sinauer Macmillan, 2013. ISBN: 978-1-4641-4124-9.

Introduction to Biophysics II.:

Serway/Vuille: College Physics.
10th edition. Cengage Learning, 2014. ISBN: 978-1285737027.
Gáspár R.: Physics for BMC students.
University of Debrecen.

Introduction to Biology II.:

Sadava, Hillis, Heller, Berenbaum: Life: The Science of Biology.
10th edition. Sinauer Macmillan, 2013. ISBN: 978-1-4641-4124-9.

English for BMC students:

Clive Oxenden-Christina Latham-Koenig. Paul Seligson: English File 3E Pre-Intermediate Student's Book With Itutor.
3.. Oxford University Press, 2013. ISBN: 9780194598651.
Clive Oxenden-Christina Latham-Koenig. Paul Seligson: English File 3E Pre-Intermediate Student's Book With Itutor.
3.. Oxford University Press, 2013. ISBN: 9780194598651.

SBMC

Introduction to Biophysics:

Serway/Vuille: College Physics.
10th edition. Cengage Learning, 2014. ISBN: 978-1285737027.

Introduction to Medical Chemistry :

McMurry, J., Fay, R.C.: Chemistry.
7th edition. Pearson Education, 2015. ISBN: 978-0321943170.
F., Erdődi, Cs., Csortos: Organic Chemistry for Premedical Students.
University of Debrecen, 2011.

Introduction to Biology:

Sadava, Hillis, Heller, Berenbaum: Life: The Science of Biology.
10th edition. Sinauer Macmillan, 2013. ISBN: 978-1-4641-4124-9.

1st year

Odontology:

B.G. Jansen van Rensburg: Oral Biology.
Quintessence, 1995. ISBN: 0-86715-271-0.
Geoffrey C van Beek: Dental Morphology an illustrated guide.
Wright, 2005. ISBN: 0723606668.
S.J.Nelson, M. M. Ash: Wheeler’s Dental Anatomy, Physiology, and Occlusion. .
9th ed. Saunders, 2010. ISBN: 978-1-4160-6209-7.

Basics of behavioural sciences:

Segerstrale, U., Molnár, P.: Nonverbal Communication: Where Nature Meets Culture.
1st edition. Psychology Press, 1997. ISBN: 0-8058-2179-1.
Alan Stoudemire: Human Behavior. An Introduction for Medical Students.
J.B. Lippincott Company, Philadelphia, 1994.
Márta Csabai and Péter Molnár: Medical Psychology.
Background material. Reprint University of Debrecen, 2008.

Medical Chemistry Lecture:

McMurry, J., Fay, R.C.: Chemistry.
7th edition. Pearson Education, 2015. ISBN: 978-0321943170.
Gergely, P.: Organic and Bioorganic Chemistry for Medical Students.
3rd edition. Medical and Health Science Center, University of Debrecen, 2008.
Ed. Dombrádi, V.: Laboratory Practicals in Medical Chemistry.
Medical and Health Science Center, University of Debrecen, 2009.
László Virág, Ferenc Erdődi, Pál Gergely: Bioinorganic Chemistry for Medical Students 2020.
URL:
https://elearning.med.unideb.hu/pluginfile.php/140349/mod_resource/content/1/Bioinorganic-Chemistry/index.html

Physical foundations of biophysics:

Halliday-Resnick-Walker: Fundamentals of Physics.

Biophysics Lecture:

Damjanovich, S., Fidy, J., Szöllősi, J.: Medical Biophysics.
1st edition. Medicina, 2009. ISBN: 978 963 226 249 9.

Biostatistics:

Wayne W. Daniel: Biostatistics: a foundation for analysis in the health sciences.
7th edition. John Wiley and Sons, New York, 1991. ISBN: 0-471-52988-5.

Hungarian Crash Course:

Gerő Ildikó-Kovács Judit: Színesen magyarul.
2017.

Hungarian Language I/1.:

Mezei Zsuzsa Lívia- Fodor Marianna: Szívből magyarul.

Medical Chemistry Practical:

Ed. Dombrádi, V.: Laboratory Practicals in Medical Chemistry.
Medical and Health Science Center, University of Debrecen, 2009.

Oral Anatomy, Histology and Embryology I. Lecture:

K. L. More: Clinically Oriented Anatomy.
4th edition. Lippincott Williams &Wilkins, 2004. ISBN: 0-683-06141-0.
Sobotta: Atlas of Human Anatomy I.-II..
14th edition. Urban & Schwarzenberg, . ISBN: 978-0-443-10349-0.
Sadler, T. W. : Langman's Medical Embryology.
12th edition. Lippincott Williams &Wilkins, 2012. ISBN: 978-1-4511-4461-1.
Ross, M.H.: Histology. A Text and Atlas.
7th edition. Lippincott Williams & Wilkins, 2016. ISBN: 978-14698-8931-3.
D.J. Johnson: Anatomy for Dental Students.
Oxford University Press, 1983. ISBN: 0-19-261348-0.
B.K.B. Berkovitz, G.R. Holland, B.J. Moxham: A Color Atlas and Text of Oral Anatomy.
2nd edition. Mosby-Wolfe, 1992. ISBN: 0-7234-1688-5.
J.K. Avery: Essentials of oral histology and embryology. A clinical approach .
2nd edition. Mosby-Wolfe, London, 2000. ISBN: 0-323-00460-1.
Eric W. Baker: Anatomy for Dental Medicine.
Thieme, . ISBN: 978-1626223-238-9.
Richard L. Drake, A. Wayne Vogl, Adam W. M. Mitchell: Gray's Basic Anatomy.
2nd edition. Elselvier, 2018. ISBN: 978-0-323-47404.

Molecular Biology Lecture:

Alberts et al.: Molecular Biology of the Cell.
5th edition. Garland Public Inc. 2007.
T. Á. Brown: Genomes.
3rd edition. Garland Public Inc., ISBN: 0-8153-4138-5.

First aid and reanimation:

The St. John Ambulance Association and Brigade, The British Red Cross society: First Aid Manual.
Dorling Kisnerdsley Ltd., 1992. ISBN: 0-863-18-4.
József Betlehem: First Things to Be Done in Emergencies – Providing First Aid for Health Professionals.
Medicina Könyvkiadó Zrt., 2012.

Preventive Dentistry I.:

N. O. Harrais, F. Garcia-Godoy: Primary Preventive Dentistry.
7th edition. Prentice Hall, 2009. ISBN: 13 9780132412230.
Limeback H: Comprehensive Preventive Dentistry.
Wiley-Blackwell, 2012.

Medical Genetics:

Robert L. Nussbaum, Roderick R. McInnes, Huntington F. Willard, Ada Hamosh: Thompson and Thompson Genetics in Medicine.
8th edition. Saunders Elsevier, 2016. ISBN: 978-1-4377-0696-3.
Practical Courses in Genetics.
University Medical School of Debrecen, 2002.
Hartl D. L.: Essential Genetics: A Genomics Perspective.
6th edition. Jones & Bartlett Publishers, 2014. ISBN: 978-1-4496-8688-8.
Thomas D. Gelehrter, Francis S. Collins, David Ginsburg: Principles of Medical Genetics.
2nd. Williams and Wilkins, 1998. ISBN: 0-683-03445-6.
Tom Strachan, Andrew P. Read: Human Molecular Genetics.
4th. Garland Science, 2011. ISBN: 0-8153-4184-9.
Eberhard Passarge: Color Atlas of Genetics.
2nd edition. Georg Thieme Verlag, 2001. ISBN: 3-13-100362-6.

Cell Biology Lecture:

Alberts et al.: Essential Cell Biology.
3rd edition. Garland Public Inc., 2004. ISBN: 0-8153-3481-8.
Cell Biology Laboratory Manual.
Department of Biophysics and Cell Biology, 2003.
Lodish et al.: Molecular Cell Biology.
4th edition..

Hungarian Language I/2.:

Győrffy Erzsébet-Mezei Zsuzsa Lívia: Magyarules.
2018.

Medical Genomics:

Lesk, Arthur: Introduction to Genomics.
3rd edition. Oxford University Press, 2017. ISBN: ISBN-13: 978-0198754.
Csaba Szalai, Valéria László, Sára Tóth, Erna Pap, András Falus: Medical genetics and genomics.
URL: https://elearning.med.unideb.hu
Strachan, T.; Read, AP.: Human Molecular Genetics.
5th edition. Garland Science, 2019. ISBN: ISBN-13: 978-0367002.

Oral Anatomy, Histology and Embryology I. Practical:

Richard L. Drake, A. Wayne Vogl, Adam W. M. Mitchell: Gray's Basic Anatomy.
2nd edition. Elselvier, 2018. ISBN: 978-0-323-47404.
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