BULLETIN

UNIVERSITY OF DEBRECEN

ACADEMIC YEAR 2017/2018

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 km^2;. 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 200 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 m^2) 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 m^2 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. 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
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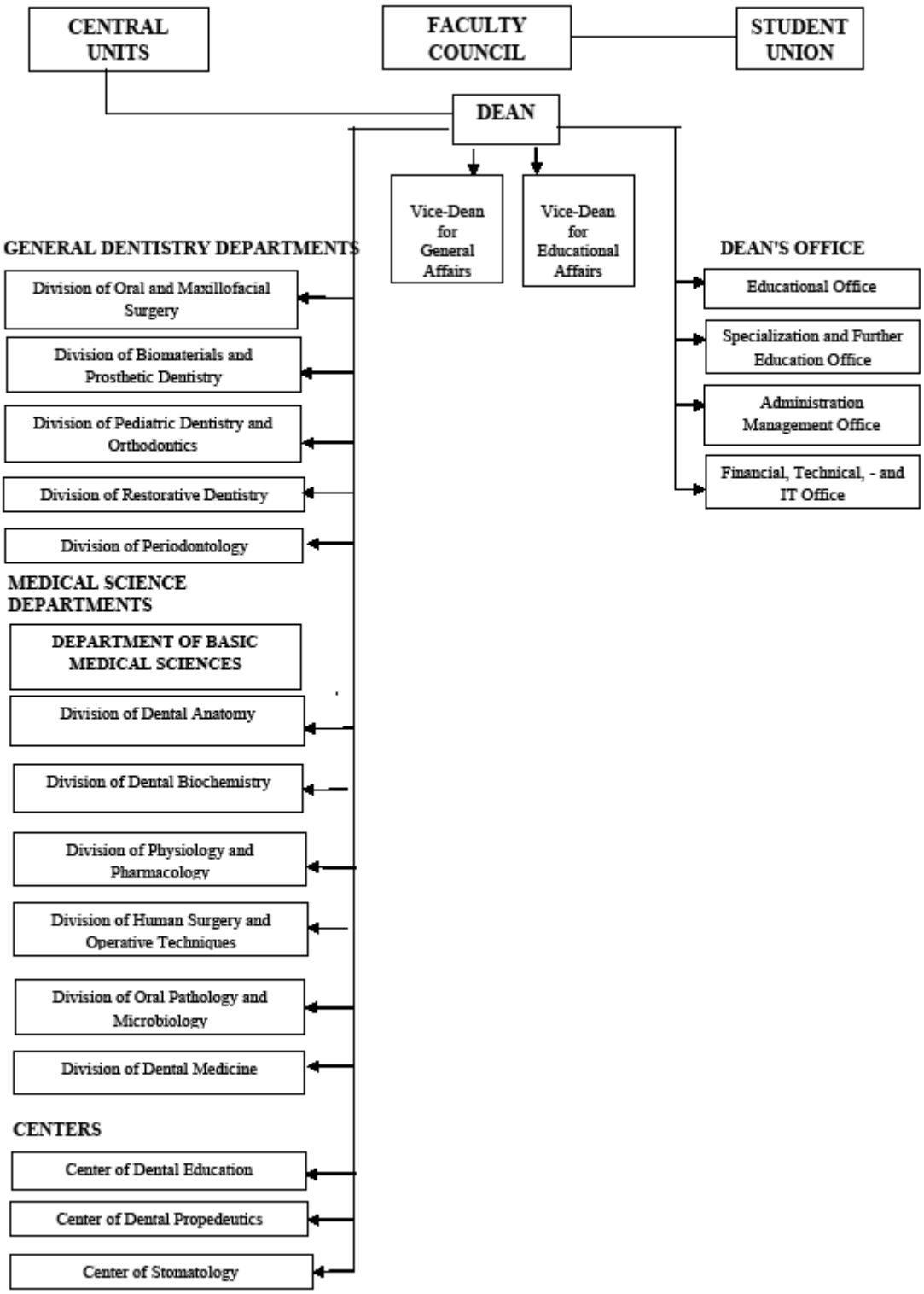
FACULTY OF DENTISTRY



CHAPTER 4
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	Ms. Enikő Sallai M.Sc. (Tuition fee, Health Insurance)
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CHAPTER 7
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	Ms.	Mária Papp M.D., M.Sc., Ph.D. habil.
		István Tornai M.D., Ph.D. habil.
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	Ms.	Zsuzsa Vitális M.D., Ph.D.

Assistant Lecturer	Sándor Kacska M.D.

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	Miklós Udvardy M.D., Ph.D., D.Sc.
Associate Professor	Lajos Gergely M.D., Ph.D. habil.
	Ms. Zsófia Miltényi M.D., Ph.D. habil.
	László Váróczy M.D., Ph.D. habil.
Assistant Professor	Péter Batár M.D., Ph.D.
	Gyula Reményi M.D., Ph.D.
	Ms. Ágota Schlammadinger M.D., Ph.D.
	Ms. Zsófia Simon M.D.,Ph.D.
Assistant Lecturer	Ferenc Magyari M.D.
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	Péter Fülöp M.D., Ph.D.
	Ms. Mariann Harangi M.D., Ph.D.
	Miklós Káplár M.D., Ph.D.
	Ms. Éva Katona Dr. habil., M.Sc., Ph.D.
Assistant Professor	Ms. Henrietta Dér M.D., Ph.D.

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Division of Nephrology
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		József Varga M.Sc., Ph.D.
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		Gábor Endes M.D.
		Botond Karácsonyi M.D.
	Ms.	Éva Pásztor M.D.
College Associate Professor	Ms.	Réka Révészné Tóth M.Sc., Ph.D.
Assistant Lecturer		Szabolcs Hetényi M.D.
		István Lázár M.Sc., Ph.D.
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	Ms.	Klára Fekete M.D., Ph.D.
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	Ms.	Katalin Réka Kovács M.D., Ph.D.
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		Alpár Gábor Juhász M.D., Ph.D.
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	Ms. Judit Damjanovich M.D., Ph.D.
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	Ms. Lili Takács M.D., Ph.D.
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	Ms. Beáta Kettesy M.D., Ph.D.
	Bence Lajos Kolozsvári M.D., Ph.D.
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	Zsolt Hunya M.D.
	Zoltán Karácsonyi M.D.
	László Kiss M.D.
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	Ms. Judit Szilvássy M.D., Ph.D. habil., Ph.D.
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Full Professor	Ms.	Ilma Korponay-Szabó M.D., Ph.D.
	Ms.	Beáta Erika Nagy M.A., Ph.D.
Associate Professor, Head of Division of General Pediatrics		Gábor Mogyorósy M.D., Ph.D.
Associate Professor, Head of Division of Pediatric Emergency Care	Ms.	Rita Káposzta M.D., Ph.D.
Associate Professor		István Csízy M.D., Ph.D.
	Ms.	Ilona György M.D., Ph.D.
		Gábor Mogyorósy M.D., Ph.D.
		Béla Nagy M.D., Ph.D.
	Ms.	Éva Nemes M.D., Ph.D.
		Tamás Szabó M.D., Ph.D.
		István Szegedi M.D., Ph.D.
Assistant Professor	Ms.	Enikő Felszeghy M.D.,Ph.D.
	Ms.	Katalin Szakszon M.D., Ph.D.
	Ms.	Judit Tóth M.D.
Assistant Lecturer	Ms.	Erika Bálega M.D.
	Ms.	Andrea Berkes M.D., Ph.D.
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		István Pataki M.D.
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Emeritus	Ms.	Éva Oláh M.D., Ph.D., D.Sc.
Academic Advisor		Gábor Mogyorósy M.D., Ph.D.
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DEPARTMENT OF SURGERY

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Chief Physician	Csaba Zsigmond Tóth M.D., Ph.D.
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	Péter Sápy M.D., Ph.D., D.Sc.
Consultant Surgeon	Zsolt Kanyári M.D.
	Sándor Olvasztó M.D.
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	István Takács M.D.,Ph.D.
	Miklós Tanyi M.D.,Ph.D.

Assistant Professor	Roland Fedor M.D., Ph.D.
	Ferenc Győry M.D., Ph.D.
	László Orosz M.D.
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	Attila Enyedi M.D.
	János Pósán M.D.
	Gergely Zádori M.D., Ph.D.
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Assistant Professor	Ádám Deák D.V.M., Ph.D.
	Ms. Katalin Pető M.D.,Ph.D.
Academic Advisor of Faculty of Medicine	Ms. Katalin Pető M.D.,Ph.D.
Academic Advisor of Faculty of Dentistry	Ms. Zsuzsanna Sarolta Magyar M.D.
Academic Advisor of Elective Courses	István Furka M.D.,Ph.D.,D.Sc.
	Ms. Irén Mikó M.D., Ph.D., C.Sc.
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Assistant Professor	Mátyás Benyó M.D., Ph.D.
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	Antal Farkas M.D., Ph.D.
Assistant Lecturer	Gyula Drabik M.D.
Responsible for Educational Matters	Gyula Drabik M.D.

CHAPTER 9
OTHER DEPARTMENTS

INSTITUTE OF BEHAVIOURAL SCIENCES, FACULTY OF PUBLIC HEALTH

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Associate Professor, Head of Division of Humanities For Health Care		Attila Bánfalvi M.A., Ph.D., C.Sc.
Titular Professor		Antal Bugán M.A., Ph.D.
Professor Emeritus		Péter Molnár M.D., D.Sc.
Assistant Professor	Ms.	Mónika Andrejkovics M.A., Ph.D.
		Péter Kakuk M.A., Ph.D.
	Ms.	Judit Molnár M.A., Ph.D.
		Roland Tisljár M.A., Ph.D.
Assistant Lecturer		János Kristóf Bodnár M.A., Ph.D.
	Ms.	Beáta Kovács-Tóth M.A.
		Sándor Kőmüves M.A., Ph.D.
	Ms.	Eszter Tisljár - Szabó M.A., Ph.D.
Academic Advisor	Ms.	Mónika Andrejkovics M.A., Ph.D. (5th year, Behavioural Science Final Exam)
		Péter Kakuk M.A., Ph.D. (4th year, Bioethics)
	Ms.	Karolina Kósa M.D., M.Sc., Ph.D. (4th year Behavioural Medicine (Contact personal: Tisljár-Szabó Eszter M.A., Ph.D.))
	Ms.	Judit Molnár M.A., Ph.D. (5th year Pharmaceutical Psychology)
		Roland Tisljár M.A., Ph.D. (1st year Basics of behavioural sciences, Communication Skills, 3rd year Medical Psychology)

DEPARTMENT OF PREVENTIVE MEDICINE, FACULTY OF PUBLIC HEALTH

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Full professor, Head of Biomarker Analysis Division	Ms.	Margit Balázs M.Sc., Ph.D., D.Sc.
Associate Professor, Head of Biostatistics and Epidemiology Division		János Sándor M.D., Ph.D.
Associate Professor		Balázs Ádám M.D., M.Sc., Ph.D.
	Ms.	Helga Bárdos M.D., M.Sc., Ph.D.
		Sándor Szűcs M.Sc., Ph.D.
Assistant Professor		Ervin Árnyas M.Sc., Ph.D.
	Ms.	Éva Bíró M.D., Ph.D.
	Ms.	Szilvia Fiatal M.D., Ph.D.
	Ms.	Orsolya Varga M.D., Ph.D.
Assistant Lecturer		Tibor Jenei
		Tamás Köbling M.D.
		Attila Csaba Nagy M.D., Ph.D.
		Károly Nagy Ph.D.
		László Pál Ph.D.
		Gábor Rácz M.D.
Academic Advisor	Ms.	Szilvia Fiatal M.D., Ph.D.
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DEPARTMENT OF FOREIGN LANGUAGES

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	Ms.	Ildikó Gerő M.A.
	Ms.	Jusztina J. Nagy M.A.
	Ms.	Judit Kovács, M.A.
	Ms.	Éva Kövesi M.A.
	Ms.	Mónika Krasznai M.A.
	Ms.	Zsuzsa Lívia Mezei M.A.
		James M. Mitchell, M.D.
		László Répás M.A.
	Ms.	Katalin Rozman M.A.
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INSTITUTE OF SPORT SCIENCE OF UNIVERSITY OF DEBRECEN

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		Miklós Magyarits M.A.
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	Ms.	Katalin Varga M.Sc.

CHAPTER 10
UNIVERSITY CALENDAR

UNIVERSITY CALENDAR FOR DENTISTRY PROGRAM 2017/2018 ACADEMIC YEAR
CRASH COURSE OF HUNGARIAN LANGUAGE: August 28 - September 8, 2017

OPENING CEREMONY: September 10, 2017

DENTISTRY GRADUATION: June/July, 2018
1stSEMESTER

Year	Course	Examination Period
Basic Medicine Course	September 11 - December 22, 2017 (15 weeks)	December 27, 2017 - February 09, 2018 (7 weeks)
1st year Dentistry 2nd year Dentistry 3rd year Dentistry 4th year Dentistry 5th year Dentistry	September 11 -December 22, 2017 (15 weeks)	December 27, 2017 - February 09, 2018 (7 weeks)

2ndSEMESTER

Year	Course	Examination Period
BMC	February 12 - May 25, 2018 (15 weeks)	May 28 -June 22, 2018 (4 weeks)
BMC II	January 8 - June 22, 2018 (24 weeks)	June 25 - July 13, 2018 (3 weeks)
1st year Dentistry 2nd year Dentistry 3rd year Dentistry 4th year Dentistry	February 12 – May 25, 2018 (15 weeks)	May 28 – July 13, 2018 (7 weeks)
5th year Dentistry	February 12 – May 4, 2018 (12 weeks)	May 7 – June 15, 2018 (6 weeks)

SUMMER PRACTICE

Year	Date in 2018
2nd year Dentistry	July 16 - August 10, 2018 or August 13 - September 7, 2018 (4 weeks)
3rd year Dentistry	July 16 - July 27, 2018 or July 30 - August 10, 2018 (2 weeks)
4th year Dentistry	July 16 - August 10, 2018 or August 13 - September 7, 2018 (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, color 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:	
Biophysics	5
Biostatistics	2
Medical Chemistry	9
Anatomy, Histology and Embryology I-II.	17
Molecular biology	6
Cell Biology	6
First Aid and Reanimation	1
Biochemistry I-II.	13
Dental Physiology I-II.	14
Neurobiology	8

General and dental preclinical modules:	
Basic dentistry modules	
Odontology	
Preventive Dentistry I	
Introduction to prosthodontics I-VI.	14
Restorative Dentistry Propedeutics (Cariology, Endodontics)	8
Oral Biology	2
Introduction to Dental Radiology	3
Oral Surgery Propedeutics	2
Psychology	4
Pathology I-II.	9
Clinical Biochemistry I-II.	2
Immunology	2
Surgery	1
Basic Surgical Techniques	1
Bioethics	1
Dental Microbiology	4
Dosimetry, Radiation Health Effects	2
Periodontology propedeutics	2
Pediatric Dentistry Propedeutics	1

General medical modules	
Internal medicine I-II	5
Dermatology	1
Otolaryngology	1

Clinical dentistry modules	
Complex Dentistry I-IV.	34
Pediatric Dentistry I-II	6
Periodontology I-III.	6

Pharmacology I-II.	7	Prosthetic Dentistry I-IV.	7
Preventive Medicine	3	Oral Surgery I-IV	6
Emergency Medicine	2	Restorative Dentistry I-IV.	7
Pediatrics	2	Orthodontics I-II.	3
Neurology	1	Oral Medicine	1
Forensic Medicine	1	Preventive Dentistry II.	1

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 Pathology I. II. and 2 special Pathology required elective courses for dental students.
4. Successful thesis defense.

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
Pathology II.	Emergency Medicine
Pharmacology II.	Otolaryngology
Internal Medicine II.	

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). Non-repeater students who fail even the 3rd ESE (C chance) may continue their study in the second semester however they lose their chance to be exempted from the final examination and to receive bonus points. Exam exemption and bonus point

policy is used to improve the students' performance on SCTs. Exact details of these policies will be described below. To be eligible for bonus points, students must either get exemption from the ESE or pass it with a score of at least 55%. 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. It is not compulsory to take the ESE, if one gets exemption under the following circumstances:

- one's average score of the three best first semester SCTs is at least 65%, 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 65%, 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 65%, AND
- passed all the SCTs with at least 40%, AND
- (s)he has a maximum of 3 seminar absences for a given subject per semester.

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

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

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

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

Percentage (%)	Mark
0 - 54.99:	fail (1)
55.00 - 64.99:	pass (2)
65.00 - 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: **60**
Seminar: **30**

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

2nd **week:**
Lecture: Proteins, carbohydrates and lipids 3.
Proteins, carbohydrates and lipids 4.
Nucleic acids and the origin of life 1.
Nucleic acids and the origin of life 2.

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

4th **week:**
Lecture: Cells: the working units of life 4.
Energy, enzymes and metabolism 1.
Energy, enzymes and metabolism 2.
Cell membranes 1.

5th **week:**
Lecture: Cell membranes 2.
Cell membranes 3.
Cell membranes 4.
Pathways that harvest chemical energy 1.
Self Control Test

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

7th **week:**
Lecture: Pathways that harvest chemical energy 6.
Cell cycle and cell division 1.
Cell cycle and cell division 2.
Cell cycle and cell division 3.

8th **week:**
Lecture: Cell cycle and cell division 4.
Cell cycle and cell division 5.
Inheritance, genes and chromosomes 1.
Inheritance, genes and chromosomes 2.
Self Control Test

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

10th **week:**
Lecture: DNA and it's role in heredity 1.
DNA and it's role in heredity 2.
DNA and it's role in heredity 3.
From DNA to protein: gene expression 1.

11th **week:**
Lecture: From DNA to protein: Gene expression 2.
From DNA to protein: gene expression 3.
From DNA to protein: gene expression 4.
Gene mutation and molecular medicine 1.

12th **week:**
Lecture: Gene mutation and molecular medicine2.
Gene mutation and molecular medicine 3.
Gene mutation and molecular medicine 4.

Gene mutation and molecular medicine 5.
Self Control Test

13th **week:**
Lecture: Regulation of gene expression 1.
Regulation of gene expression 2.
Regulation of gene expression 3.
The human genome, proteome

14th **week:**
Lecture: The mechanism of evolution 1.
The mechanism of evolution 2.
Cellular signaling and communication 1.
Cellular signaling and communication 2.

15th **week:**
Lecture: Fungi: recyclers, pathogens, parasites 1.
Fungi: recyclers, pathogens, parasites 2
Differential gene expression in development 1.
Differential gene expression in development 2.
Self Control Test

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

Subject: **INTRODUCTION TO BIOLOGY II.**
Year, Semester: Basic Medicine Course, 2nd
Number of teaching hours:
Lecture: **45**
Seminar: **30**

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

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

3rd **week:**
Lecture: Circulatory systems 1.
Circulatory systems 2.
The human circulatory system 1.

4th **week:**
Lecture: The human circulatory system 2.
The lymphatic system.
Self Control Test

5th **week:**
Lecture: Natural Defenses against Disease 1.
Natural Defenses against Disease 2.
Natural Defenses against Disease 3.

6th **week:**
Lecture: Nutrition, Digestion and Absorption 1.
Nutrition, Digestion and Absorption 2.
Nutrition, Digestion and Absorption 3.

7th **week:**
Lecture: Nutrition, Digestion and Absorption 4.
Gas exchange in Animals.
-Human respiration.

8th **week:**
Lecture: Salt and Water Balance and Nitrogen Excretion 1.
Salt and Water Balance and Nitrogen Excretion 2.
Self Control Test

9th **week:**
Lecture: Hormones 1.
Hormones 2.
Hormones 3.

10th **week:**

Lecture: Hormones 4.
Hormones 5.
Neurons and Nervous system 1.

11th **week:**
Lecture: Neurons and Nervous system 2.
Neurons and Nervous system 3.
Neurons and Nervous system 4.

12th **week:**
Lecture: Neurons and Nervous system 5.
Sensory systems 1.
Sensory systems 2.

13th **week:**
Lecture: Self Control Test
Effectors: making Animals move 1.
Effectors: making Animals move 2.

14th **week:**
Lecture: Effectors: making Animals move 3.
Animal reproduction and Animal Development 1.
Animal reproduction and Animal Development 2.
15th **week:**
Lecture: Animal reproduction and Animal Development 3.
The human Reproduction System and Sexual Behavior.
Self Control Test

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

Subject: **INTRODUCTION TO BIOPHYSICS I.**
Year, Semester: Basic Medicine Course 1st
Number of teaching hours:
Lecture: **60**
Seminar: **30**

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

2nd **week:**
Lecture: 3. Motion in one dimension, displacement, velocity, acceleration, motion diagrams.4. Freely falling objects.

3rd **week:**
Lecture: 5. Vectors and their properties. Components of vectors. Displacement, velocity and acceleration in two dimensions.6. Motion in two dimensions. Relative velocity.

4th **week:**
Lecture: 7. The laws of motion. Newton's First, Second and Third Law.8. Applications of Newton's Laws. Forces of friction.
Self Control Test (First SCT (Chapters 1-3))

5th **week:**
Lecture: 9. Energy. Work. Kinetic energy and the work-energy theorem. Gravitational potential energy.10. Spring potential energy. System and energy conservation. Power. Work done by varying forces.

6th **week:**
Lecture: 11. Momentum and impulse. Conservation of momentum.12. Collisions. Elastic and inelastic collisions.

7th **week:**
Lecture: 13. Angular speed and angular acceleration. Rotational motion under constant angular acceleration.14. Centripetal acceleration. Newtonian gravitation. Kepler's laws.

8th **week:**
Lecture: 15. Torque and the two conditions for equilibrium. The center of gravity.16.

Rotational kinetic energy. Angular momentum.
Self Control Test (2nd SCT, Chapters 5-7)

9th week:
Lecture: 17. States of matter. Deformation of solids. The Youngs's, shear and bulk modulus.18. Density and pressure. Variation of pressure with depth. Pressure measurements. Buoyant forces and Archimedes's principle. Fluids in motion.

10th week:
Lecture: 19. Temperature and the zeroth law of thermodynamics. Thermometers and temperature scales. Thermal expansion of solids and fluids.20. Macroscopic description of an ideal gas. The kinetic theory of gases.

11th week:
Lecture: 21. Energy in thermal processes. Heat and internal energy.22. Specific heat. Calorimetry. Latent heat and phase change.
Self Control Test (3rd SCT, Chapters 7-9)

12th week:
Lecture: 23. The first law of thermodynamics.24. The second law of thermodynamics. Entropy. Refrigerators and heat pumps.

13th week:
Lecture: 25. Elastic potential energy. Hook's law. Simple harmonic motion. Motion of a pendulum.26. Waves. Frequency, amplitude and wavelength. Interference of waves. Reflection of waves.

14th week:
Lecture: 27. Sound. Energy and intensity of sound waves. Shock waves, standing waves.28. Doppler effect. The ear and the principles of hearing.
Self Control Test (4th SCT, Chapters 10-13)

15th week:
Lecture: 29. Interactive seminar and preparation for ESE.30. Interactive seminar and preparation for ESE.

Subject: **INTRODUCTION TO BIOPHYSICS II.**
Year, Semester: Basic Medicine Course 2nd
Number of teaching hours:
Lecture: **60**
Seminar: **30**

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

2nd week:
Lecture: 3. Electrical energy and capacitance.4. The parallel plate capacitor. Combinations of capacitors. Energy stored in capacitors. Capacitors with dielectric.

3rd week:
Lecture: 5. Electric current. Current and voltage measurements in circuits. Resistance and Ohm's law.6. Resistivity, temperature variation of resistance. Semiconductors and superconductors. Electrical activity of the heart. Defibrillators.

4th week:
Lecture: 7. Direct current circuits. Resistors in parallel and series.8. Kirchhoff's rules and complex DC circuits. RC circuits. Conduction of electrical signals by neurons.
Self Control Test (1st SCT, Chapters 15-17)

5th week:
Lecture: 9. Magnetism. Magnetic field. Earth's magnetic field. Magnetic force on

current carrying conductors. Toque on current loop and electric motors.10. Magnetic field of a long straight wire and Ampere's law. Magnetic field between two parallel conductors. Magnetic field of loops and solenoids.

6th **week:**
Lecture: 11. Induced emf and magnetic flux. Faraday's law of induction. Motional emf. Lenz's law.12. Generators. Self-inductance RL circuits.

7th **week:**
Lecture: 13. Alternating current. Resistors, capacitors and inductors in AC circuits.14. The transformer. Properties of electromagnetic waves. The spectrum of electromagnetic waves.

8th **week:**
Lecture: 15. The nature of light. Reflection, refraction and dispersion.16. Prisms. The rainbow. Huygen's principle. Total internal reflection and its medical applications.
Self Control Test (2nd SCT, Chapters 18-21)

9th **week:**
Lecture: 17. Lenses and mirrors. Flat mirrors. Images formed by spherical mirrors. 18. Thin lenses. Images formed by lenses. Lens aberrations.

10th **week:**
Lecture: 19. Wave optics. Conditions for interference, polarization of light. Diffraction.20. The camera, the simple magnifier, the compound microscope, the telescope and the eye.

11th **week:**
Lecture: 21. Quantum physics. Blackbody radiation. Photoelectric effect. Particle theory of light.22. The production and attenuation of X-ray. Characteristic X-ray.
Self Control Test (3rd SCT, Chapters 22-25)

12th **week:**
Lecture: 23. Atomic physics. Early model of the atom. Quantum mechanics and the hydrogen atom. The spin magnetic quantum numbers.24. Lasers and holography.

13th **week:**
Lecture: 25. Some properties of the nuclei. Binding energy. Radioactivity, the decay processes. Medical application of radioactivity.26. Nuclear reactions. Nuclear fission and fusion. Positron and other antiparticles. Mesons and quarks.
Self Control Test (4th SCT, Chapters 26-29)

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

15th **week:**
Lecture: Final exam.

Contact person: Dr. Zoltán Varga, Department of Biophysics and Cell Biology
Recommended book: Serway, Vuille: College Physics (9th edition)

Subject: **INTRODUCTION TO MEDICAL CHEMISTRY I.**
Year, Semester: Basic Medicine Course 1st
Number of teaching hours:
Lecture: **60**
Seminar: **30**

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

2nd **week:**

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

3rd **week:**
Lecture: Light and the electromagnetic spectrum. Atomic spectra. The Bohr model of the hydrogen atom. The quantum mechanical model of the atom. Orbitals and quantum numbers. Quantum mechanics and atomic spectra.

4th **week:**
Lecture: Electron configurations and the periodic table. Classification of the elements. Representative and transition elements. The sizes of atoms and ions. Ionization energy, electron affinity, electronegativity.

5th **week:**
Lecture: FIRST SELF CONTROL TEST. Chemical bonds: metallic, ionic and covalent bonds. Electron-dot structures for molecular compounds and polyatomic ions.

6th **week:**
Lecture: Single and multiple covalent bonds. Valence bond theory. Molecular shapes: the VSEPR model. Hybridization. Intermolecular forces.

7th **week:**
Lecture: The gaseous state. Gases and gas pressure. The gas laws. The ideal gas law. Stoichiometric relationships with gases. Kinetic-molecular theory of gases. Liquid and solid states. Phase changes. Evaporation, vapor pressure, boiling point. The chemistry of water.

8th **week:**
Lecture: Electrolytes and nonelectrolytes. Solutions and their properties. Concentration of solutions. Units of concentration: molarity, mass percent, molality. Dilution of solutions. Some factors affecting solubility. Discussion of general chemistry 1.

9th **week:**
Lecture: SECOND SELF CONTROL TEST. Chemical equilibrium. The equilibrium constant. Factors that alter the composition of an equilibrium mixture.

10th **week:**
Lecture: Acids and bases. The pH in solutions of strong acids and strong bases. Equilibria in solutions of weak acids. Equilibria in solutions of weak bases. Relation between Ka and Kb.

11th **week:**
Lecture: Thermochemistry. Energy changes and energy conservation. Internal energy and state functions. Expansion work. Energy and enthalpy. The thermodynamic standard state. Hess's law. Chemical calculus.

12th **week:**
Lecture: THIRD SELF CONTROL TEST. Chemical reactions in perspective. Oxidation and reduction. Oxidation state. The activity series of the elements.

13th **week:**
Lecture: Balancing redox reactions. Galvanic cells. Discussion of general chemistry 2.

14th **week:**
Lecture: Introduction to the main group elements. Noble gases. Hydrogen. The s-block and p-block metals. The d-block metals.

15th **week:**
Lecture: FOURTH SELF CONTROL TEST. Summary and discussion.

Subject: **INTRODUCTION TO MEDICAL CHEMISTRY II.**
Year, Semester: Basic Medicine Course 2nd

Number of teaching hours:
Lecture: **60**
Seminar: **30**

1st **week:**
Lecture: The halogens. Compounds of the halogens. Oxygen. Substances with oxygen-oxygen bonds.

2nd **week:**
Lecture: Sulfur, compounds of sulfur. Industrial acids. Oxoacids. Nitrogen, nitrogen compounds, phosphorus, phosphorus compounds.

3rd **week:**
Lecture: Carbon and its inorganic compounds. Discussion of inorganic chemistry

4th **week:**
Lecture: FIFTH SELF CONTROL TEST. Covalent bonding in organic compounds. Alkanes.

5th **week:**
Lecture: Isomerism and reactions of alkanes. Cycloalkanes. Unsaturated hydrocarbons: alkenes and alkynes.

6th **week:**
Lecture: Aromatic compounds: the structure and properties of benzene and its derivates. Heteroatomic compounds. The reactions of benzene.

7th **week:**
Lecture: Organic halogen compounds. Alcohols and phenols.

8th **week:**
Lecture: SIXTH SELF CONTROL TEST. Ethers and organic sulfur compounds.

9th **week:**
Lecture: Aldehydes, ketones and quinones.

10th **week:**
Lecture: Nitrogen containing organic compounds: the structure and properties of amines. Basicity and reactions of amines. Heterocyclic amines. Amines of biological importance.

11th **week:**
Lecture: SEVENTH CONTROL TEST. Carboxylic acids. Saturated monocarboxylic acids. Unsaturated carboxylic acids. Dicarboxylic acids. Properties of carboxylic acids. Reactions of carboxylic acids.

12th **week:**
Lecture: Properties and reactions of carboxylic acids. Carboxylic acid derivatives: salts and detergents. Acyl halides, anhydrides.

13th **week:**
Lecture: Carboxylic acid derivatives: esters and amides. Substituted carboxylic acids. Stereochemistry. Optical activity: properties of enantiomers and diastereomers.

14th **week:**
Lecture: Absolute and relative configurations. Synthesis of enantiomers. Discussion of organic chemistry.

15th **week:**
Lecture: EIGHTH SELF CONTROL TEST. Summary and discussion.

Contact person: Dr. Endre Kókai, Department of Medical Chemistry
Recommended books: McMurry, Fay: Chemistry (6th edition)
Erdődi, Csortos: Organic chemistry for premedical students (2010)

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

1st week:
Practical: 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

13th week:
Practical: Szóbeli vizsga / Oral exam

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 65%, AND
- passed all the SCTs with at least 40%, AND

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

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

The average of the best 5 SCTs	Bonus points
51-52	1
53-55	3
56-58	5
59-61	7
62-64	9

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

Percentage (%)	Mark
0 - 54.99:	fail (1)
55.00 - 64.99:	pass (2)
65.00 - 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: **96**
Seminar: **96**

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

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

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

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

5th **week:**
Lecture: Cell membranes 3.
Cell membranes 4.

Energy, enzymes and metabolism 1.
Energy, enzymes and metabolism 2.
Self-Control Test

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

9th **week:**
Lecture: 17-18. Temperature and the zeroth law of thermodynamics. Thermometers and temperature scales. Thermal expansion of solids and fluids.

Macroscopic description of an ideal gas. The kinetic theory of gases.

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

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

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

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

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

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

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

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

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

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

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

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

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

23rd **week:**
Lecture: 44-45. Wave optics. Conditions for interference, polarization of light. Diffraction.

The camera, the simple magnifier, the compound microscope, the telescope and the eye.

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

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

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

1st **week:**
Lecture: 1-2. Introduction to general chemistry. Elements. Symbols for the elements. The SI system of measurement. Atoms. The structure of atoms. Nuclear arithmetic. Molecules and ions, compounds and mixtures.
2nd **week:**
Lecture: 3-4. Chemical formulas. Naming chemical compounds. Chemical equations. Avogadro's number and the mole. Atomic, molecular and molar mass relationships. Stoichiometry: chemical arithmetic. Yields of chemical reactions. Empirical and molecular formulas.

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

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

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

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

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

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

solution. Discussion of general chemistry 1.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Academic Advisor: Dr. Krisztina Tar, Department of Medical Chemistry
Recommended books: McMurry, Fay: Chemistry (6th 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.

Compulsory courses for the 1. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Biophysics	FOBIF04D1	26	26	16	ESE*	5	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	Hungarian Crash Course
1	Medical Chemistry	FOKEM04D1	39	58	39	ESE*	9	None
1	Medical Psychology I.	FOPSZ04D1	20			AW5	2	None
1	Odontology	FOODO02D1	15		30	ESE	4	None
2	Cell Biology	FOSEJ04D2	30	25	20	ESE*	6	None
2	First aid and reanimation	FOELS06D2	6		15	AW5	1	None
2	Hungarian Language I/2.	FOHUN02D2-K1			30	AW5	2	Hungarian Language I/1.
2	Molecular Biology	FOMBI04D2	42	14	10	ESE*	6	None
2	Oral Anatomy, Histology and Embryology I.	FOANA05D2	25		60	ESE*	7	None
2	Preventive Dentistry I.	FOPRE02D2		15		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.	FOBIK07D3	42	14	30	ESE	7	Medical Chemistry, Molecular Biology
1	Dental Physiology I.	FOELE07D33	45	30	45	ESE	7	Oral Anatomy, Histology and Embryology I., Biophysics
1	Hungarian Language II/1.	FOHUN03D3-K1			30	AW5	2	Hungarian Language I/2.
1	Introduction to Prosthodontics I.: Dental Materials	FOFPO31D3	15		30	ESE	3	Biophysics, Medical Chemistry
1	Oral Anatomy, Histology and Embryology II.	FOANA09D3	20	60	60	FE	10	Cell Biology, Oral Anatomy, Histology and Embryology I.
2	Biochemistry II.	FOBIK08D4	45	15		FE	6	Biochemistry I.
2	Dental Physiology II.	FOELE08D44	30	26		FE	7	Oral Anatomy, Histology Embryology II., Dental Physiology I.
2	Hungarian Language II/2.	FOHUN04D4-K1			30	AW5	2	Hungarian Language II/1.
2	Introduction to Prosthodontics II.: Introduction to the Fixed Prosthodontics	FOFPO33D4	15		30	ESE	3	Introduction to Prosthodontics I.: Dental Materials, Odontology, Oral Anatomy, Histology and Embryology II.
2	Neurobiology (Neuroanatomy, Neurobiochemistry, Neurophysiology)	FONEB04D4	52	10	56	ESE*	8	Dental Physiology I.
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	30		30	ESE*	4	Cell Biology, Oral Anatomy, Histology and Embryology II.
1	Dosimetry, Radiation Health Effects	FODOZ02D6		24		ESE	2	Biophysics
1	General Pathology	FOPAT11D5	33		45	ESE	4	Oral Anatomy, Histology and Embryology II., Neurobiology
1	Hungarian Language III/1.	FOHUN05D5			30	AW5	2	Hungarian language II/2.
1	Immunology	FOIMM06D5		30		ESE	2	Biochemistry II., Cell Biology, Dental Physiology II.
1	Introduction to Prosthodontics III.: Propedeutics and Technology of Fixed Prosthodontics	FOFPO35D5	10		40	ESE	2	Introduction to Prosthodontics I.: Dental Materials, Introduction to Prosthodontics II.: Introduction to Fixed Prosthodontics
1	Introduction to Prosthodontics IV.: Odontotechnology I.	FOFPO37D5	10		40	ESE	2	Introduction to Prosthodontics I.: Dental Materials, Introduction to Prosthodontics II.: Introduction to the Fixed Prosthodontics
1	Oral Biology	FOORA02D5	15	15		ESE	2	Odontology, Dental Physiology II., Oral Anatomy, Histology and Embryology II.
1	Periodontology Propedeutics I.	FOPAR10D5	2		8	AW5	1	Odontology, Dental Physiology II.
1	Restorative Dentistry Propedeutics I. (Cariology)	FOCAR02D5	15		45	AW5	4	Odontology, Dental Physiology II., Oral Anatomy, Histology and Embryology II.

Compulsory courses for the 3. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Basic Surgical Techniques	FOMUT05D6	5	7	6	AW5	1	Oral Anatomy, Histology and Embryology II., Dental Physiology II.
2	Bioethics	FOETI04D6	6	9		AW5	1	Medical Psychology I.
2	Clinical Biochemistry II.	FOKBK08D6	11		6	ESE*	1	Clinical Biochemistry I.
2	Hungarian Language III/2.	FOHUN06D6			30	FE	2	Hungarian Language III/1.
2	Introduction to Dental Radiology	FORAD04D6	18	23		ESE	3	Biophysics, General Pathology, Oral Biology
2	Introduction to Prosthodontics V.: Propedeutics and technology of total and partial removable dentures	FOFPO39D6	10		40	FE	2	Introduction to Prosthodontics III.: Propedeutics and Technology of Fixed Prosthodontics, Introduction to Prosthodontics IV.: Odontotechnology I.
2	Introduction to Prosthodontics VI.: Odontotechnology II.	FOFPO41D6	10		40	FE	2	Introduction to Prosthodontics III.: Propedeutics and Technology of Fixed Prosthodontics, Prosthodontics, Introduction to Prosthodontics IV:: Odontotechnology I
2	Medical Psychology II.	FOPSZ10D6	15		20	ESE	2	Medical Psychology I.
2	Oral Surgery Propedeutics	FOSZS02D66	15		35	ESE	2	Oral Anatomy II., Biochemistry II., Odontology
2	Organ and Oral Pathology	FOPAT12D6	49		45	FE	5	General Pathology
2	Periodontology Propedeutics II.	FOPAR12D6	2		15	AW5	1	Periodontology Propedeutics I.
2	Restorative Dentistry Propedeutics II. (Endodontics)	FOEND02D6	15		45	ESE	4	Restorative Dentistry Propedeutics I. (Cariology), Oral Biology
2	3rd year Summer Practice for Dentistry Students	FO_NYGY_3RD YEAR			60	SIGN	0	has to be completed before the 4th year

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		110	ESE	7	Oral Surg. Prop., Restorative Dent. Prop. II.(Endodontics), Introduction to Prosthodontics V.: Prop. and Techn. of Total and Partial Removable, Period. Prop.II.
1	Dental Pharmacology I.	FOGYO07D7	30	15		ESE	2	Organ and Oral Pathology, Biochemistry II., Dental Physiology II.
1	Dermatology	FOBOR06D7	15			ESE	1	Organ and Oral Pathology
1	Internal Medicine I.	FOBEL19D7	15		15	ESE	2	Dental Physiology II., Organ and Oral Pathology, Biochemistry II.
1	Oral Surgery I.	FOSZS14D7	15		10	ESE	1	General Pathology II., Oral Surgery Propedeutics, 3rd year summer practice
1	Orthodontics I.	FOFSZ06D7	15		15	AW5	1	Restorative Dentistry Propedeutics II. (Endodontics), Introduction to Prosthodontics V.: Propedeutics and Technology of Total and Partial Removable Dentures
1	Otolaryngology	FOFUL06D7		15		ESE*	1	Organ and Oral Pathology
1	Periodontology I.	FOPAR14D7	15		10	ESE	1	Organ and Oral Pathology, Oral Biology, Biochemistry II.
1	Preventive Dentistry II.	FOPRE04D7		15		AW5	1	Preventive Dentistry I., Restorative Dentistry Propedeutics II. (Endodontics)
1	Preventive Medicine and Public Health	FOMEG06D7	30	26	4	ESE*	3	Dental Microbiology, Organ and Oral Pathology
1	Prosthetic Dentistry I.	FOFPO14D7	15		10	ESE	1	Introduction to Prosthodontics V.: Propedeutics and Technology of Total and Partial Removable Dentures, Restorative

								Dentistry Propedeutics I. (Cariology) together with Restorative Dentistry I. (Cariology)
1	Restorative Dentistry I. (Cariology)	FOKON02D7	15		10	ESE	1	Restorative Dentistry Propedeutics II. (Endodontics), Introduction to Prosthodontics V.: Propedeutics and Technology of Total and Partial Removable Dentures together with Prosthetic Dentistry I.
1	Surgery	FOSEB06D5	15			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		110	ESE	7	Complex Dentistry I., Dosimetry, Radiation Health Effects, Introduction to Dental Radiology
2	Dental Pharmacology II.	FOGYO08D8	30	15		FE	3	Dental Pharmacology I.
2	Digital Dentistry	FODIF02D9	15		15	AW5	2	Introduction to Prosthodontics III.: Propedeutics and Technology 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	30		30	FE	3	Internal Medicine I.
2	Oral Surgery II.	FOSZS16D8	15		10	ESE	1	Oral surgery I.
2	Orthodontics II.	FOFSZ02D8	15	1	15	FE	2	Orthodontics I.
2	Pediatric Dentistry Propedeutics	FOGYF10D8		5	10	AW5	1	Preventive Dentistry II., Orthodontics I.
2	Periodontology II.	FOPAR20D8	15		10	ESE	2	Periodontology I.
2	Prosthetic Dentistry II.	FOFPO16D8	15		10	ESE	2	Prosthetic Dentistry I.
2	Restorative Dentistry II. (Endodontics)	FOKON04D8	15		10	ESE	2	Restorative Dentistry I. (Cariology)
2	Complex summer practice for dental student	FO_NYGY_COMPLEX			120	SIGN	0	has to be completed before the 5th year

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		300	ESE	12	Complex Dentistry II.
1	Forensic Medicine	FOIGA06D9		15	15	ESE	1	Organ and Oral Pathology
1	Neurology	FONEU06D9	10		10	ESE	1	Organ and Oral Pathology, Neurobiology, Internal Medicine II.
1	Oral Medicine	FOOME02D99	15		10	ESE	1	Organ and Oral Pathology, Dental Pharmacology II.
1	Oral Surgery III.	FOSZS18D9	15		10	ESE	1	Oral Surgery II.
1	Pediatric Dentistry I.	FOGYF06D99	15		15	AW5	2	Orthodontics II., Pediatric Dentistry Propedeutics
1	Pediatrics	FOGYE06D9	15		15	ESE	2	Organ and Oral Pathology, Dental Pharmacology II., Internal Medicine II.
1	Prosthetic Dentistry III.	FOFPO18D9	15		10	ESE	1	Prosthetic Dentistry II., Digital Dentistry
1	Psychiatry	FOELM08D9	5		5	ESE	1	Medical Psychology II., Neurobiology
1	Restorative Dentistry III. (Cariology and Endodontics)	FOKON06D9	15		10	ESE	1	Restorative Dentistry II (Endodontics)

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	ESE	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)

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			30	AW5	2	None
2	Computer Science	FOINF46D1			30	AW5	2	None
2	Latin Language	FOLAT44D2			30	AW5	2	None
2	Medical Genetics	FOGEN04D2	15		15	AW5	2	None
2	Medical Genomics	FOGEN44D2	20			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	15			AW5	2	Odontology
2	Modern biophysical methods in biology and medicine	FOMOD42D4	24			AW5	2	Biophysics, Cell Biology
2	Modern Techniques Allowing the Investigation of Physiological Phenomena	FOKOR42D4	30			AW5	2	Dental Physiology I.
2	Problem Based Learning in Physiology	FOPEL42D4			30	AW5	2	Dental Physiology I.
2	The regulatory role of the cell membrane in physiological and pathological conditions	FOSEM42D4	20			AW5	2	Dental Physiology I.

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		15		AW5	1	Odontology, Introduction to Prosthodontics I.: Dental Materials, Introduction to Prosthodontics II.: Introduction to the Fixed Prosthodontics
1	Medical Anthropology	FOANT44D6		15		ESE	1	Medical Psychology I.
2	Clinical Gerontology	FOKLG44D6	30			AW5	3	Dental Physiology II., Immunology
2	Clinical Physiology	FOKFI08D6	17	18		AW5	2	General Pathology, Dental Physiology II.
2	Clinicopathologic cases demonstration	FOKLP42D6	20			AW5	2	General Pathology
2	Medical Sociology	FOSZO04D6	15			AW5	2	Medical Psychology I.
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 II.
1	Endodontics elective I.	FOENDE42D8		15		AW5	1	Restorative Dentistry Propedeutics II., Preventive Dentistry I.
1	Esthetic Dentistry	FOEPO42D6	15			AW5	1	Introduction to Prosthodontics V.: Propedeutics and technology of total and partial removable dentures
1	Oral Surgery Elective I. Extraction Practice	FOSZS42D7			15	AW5	1	Oral Surgery Propedeutics, 3rd year summer practice, Oral Surgery I. parallel registration or previous fulfillment
1	Thesis consultation I.	FODIP45D7		75		AW5	5	None
2	4-hand Treatment	FO4KEZD6		10		AW5	1	Restorative Dentistry Propedeutics (Cariology), Introduction to Prosthodontics V.: Propedeutics and Technology of Total and Partial Removable Dentures
2	Cariology elective II. (Diet and nutrition in oral health)	FOCAR44D7		15		AW5	1	Restorative Dentistry I. (Cariology)
2	Periodontology elective I.	FOPAR42D8	15			AW5	1	Periodontology I.
2	Radiotherapy in the clinical practice	FOSUG42D7	14			AW5	2	Biophysics, Introduction to Dental Radiology
2	Surgical care of developmental disorders of the maxillofacial region, Oral Surgery elective II.	FOSSE42D8-K1	15			AW5	1	Oral Surgery I., Oral Surgery II. parallel registration or previous fulfillment
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		15		AW5	1	Restorative Dentistry II. (End.)
1	Implantology - Basics of Oral Implantology	FOIMP42D10		15		AW5	1	Oral Surgery II., Prosthetic Dentistry II.
1	Thesis consultation III.	FODIP47D9		75		AW5	5	None
2	Cariology elective III. (Esthetics in restorative dentistry)	FOCAR46D10		12		AW5	1	Restorative Dentistry III. (Cariology and Endodontics)
2	Cone Beam CT	FOCBCTD10		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 Anatomy, Histology and Embryology	Clinical anatomy and plastination I.	AOG109404	2	1	30	AW5	grade 4 or 5 in Oral Anatomy, Histology and Embryology I.	Miklós Antal M.D., Ph.D., D.Sc.
Department of Anatomy, Histology and Embryology	Clinical anatomy and plastination II.	AOG109604	2	2	30	AW5	Oral Anatomy, Histology and Embryology I.	Miklós Antal M.D., Ph.D., D.Sc.
Department of Anatomy, Histology and Embryology	Investigation of the embryonic cell-and tissue differentiation	AOG1011003	2	1	26	AW5	Oral Anatomy, Histology, Embriology I., Cell Biology, Molecular Biology, Biophysics	Róza Zákány M.D., Ph.D.
Department of Basic Medical Sciences	Selected Topics in Cell Biology	FOG157403-K1	2	2	24	AW5	Cell Biology	
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 Biophysics and Cell Biology	Physical foundations of biophysics	AOG157303	1	1	24	AW5	None	Péter Hajdu M.Sc., Ph.D.
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	2	2	30	AW5	Hungarian Crash Course	László Répás M.A.
Department of Foreign Languages	Hungarian Language Elective General I.	AOG268901	2	1	30	AW5	Hungarian Crash Course	László Répás M.A.
Department of Foreign Languages	Hungarian Language Elective - Medical I.	AOG26108A1-K1	2	1	30	AW5	Completion of 3rd year Medical Hungarian Final exam	Judit Lampéné Zsíros M.A., Ph.D.

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Department of Foreign Languages	Hungarian Language Elective - Medical II.	AOG26108A2-K1	2	2	30	AW5	Hungarian Language Elective Medical I.	László Répás M.A.
Department of Foreign Languages	Latin Medical Terminology I.	AOG2611002	1	2	30	AW5	Latin language	László Répás M.A.
Department of Foreign Languages	Elective Hungarian for Dentistry Students	FOHUNELECT01	2	1-2	30	AW5	Medical Hungarian	
Department of Internal Medicine	Immune intervention therapy in patients with autoimmune diseases	AOG149307	1	1	16	AW5	Pathology II., Immunology	Katalin Dankó M.D.,Ph.D.,D.Sc.
Department of Internal Medicine	Inflammatory bowel diseases: clinical, therapeutical and immunological aspects	AOG148709	1	1	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	Interesting Issues of Medical Parasitology	AOG429907	1	1	12	AW5	Dental Microbiology	Judit Szabó M.D., Ph.D.
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 Pathology	Neurodegenerativ diseases	AOG457207	1	1	20	AW5	Organ and Oral Pathology	Péter Molnár M.D., D.Sc.
Department of Pulmonology	Asthma bronchiale	AOG587707	1	1	8	AW5	Organ and Oral Pathology	László Brugós M.D., Ph.D.

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Department of Pulmonology	Lung cancer	AOG587607	1	1	10	AW5	Organ and Oral Pathology	Andrea Fodor M.D.
Division of Biomaterials and Prosthetic Dentistry	Advanced Dental Materials	FOADM01D10	1	1	15	AW5	Complex Dentistry II.	Csaba Hegedűs M.D., L.D.S., Ph.D.
Division of Biomaterials and Prosthetic Dentistry	Molecular Biological Research Methods in Dentistry	FOMBRD04	1	2	14	AW5	Molecular Biology	
Division 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.
Division of Biomaterials and Prosthetic Dentistry	Stem cells and their applicability in dentistry	FOOSS02	1	2	15	AW5	Cell Biology	
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 Oral and Maxillofacial Surgery	Dental implant system	FOIMPS02D8	1	2	12	AW5	Implantology	Pál Redl M.D., L.D.S., Ph.D.
Division of Pediatric Dentistry and Orthodontics	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.
Division of Pediatric Dentistry and Orthodontics	Trauma management in childhood and in adolescence	FOTRAMAN02	1	1	15	AW5	Orthodontics II., Preventive Dentistry II.	Judit Nemes D.M.D., Ph.D.
Institute of Behavioural Sciences, Faculty of Public Health	Inborn Sociality - Socialized Individuality: A New Concept	AOG358902-K8	2	-	30	AW5	None	Péter Molnár M.D., D.Sc.
Institute of Behavioural Sciences, Faculty of Public Health	Becoming a Doctor: Thematic Self-Awareness Group	AOG359005-K10	2	2	30	AW5	None	Péter Molnár M.D., D.Sc.

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Institute of Behavioural Sciences, Faculty of Public Health	Evolution and Medicine	AOG359101-K8	1	1	26	AW5	None	László Nemes M.A., Ph.D.
Institute of Behavioural Sciences, Faculty of Public Health	The Basic Problems of Medicine	AOG358601	1	1	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Institute of Behavioural Sciences, Faculty of Public Health	Madness and Psychiatry (Philosophical Approach)	AOG359602	1	2	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Institute of Behavioural Sciences, Faculty of Public Health	Theory of Psychoanalysis and Its Influence on the Concept of Human Being in Medicine	AOG359501-K8	1	1	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Institute of Behavioural Sciences, Faculty of Public Health	Psychic Trauma	AOG3511102-K1	1	2	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Institute of Behavioural Sciences, Faculty of Public Health	Theoretical and Methodological Questions of Patient Satisfaction Studies	AOG359308	1	2	15	AW5	None	Bence Döbrőssy M.A.
Institute of Behavioural Sciences, Faculty of Public Health	Yoga and Meditation I.	AOG3512001-K1	1	1	30	AW5	None	Péter Molnár M.D., D.Sc.
Institute of Behavioural Sciences, Faculty of Public Health	Bioethical Cases	AOG358706	2	2	30	AW5	None	Péter Kakuk M.A., Ph.D.
Institute of Behavioural Sciences, Faculty of Public Health	Intercultural Health Care	AOG3511605-K1	2	2	30	AW5	None	Bence Döbrőssy M.A.
Institute of Behavioural Sciences, Faculty of Public Health	Bioethics on Films	AOG3514405	1	1	26	AW5	None	Péter Kakuk M.A., Ph.D.

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Institute of Behavioural Sciences, Faculty of Public Health	Yoga and Meditation II.	AOG3510401-K1	2	-	30	AW5	None	Péter Molnár M.D., D.Sc.
Institute of Behavioural Sciences, Faculty of Public Health	Medicine in Art	AOG3515003	0	1-2	20	AW5	None	Sándor Kőmüves M.A., Ph.D.
Institute of Behavioural Sciences, Faculty of Public Health	Issues about the Start and End of Life	AOG3515103	1	1-2	22	AW5	None	Sándor Kőmüves M.A., Ph.D.

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.

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

Prerequsites:

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: **BIOPHYSICS**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: **26**
Seminar: **26**
Practical: **16**

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

2nd week:
Lecture: 3. Thermal radiation, light absorption and emission. Atomic and molecule spectra, absorption spectroscopy.
4. Fluorescence spectroscopy, application of fluorescence.
Seminar: Material related to Lectures 1 and 2.
Practical: Week 2-11: Practicals in rotation system. Labs to be performed: (1) Measurement of diffusion constant; (2) Microscopy; (3) Computer tomography and blood pressure measurement; (4) Measurement with a Geiger-Müller counter. Attenuation of nuclear radiation. For detailed information (timetable, protocols, requirements, etc.) see the web page of the Department.

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

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

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

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

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

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

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

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

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

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

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

15th week:
Lecture: 29. Research in the institute. (not required for Dentistry students)
30. Preparation for the exam: questions, answers. (not required for Dentistry students)

Requirements

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). Besides, students may prepare short presentations (7-15 minutes) about

the topic of the seminars (max. 2 students/seminar). The topic list for short presentations is posted to the web page of the Department. The talks are graded on a scale of 0-3. This grade counts toward the bonus points earned during the semester. Students obtaining less than 3 points for the presentation may prepare an additional one (in the student's own group) given that spots are still available. In this case the better score is considered for bonus points (the two presentations are not cumulative). To get the maximum 3 points for the presentation the followings must be fulfilled:

· keeping the allocated time (min. 7, max. 15 min);

· good quality of the figures (axis labels, color combinations, appropriate resolution);

· simply reading the text from the slides is not appropriate

· teaching merit of the presentation (too many slides without proper explanation is not accepted here).

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

3. Practicals

Attendance to labs is mandatory. One (that is only 1) lab missed with acceptable excuse can be completed during the spare practical on week 12 with a written permission (recorded in the lab logbook) of the manager of education (permission is given during the office hours only). Students may attend the practicals according to their group assignment only. For the practicals a separate logbook should be prepared which is graded at the end of the lab on a scale between 0-3. (Getting 0 means that the lab is not accepted and it has to be repeated.) However, the lab tutor may test the students' preparation for the practical any time during the practical and – based on the result – might instruct the student to repeat the lab (scheduling and conditions are the same as for absences). At the end of the semester, the grades for your logs and your attitude during labs will be summed up as a Practical Grade (PG) on a scale of 0-3. Detailed requirements of the labs (reading for the labs, instructions for logbook preparation, details of the grading system, etc.) are posted on the webpage of the Department.

Practical exam (week 13 or 14): Students can take a lab exam during their regular lab class on week 13 or 14. It is not allowed to repeat the lab exam to improve the grade. The duration of the exam is approximately 30 minutes and students have to perform an experiment based on the semester work, assigned randomly. The examiner checks the record of the experiment and also may ask questions from the labs. The grading will be on a scale of 0-3 (PE grade) based on the record of the experiment, calculations/graphs (concept, work plan, clarity and punctuality are primary consideration) as well as oral performance.

Evaluation of the practical part:

PG+PE >=3 and PE >0, practical part accepted, exempted from practical exam on the day of the Final Exam. (a practical exam with 0 points has to be repeated regardless of the practical grade)
1 < PG+PE < 3 practical part accepted, practical exam on the day of the Final Exam.
PG+PE =< 1, practical part is not accepted, the semester is not accepted.

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

4. Exemptions

In order to get full exemption from the biophysics course the student has to write an application to the Educational Office. The Department of Biophysics and Cell Biology does not accept such applications. Applications for exemptions from part of the courses are handled by the department. The deadline for such applications is Friday on the third week. No application will be considered after this date. The following documents have to be submitted to the study adviser: 1. application with an explanation why the student thinks that he/she is eligible for an exemption; 2. certificates about the courses the student has taken; 3. a reliable description of the curriculum of the courses taken. An application is rejected, accepted, or in most cases students applying for an exemption will be examined by the Biophysics Chairman before granting an exemption. Applicants will be notified whether they have to take such an examination. The deadline for taking such an exam is Friday on week 5.

5. Conditions for signing the lecture book

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

6. Self-control tests

There will be 2 self-control tests (SCT) during the semester (week 7 and week 12). Topics for the 1st SCT: lectures up to (including) week 5, and discussed on seminars on week 6. Topics for the 2nd SCT: lectures up to (including) week 10, and discussed on seminars on week 11. Approximately 90% of the questions will focus on the topics not included in the 1st SCT. None of the SCTs are obligatory. The type of the questions will be similar to [DPG1]those on the final exam (FE). The SCTs will include five minimum requirement questions as well proportional 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 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 A of the biophysics final exam (see below);
ii) according to X_{ave} SCT bonus points earned to the FE are as follows:

X_{ave}	SCT bonus points	X_{ave}	Bonus points	X_{ave}	bonus points
0- 34.99	0	55-60.99	7	73-78.99	10
35-49.99	5	61-65.99	8	79-	11
50-54.99	6	66-72.99	9	85-	see point iii)

iii) if X_{vave} 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 exclusively are lectures that were not included in the two SCTs (i.e. lectures from Week 11 on).

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

7. Final Examination (FE)

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

The FE consists of 3 parts:

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

Part II.: Minimum requirement questions. It consists of a written quiz of 20 minimum requirement questions. One must pass this part to have the written test (part III.) evaluated. Minimum requirement questions and the answers thereto are provided on the website of the Department (biophys.med.unideb.hu). [a2]16 out of 20 have to be answered correctly in order to pass this part. Exemption from this part of the FE is discussed in 6. i). This part is evaluated as pass or fail, once passed it is valid for further exam chances (B- or C-chance) of the FE. The result of the minimum requirement questions are not counted into the result of the written test (part III. of the FE).

Part III.: Written exam. It consists of essays, fill-in-the-missing-phrase type questions, relation analysis and various simple test and multiple-choice questions etc. Part III. will only be evaluated if part I. and part II. are both passed. However, those failing part II. can still do the practical exam (part I.) on the day of the FE. The total bonus for the semester (SCT bonus points (max. 11) + seminar bonus points (max. 3)) will be added to the score of the written exam ONLY IF a minimum score of 45% is achieved in part III. of the FE. Additional exemptions are in point 6. iii) Evaluation of the FE:

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

Grade	written exam score + bonus points
fail (1)	0 – 54.99
pass (2)	55 – 64.99
satisfactory (3)	65 – 74.99

good (4) 75 – 84.99

excellent (5) 85 –

Rules for C-chance exams:

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

-Part III. is evaluated even if Part II. is failed.

-If either Part II. or Part III. is failed an oral exam is conducted.

-Part I. of the exam must be conducted in front of the committee.

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

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

8. Rules for the usage of calculators during self-control tests and the final examination
In order to ensure a fair evaluation, to avoid disturbances in the testing room, and to protect the security of the test material the following types of calculators are NOT permitted:

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

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

9. Information for repeaters

- if all labs and the practical exam were completed and accepted during the failed semester, the student is exempted from repeating these;
- if all labs were completed and accepted during the failed semester without a valid practical exam,

the student must do it as a part of the final exam (section 7 b));
- attendance to seminars is compulsory (see point 2);
- all exemptions and bonuses obtained during the failed semester (self-control tests, exemption from minimals) are lost;
- according to the relevant rules (point 6) self-control tests may be written and exemptions may be obtained again;
- in the case of schedule collisions with 2nd year classes we ask students to choose 2nd year groups such that conflicts with the 1st year subjects can be avoided (i.e. the student is still considered to be a 1st year student!).

10. Information for Exam Course students

Points 1-6 and 9 are irrelevant. Point 8 applies fully.
Point 7 applies with the following modifications: students can only keep the exemption regarding the practical part of the exam (Part I) which was earned during the semester preceding the exam course. Bonus points and the exemption from taking part II of the exam are not valid for exam courses. These are valid for the course in which they have been achieved, i.e. if one passes part II in a given exam course it will be valid for B and C chances of that exam course.

Further information: Zsolt Fazekas, Ph.D., manager of education, Dept. of Biophysics and Cell Biology
E-mail: biophysedu@med.unideb.hu

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

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

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

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

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

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

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

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

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

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

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

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

Requirements

Aim of the course	The aim of the subject is to give an introduction to biostatistical methods, which can be used in different 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.
Short description of the course	Brief introduction to the most basic concepts of calculus (slop, fitting, area under the curve); counting techniques; descriptive statistics; algebra of events; probability; random variables; statistical distributions and their properties; binomial, Poisson and normal distributions; sampling techniques and characterization of samples; statistical test (z, t, F and chi2 tests)
Attendance	
Conditions for signing the lecture book	Signing of the lecture book is denied if there are more than 2 absences from groupwise seminars.
Self control test	Students will write a grade-offering course test between weeks 12-14. The structure of this test will be identical to that of the final exam.
Exam	Students will write a grade-offering course test between weeks 12-14. The structure of this test will be identical to that of the final exam.
Final grade	
Reading materials	Wayne W. Daniel: Biostatistics, A foundation for Analysis in the Health Sciences, John

	Wiley&Sons
Exemptions	Requests for exemptions from the biostatistics course have to be turned in to the Credit Transfer Committee. Such requests cannot be directly turned in to the Biomathematics Division or the Department of Biophysics and Cell Biology.
Information for repeaters	Credits achieved in a semester cannot be transferred to other semesters. Therefore, students repeating the course are subject to the same rules and requirements as those taking the course for the first time.
Rules for calculator	Rules for calculator usage during course tests and the final examination In order to ensure a fair evaluation, to avoid disturbances in the testing room, and to protect the security of the test material the following types of calculators are NOT permitted: - calculators with built-in computer algebra systems (capable of simplifying algebraic expressions) - pocket organizers, 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: **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: Pretest

3rd week:
Practical: Unit 1

4th week:
Practical: Unit 2

5th week:
Practical: Unit 2

6th week:
Practical: Unit 3

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

8th week:
Practical: Unit 4

9th week:
Practical: Unit 5

10th week:
Practical: Unit 5

11th week:
Practical: Revision.

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

Requirements

Requirements of the course:

Attendance

Attending language classes is compulsory. Students should not be absent from more than 10 percent of the classes. If a student is late it is considered as an absence. If a student misses more than two occasions, the final signature may be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week. Maximum one language class may be made up with another group. Students have to ask for the teacher's written permission (by e-mail) 24 hours in advance. Students can attend any class (make up or regular) only if they take their coursebook with them.

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. 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.

Course book: 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.

Subject: **MEDICAL CHEMISTRY**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: **39**
Seminar: **58**
Practical: **39**

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

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

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

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

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

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

7th week:
Lecture: Organic halogen compounds. Alcohols and phenols. Aldehydes and ketones and quinones. Ethers. Organic sulfur compounds
Seminar: Organic halogen compounds. Alcohols

and phenols. Aldehydes and ketones and quinones. Ethers. Organic sulfur compounds
Practical: Elektrometry. Electrometric pH measurement. Potentiometric titrations. Determination of buffering capacity. Spectrophotometry. Photometric determination of inorganic phosphate. Determination of acidlabile phosphate in organic compounds.

8th week:
Lecture: Nitrogen containing compound. Carboxylic acids and carboxylic acid derivatives.
Seminar: Nitrogen containing compound. Carboxylic acids and carboxylic acid derivatives.
Practical: Elektrometry. Electrometric pH measurement. Potentiometric titrations. Determination of buffering capacity. Spectrophotometry. Photometric determination of inorganic phosphate. Determination of acid labile phosphate in organic compounds.

9th week:
Lecture: Amino acids and peptide.
Proteins (Structure, function and regulation)
Seminar: Amino acids and peptides.
Proteins (Structure, function and regulation)
Practical: Redox titrations. Iodometric titrations. Titrations with potassium bromate. Enzyme kinetics. Assay of glycogen phosphorylase activity.

10th week:
Lecture: Proteins in action.
Carbohydrates.
Seminar: Proteins in action.
Carbohydrates.
Practical: Redox titrations. Iodometric titrations. Titrations with potassium bromate. Enzyme kinetics. Assay of glycogen phosphorylase activity.

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

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

13th week:
Lecture: Chromatine structure. Coordination chemistry. Function and transport of alkine earth metal cations.
Seminar: Chromatine structure. Coordination chemistry. Function and transport of alkine earth metal cations.
Practical: Analysis of inorganic salts and complexes. Complexometric titrations. Photometric determination of iron. Dent. Practical exam

14th week:
Seminar: Transition metals: iron, copper, zinc. Biological functions of the nonmetallic elements: oxygen, selenium, halogens.

15th week:
Seminar: Information on Final Exams Research opportunities for students at Dept. Medical Chemistry

Self Control Test

Requirements

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

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

*Percentage values may slightly vary depending on the actual number of questions in the tests/exams.
The final exam consists of a written exam and an oral examination. The written test is composed of multiple choice questions arranged into three modules: general chemistry; organic chemistry; bioorganic and bioinorganic chemistry. The student may get exemption from any module(s) of the final written exam in case (s)he successfully completed the control tests of the corresponding module. Results of control tests and exam modules can be carried to B or C chance exams. The student can only pass the written part of the exam if the result of all three modules is at least "pass (2)". The second part of the final exam is an oral exam covering all three modules. Only students who passed the written exam qualify to sit the oral exam.
Students who have successfully passed the exam but want to improve their mark are allowed to take one improvement exam.
In case the students take the exam in the second semester at the end of an exam course, then all three modules of the exam must be taken and results of previous control tests or exam modules cannot be considered.

Subject: **MEDICAL PSYCHOLOGY I.**
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.)

Division of Restorative Dentistry

Subject: **ODONTOLOGY**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **30**

1st week:
Lecture: Human dentitions. Nomenclature. Definitions
Practical: Labour health regulations. 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: Written test

6th week:
Lecture: The permanent maxillary incisors
Practical: Modelling of upper central and lateral permanent incisors from plasticine

7th week:
Lecture: The permanent mandibular incisors. The permanent canines
Practical: Carving of upper permanent canine from chalk

8th week:
Lecture: The maxillary and mandibular premolars
Practical: Modelling of lower permanent 2nd incisor and canine from plasticine

9th week:
Lecture: The permanent maxillary molars
Practical: Modelling of upper 1st premolar from plasticine

10th week:
Lecture: The permanent mandibular molars
Practical: Carving of lower 1st premolar from chalk

11th week:
Lecture: The deciduous teeth
Practical: Carving of upper permanent 1st molar's crown from wax

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

13th week:
Lecture: The dentin
Practical: The written test

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

15th 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 2 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.
During the semester, in accordance with the course requirements there are 2 written tests. Any missed tests result in a fail (1) grade.
The results of the 2 written tests and 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.

Requirements for taking the subject:---

Department of Basic Medical Sciences

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

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

2nd week:
Lecture: 3.ABC transporters and related diseases
4. Ion channels, membrane potential.
Seminar: Material related to lectures 1-2.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

3rd week:
Lecture: 5. Calcium homeostasis
6.Osmo-, volume and pH regulation
Seminar: Material related to lectures 3-4.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

4th week:
Lecture: 7. Cellular organelles. Trafficking between cellular organelles, overview.
8.Intracellular membrane systems I: lysosome, peroxisome, endoplasmic reticulum.
Seminar: Material related to lectures 5-6.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

5th week:
Lecture: 9. Intracellular membrane systems II: The Golgi complex, endo- and exocytosis, protein sorting.
10.The nuclear envelope. Transport through the nuclear pores
Seminar: Material related to lectures 7-8.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

6th week:
Lecture: 11. The nucleus
12.Structure of chromtatin
Seminar: Material related to lectures 9-10.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).
Self Control Test

7th week:
Lecture: 13. Cytoskeleton I: microtubules.
14. Cytoskeleton II: intermedier filaments, actin cytoskeleton.
Seminar: Material related to lectures 11-12.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

8th week:
Lecture: 15. Cell energetics/mitochondrion.
16.Cell-cell contacts, cell-extracellular matrix contacts.
Seminar: Material related to lectures 13-14.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

9th week:
Lecture: 17. Cell signaling I. General concepts. Nuclear receptors. G-protein coupled receptors.
18.Cell signaling II. Receptor tyrosine kinases. The Ras/MAPK, PI3K/Akt and PLC/CaMK pathways.
Seminar: Material related to lectures 15-16.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

10th week:
Lecture: 19. Cell signaling III. Pathways to the nucleus. Oncogenes in signaling.
20. Cell signaling IV. Cell-cell communication in the nervous and immune systems.
Seminar: Material related to lectures 17-18.
Practical: See schedule on the web page (spare labs).

11th week:
Lecture: 21. Mitosis, meiosis. Experimental systems for studying the cell cycle.

22.Mechanics of mitotic cell division
Seminar: Material related to lectures 19-20.
Practical: See schedule on the web page (spare labs).
Self Control Test

12th week:
Lecture: 23. Regulation of the mitotic cell division.
24. Cell fates I: Overview / differentiation.
Seminar: Material related to lectures 21-22.
Practical: See schedule on the web page (labs 1 through 4 in small groups, rotary system).

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

14th week:
Lecture: 27. Cell fates IV: Tumor cell biology.
28.Cells in broader context: Interactions with drugs, viruses and bacteria.
Seminar: Material related to lectures 25-26.
Self Control Test

15th week:
Lecture: 29. Cellular motility.

30. Main features of the prokaryotic and eukaryotic cells: an overview.
Seminar: Material related to lectures 27-28.

Requirements

Lectures:

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

Books to be studied:

4th ed. of Essential Cell Biology (Alberts et al.,Garland Publ Inc. 2014. ISBN: 978-0-8153-4454-4) is the course book recommended as a foundation. It is concise, easy to read and the thorough

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

Seminars:

In the seminars, students should ask their questions related to the topic of the lectures discussed (see final timetable of lectures and seminars that will be announced in the 1st week of the semester). In addition to controlling presence in lectures, the students will be asked a few keywords relevant to the lectures discussed at the seminars, from those published on our website, on a regular basis. The average total percentage performance on these brief tests must be above 60 %, below this the students lose their 5 lecture bonus points.

Every student (two in each group in every seminar) will give a short presentation on the topic of one of the lectures discussed in the seminar. The topics will be distributed in the first seminar. The talks are graded on a scale of 0-3. The presentation has to be a free talk, not a reading. The duration of a presentation should not exceed 15 minutes. You have to read the relevant background information from your textbook and make the topic understandable to your fellow students. You should use the lecture material available at the cell biology website to make your presentation easy to follow. You are expected to be ready to present at least 10 slides of the lecture, from those that contain figures/pictures, rather than just explanatory text. Only exceptionally good presentations that clearly present good summaries of the lectures are awarded with 3 points. It is the professor / tutor in the seminar who alone decides the number of bonus points awarded, based on his/her own judgment. The material covered in the presentations is fully part of the SCT-s and the Final Exam. Including extra material obtained through the student's own research in textbooks or the internet will be appreciated, but will not substitute for a clear and detailed knowledge of the lecture/textbook material.

Labs:

Completing all labs, and writing up the results and their interpretation in a lab log book on the spot is required. You must prepare for the lab before the lab starts. The compulsory preparation for the lab includes the writing of an introduction to your lab logbook BEFORE THE LAB that outlines the problem you will address in the lab and the methods and approaches that are used to answer the question. ONLY HANDWRITTEN, BOUND LAB LOG BOOKS ARE ACCEPTABLE! The student's preparation and their work at lab will be graded by the teachers giving 0-3 bonus points. If a student's preparation is considered unacceptable by the tutor (e.g. the handwritten introduction is missing in the lab logbook, etc.), he/she gets 0 point. The average value of the lab bonus points is added to the exam points at the end of the semester. After completing the lab, the lab tutor should sign on the cover of the log book certifying your presence and sign separately for the acceptance of your work. You are eligible for this second signature only if you know what and why you did during the lab and what the result was. You should obtain these two signatures and the grade at the end of the lab and no later. Lack of the second signature means, that the lab is not accepted and it has to be repeated. Maximum one practice can be missed with medical or official excuses (or repeated because lack of second signature), and it must be made up for in the spare practical.

Reading source for the lab:

A Cell Biology lab manual written by the members of the department is available on the web site.

Lab schedule:

Small groups (subgroups) consist of 3-7 people for doing the various labs in a rotary system are formed in the first seminar. The rotary system is published on the web page and shown on the lab door. If you missed the first seminar you will be put into a subgroup where you fit and you should check your assignment with your fellow students.

YOU ARE NOT ALLOWED TO CHANGE SUBGROUPS!

Self-control Tests (SCT-s):

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

Conversion of SCT points into bonus points for Final Exam:

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

Grade offering based on SCT results:

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

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

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

The conditions for signing the lecture book are the following:

(1) presence at, and acceptance of all the labs.

(2) presence at the seminars.

Rules concerning repeaters:

Attendance of labs is not compulsory if you had all the four labs accepted last year and your lecture book was signed. Please note, however, that questions on the lab will be part of the SCT-s and the Final Exam.

Attendance of seminars is compulsory.

Final Exam: The exam is a written test of two parts (A and B).

Part A:

Part A of the written test is a set of 10 questions addressing the basic concepts listed among the key-words published in our website. These questions will include 5 brief descriptions of basic concepts, and 5 questions of yes/no type. The descriptions should contain 2 valuable and relevant facts/statements on the subject asked, for maximal score (2 points each; partial points may be considered). The A test has to be completed in 10 minutes. You will need to collect at least 14 points to pass the A test. Those earning below 14 points in part A fail the entire exam without regard to their score on part B, what will not be corrected and scored in this case. The score of a passed A test will be added to the score of part B, thus yielding 14-20% of the total exam points.

Part B:

Part B is a complex test, including two short essays (2x10=20%), fill-in, short answer, multiple choice, relation analysis, sketch/picture-recognition as well as simple choice and yes/no questions (50%). It contains material from the textbook, lectures and seminars. The lab questions are a section of the part B exam (to approximately 10% of the total test points).

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

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

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

Your grade on the Final Exam:

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

Repeated exams:

On repeated exams during the exam period of the 2nd semester, points earned from SCT-s, lecture attendance, lab points during the current semester and from short presentations are valid throughout. However, all bonuses and merits expire by next spring exam period except for Cell Biology lab points and bonus points for short presentations. Note that all parts have to be repeated on repeated exams, that is, cell biology written part B (including the lab questions), and cell biology written part A with less than 14 points.

The test/exam grade earned should reflect the true knowledge of the student. Therefore, if there are doubts whether the result of the written tests (SCTs, A, B, exam) really reflect the true knowledge of the student, the teachers/professors may also ask oral questions so as to be able to give a grade they deem justified.

The C chance exam always starts with a written part (similarly to A and B chance exams) and if the student fails on the written part, it is followed by an oral exam in front of a committee. The committee summarizes the results of both parts and decides the grade, not necessarily averaging them.

Exemptions:

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

Further Information:

* Study advisor from Cell Biology: Zsolt Fazekas Ph.D. (cellbioedu@med.unideb.hu)

* Info regarding tests, seminars, lectures is posted on the lab door ("Biophysics lab", ground floor, Theoretical Building), the department bulletin board and http://biophys.med.unideb.hu.

User names and passwords will be given out at the first cell biology seminar during the first week of the semester.

* We offer to keep an e-mail contact with the students whenever possible. This is smooth, fast and effective. Please write to cellbioedu@med.unideb.hu.

* Personal consultation with the study advisor: office hours are posted on the web site and the bulletin board of the Department. For appointments outside office hours please write an email.

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

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

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

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

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

4th week:
Lecture: Reanimation on the spot – organization

problems; the theory of CPR; complications during the CPR; effect, results and success during CPR

5th week:
Lecture: Burning; first aid in burning diseases; shock.

6th week:
Practical: AVPU, ABCDE approachment.

7th week:
Practical: Recognition of unconsciousness, recovery position, airway management.

8th week:
Practical: Practticing the ventilation.

9th week:
Practical: Complex CPR training, usage of AED.

10th week:
Practical: Practical exam.

11th week:
Practical: Types of bleeding, bleeding control, hypovolaemic shock, Trendelenburg position.

12th week:
Practical: Distortions and extended soft-tissue injuries, bandage for fixation with special triangle, stifneck, dessault bandage, fixation of finger and hand fractures, usage of siplint.

13th week:
Practical: Basic trauma care

14th week:
Practical: Consultation, written test.
Self Control Test

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

Requirements

Condition of signing the Lecture book:

Attendance at practices is compulsory. The tutor may refuse to sign the Lecture book if the student is absent from the 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: **HUNGARIAN LANGUAGE I/2.**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Practical: **30**

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

2nd week:
Practical: Pretest

3rd week:
Practical: Unit 6

4th week:
Practical: Unit 6

5th week:
Practical: Unit 7

6th week:
Practical: Unit 7

7th week:
Practical: Unit 8

8th week:
Practical: Revision. Mid-term test

9th week:
Practical: Unit 9

10th week:
Practical: Unit 10

11th week:
Practical: Unit 10

12th week:
Practical: Unit 11

13th week:
Practical: Unit 11

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

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

Requirements

Requirements of the course:

Attendance

Attending language classes is compulsory. Students should not be absent from more than 10 percent of the classes. If a student is late it is considered as an absence. If a student misses more than two occasions, the final signature may be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week. Maximum one language class may be made up with another group. Students have to ask for the teacher's written permission (by e-mail) 24 hours in advance. Students can attend any class (make up or regular) only if they take their coursebook with them.

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. 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.
Course book: 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.

Division of Dental Anatomy

Subject: **ORAL ANATOMY, HISTOLOGY AND EMBRYOLOGY I.**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **25**
Practical: **60**

1st week:
Lecture: General introduction. Epithelial tissue: covering and lining epithelia.
Practical: Anatomy: Anatomical terminology. Anatomical terminology. Commonly used anatomical terms (e.g. bone, joint, muscle, different blood vessels, nerves, parts of the human body). Terms of positions and directions. Schematic drawings of the planes and directions. Bones and joints of the upper limb. Bones of the upper limb. Make schematic drawings of the major bones (scapula, humerus, ulna, radius): show the characteristic features! Parts of the wrist and hand. Major joints (shoulder, elbow, wrist). Articular surfaces, capsules, ligaments, bursal cavities of the joints. Classification of the synovial joints according to the shape of articular surface. Freedom, axes and planes of movements at synovial joints. Correlation between the shape of the articular surface and the freedom of movements. Function of individual joints: their contribution to the action of the upper limb.
Histology: Introduction to histological methods. The microscope and the resolution. Using the virtual microscope: Case Center and Panoramic Viewer. The evaluation and interpretation of histological sections. Always keep in mind: What you can see in the microscope is a thin (almost 2-dimensional) section of a 3-dimensional object. 1. Small intestine (HE)

2nd week:
Lecture: Osteology and arthrology - introduction The muscular system - general introduction. Innervation of the muscles
Practical: Anatomy: Muscles, vessels and nerves of the upper limb: parts one. Surface anatomy of the upper limb. Superficial veins and major cutaneous nerves. Places of the intravenous injections (drawings!). Lymph nodes and lymphatic drainage of the upper limb. Places to palpate the pulse rate on the upper limb. Major muscle groups. Identify deltoid muscle, and the long muscles (with special attention to the biceps brachii, triceps brachii, flexor and extensor digitorum muscles, locations, function, innervation). Muscles, tendons and synovial sheats in the hand (drawings on the synovial sheaths!).
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
Practical: Anatomy: Muscles, vessels and nerves of the upper limb: part two. Axillary fossa, medial and lateral bicipital sulci, cubital fossa, palmar region, carpal tunnel. Major arteries, veins and nerves. Identify axillary, brachial, radial, ulnar arteries, superficial and deep palmar arches. Organization of the brachial plexus (drawing!). Identify radial, median, ulnar nerves!
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
Practical: Anatomy: Bones and joints of the lower limb. Similarly to the upper limb, make drawings on the major bones of the lower limb (hip bone, femur, tibia, fibula). Structure and biomechanics of the pelvis. Bones and compartments of the foot. Structure and function of the hip joint, knee joint, ankle joints.
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
Practical: Anatomy: Muscles, vessels and nerves of the lower limb: part one Surface anatomy of the lower limb. Superficial veins and major cutaneous nerves. Lymph nodes and lymphatic drainage of the lower limb. Places to palpate the pulse rate on the lower limb. Major muscle groups. Identify gluteus maximus, medius, and the long muscles (with special attention to the quadratus femoris, adductor magnus, triceps surae, location, function, innervation). Places for the intramuscular injections (drawing!).
Histology: Cells of the connective tissue: l. Mesenchyme (umbilical cord, HE stain) 2. Fibroblasts (granular tissue, HE stain) 3. Mast cells (healing wound from rat skin, Toluidin blue stain) 4. Macrophages (Skin, Trypan blue - nuclear fast red stain) Demonstration: l. Plasma cells (lymph node, HE stain) 2. Fibroblasts (tissue culture, H stain)

6th week:
Lecture: Histology of bone. Development and growth of the bone
Practical: Anatomy: Muscles, vessels and nerves of the lower limb: part two. Hiatus subinguinalis. Femoral and adductor canal, popliteal fossa. Major arteries, veins and nerve. Identify femoral, popliteal, tibial arteries. Lumbar and sciatic plexus. Find femoral, sciatic, tibial, peroneal nerves.
Histology: Fibers of the connective tissue: 1. Collagen fibers (large intestine, HE stain) 2. Collagen fibers (large intestine, Azan stain) 3. Elastic fibers (aorta, orcein stain) 4. Reticular fibers (liver, silver impregnation) 5. Collagen and elastic fibers (spermatic cord, Van Gieson and Resorcin- fuchsin) Make distinction between collagen and elastic fibers! Fine structure of collagen fibers.

7th week:
Lecture: Muscular tissue - part one Muscular tissue - part two
Practical: Anatomy: SELF CONTROL (Anatomy of upper and lower limb)
Histology: Consultation - Basic histological methods. Epithelial and connective tissues.

8th week:
Lecture: Spermiogenesis. Oogenesis. Structure of the foot.
Practical: Anatomy: Parts of the skull: the braincase and the facial skeleton. The bones of the braincase - overview. Main parts of the bones of the braincase. Parts of the braincase: the vault (calvaria) and the cranial base. The structure of the braincase. Vault of the skull (calvaria), sutures, fonticuli (drawings!)
Histology: SELF CONTROL (Basic histological methods. Epithelial and connective tissue)

9th week:
Lecture: Fertilization, beginning of the pregnancy. Clinical aspects - lower limb anatomy.
Practical: Anatomy: The skull: part two. Recapitulation of isolated bones: frontal, temporal, parietal, occipital, sphenoid bones. Superior view of the cranial base. Subdivisions of the internal cranial base: anterior, middle and posterior cranial fossae. Parts and foraminae of the fossae. Make drawings of the fossae.
Histology: The 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
Practical: Anatomy: The skull: part three. Inferior aspect of the skull. External cranial base.
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
Practical: Anatomy: The skull: part four. Bones of the facial skeleton including the mandible - overview Individual bones: shape, main parts. The structure of the facial skeleton.The orbit, nasal cavity, and paranasal sinuses. Facies malaris.
Histology: Muscle tissue l. Striated muscle (HE stain). 2. Striated muscle (iron-H stain). 3. The smooth muscle (large intestine) HE stain. 4. The cardiac muscle (HE stain) 5. The cardiac muscle (PTAH) Demonstration: Electron micrographs of longitudinal sections of striated muscle.

12th week:
Lecture: The differentiation of the entoderm, the folding of the embryo. Bone marrow
Practical: Anatomy: The skull**:** Part five. The pterygopalatine fossa, temporal fossa, infratemporal fossa. The temporomandibular joint, atlantooccipital and atlantoaxial joints.
Histology: The microscopic structure of blood vessels. l. 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)
Practical: Anatomy: The skull: part six.
Histology: Blood. Bone marrow. 1. Sinusoids

(Hypophysis, HE stain) 2. Bone marrow (HE stain) 3. Peripheral blood smear (May-Grünwald-Giemsa stain) 4. Demonstration: Bone marrow smear (May-Grünwald-Giemsa stain) video

14th week:
Lecture: Development of the skull and the vertebral column Overview of general embryology
Practical: Anatomy: The skull - Consultation
Histology: SELF CONTROL (Adipose tissue, cartilage, bone, development and growth of the bone, muscular tissue. The histology of blood vessels, blood and bone marrow.)

15th week:
Practical: Anatomy: SELF CONTROL: Bones and joints of the skull.
Histology:-
SELF CONTROL: Embryonic development.

Requirements

Requirements
Anatomy, histology and embryology
1year, 2semester
Concerning attendance, the rules written in the Regulations Governing Admission, Education and Examinations of the University are valid. The attendance on the seminars and practices and at least 30% of the lectures is compulsory. The presence in practices and seminars will be recorded. The head of the department may refuse to accept the academic performance if a student is absent more than twice from practices and seminars (including anatomy, histology and embryology) in one semester even if he/she has an acceptable reason. Compensation of practices and seminars is possible only on the same week at another student's group. This compensation is not possible for those practices and seminars when the dental program is different from that of the general medicine. The compensation of three practices and/or seminars is allowed (including anatomy, histology and embryology) in one semester.

Evaluation of the midterm examinations:
The midterm exams will be evaluated with points. At the end of the semester the overall academic performance (OAP) of the students will be evaluated with a five grade mark calculated from the points obtained during the semester. The OAP mark will be calculated on the basis of the following rules:
The performance of the students on the midterm examinations from anatomy, histology and embryology will be evaluated separately on each self control. To obtain the pass or better OAP mark the student has to collect at least 60% of the total score from the two anatomy (a1-a2), the two histology (h1-h2) and from the embryology (e1) self controls separately (6 points out of 10 points separately). If the student does not reach the 60% limit from all parts the OAP mark is fail (1).If the midterm performance of the student is at least 60% from all parts, the results of the midterm examinations will be converted into marks in the following ways:
6 points = 2 (pass)
7 points = 3 (satisfactory)
8 points = 4 (good)
9-10 points = 5 (excellent)
For the three subjects (anatomy, histology and embryology) separate average marks will be calculated on the basis of the following scale:
anatomy = (a1+a2)/2
histology = (h1+h2)/2
embryology = e1.
The final OAP mark is calculated as the average of the anatomy, histology and embryology parts

(rounded up from x.5 to the nearest integer)
OAP mark = (anatomy+ histology+ embryology)/3.

End semester examination:

The final examination consists of oral (anatomy) and written (histology, embryology) parts. The exams cover the topics of the lectures, seminars, and practices of the semester and include the relevant material from official textbooks. Those student who have got a pass (2) or better OAP mark may ask the department to accept it as a mark for the end semester exam. Those students who have got a fail (1) OAP mark have to sit for the end-semester exam, but the student will be examined only from those parts from which he/she did not reach the 60% limit on the midterm examinations. The first exam is an "A" chance exam.

The end-semester oral examination consists of the following parts:
Oral part
Anatomy (two marks) 2 preparations:
a. upper limb and lower limb
b. skull

Written part
Embryology (One mark)
Histology (two marks):
a: microtechnic, epithelial tissue, connective tissue
b: adipose tissue, cartilage, bone, bone formation muscle tissue, blood vessels, red bone marrow, blood

The obtained points of the oral and written parts will be converted into marks similarly to the evaluation of the mid semester examinations (see above). If the student, on the basis of his/her performance on the midterm examinations, earn an exemption (collecting at least 60% of the total score) from one or more parts of the end-semester exam, the results of the midterm examinations will be converted into marks. Conversion of the OAP mark is the same as the calculation of the OAP mark on the midterm exams (see above).

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 OAP mark in this case will be calculated from the new marks. The previous OAP mark will be discarded.

Registration and postponement: Through the NEPTUN system.

Division of Dental Biochemistry

Subject: **MOLECULAR BIOLOGY**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **42**
Seminar: **14**
Practical: **10**

1st week:

Lecture: Molecular dimensions of life in space and time. Energies governing molecular interactions. Covalent and non-covalent molecular interactions. The importance of water. The molecular organization of the cells. Origin of eukaryotic cells. Cellular compartmentalization. Organization and

hierarchy of biological structures. Proteins. Structure and function of proteins. Structural organization of proteins. Protein folding. Techniques for studying proteins structures. Protein evolution.

2nd week:
Lecture: Enzymology. Characterization and classification of enzymes. General features of enzyme action: enzyme specificity, the active site. The transition state theory. Examples of catalytic action: ribonuclease-A, lysozyme, and carboxypeptidase-A. Enzyme kinetics: the Michealis-Menten and Briggs-Haldane kinetics. Definition and determination of KM and vmax. Multisubstrate reactions. Enzyme inhibition: irreversible and reversible inhibition of enzymes. Competitive, non-competitive and uncompetitive inhibition. Regulation of the enzymes by allostery. Medical significance of enzymes. Isoenzymes. DNA and the genome

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

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

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

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

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

8th week:
Lecture: Transcription in eukaryotes. Transcription of mRNAs. Stages of eukaryotic transcription. Formation of caps (capping). Excision of introns (splicing), snRNAs and the splicosome. The polyadenylation. Alternative

splicing. Export of mRNA. Quality control of mRNA. Transcription and posttranscriptional modifications and transport of rRNA and tRNA.
Practical: Protein blotting and immunological identification by specific antibodies.
Self Control Test

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

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

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

12th week:
Lecture: Protein fates. Synthesis and degradation of cytoplasmic and nuclear proteins. Cytoplasmic, nuclear and membrane targeting. The signal recognition particle. Transition of polypeptide chain through the membrane. Posttranslational modifications of the proteins: ubiqutination and the proteasome system. Proteases.
Practical: Studies on phosphatases

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

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

Requirements

Requirements for signing the semester: attendance in laboratory practices and seminars. Required knowledge from Molecular Biology: topics of molecular biology presented at the lectures (slides are available at the elearning site of the Department https://elearning.med.unideb.hu) and topics discussed in the seminars.

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

points) are also erased. Please arrive in time for the lectures, because the door of the lecture hall will be closed at the beginning of the lectures. Repeaters can collect bonus points without visiting the lectures.

On the **seminars**, lectures of the previous week can 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 the seminar teachers). The seminar bonus 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. Students can't make up a seminar with another group. Seminars are not obligatory for repeaters if they previously attended them. Only those students can collect seminar bonus points, who don't miss more than three seminars (regarding repeaters, too).

Every **laboratory practices** must be performed, if someone is absent due to any serious reason, the missing experiment have to be performed within the three weeks practical period joining to another group (after obtaining permission from the practical teacher of the other group). Period of the practices: "Western-blot" on week 8-10, "Study of phosphatases" on week 11-13. Students have to be prepared for the practices. Please check our homepage to get more information and the schedule of the practices (http://bmbi.med.unideb.hu/Education/Molecular Biology)! For obtaining the signature students need to attend the two practices, submit the laboratory books in the required format. Practices are not obligatory for repeaters if they previously attended them.

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

Offered grades: at the end of the semester, on the basis of the collected points, grade will be offered. During the semester 100 (+10) points can be collected by the two control tests of the material of the lectures (50+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 beginning of the exam period. If someone accept the grade, it will be registered in the Neptun and the grade can be improved once during the exam period. If one declines the offered grade one must take 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 composed of 40 single choice test questions (one correct answer must be marked among five possible answers, each good answer is 1.25 points). By the test maximum 50 points can be collected. 60% (30 points) is needed to get a passing mark, and the grade increases with every 5 points (30-34.5 pass, 35-39.5 satisfactory, 40-44.5 good, 45-50 excellent).

If a student fails the "C" 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 for a fee in the form of a semester exam. Both the offered grade and the exam grade can be improved. The policy of the institute is that one may not worsen the already achieved grade.

Exemption from the written part of the final "Biochemistry and molecular biology" exam: Those students who collect at least 210 points during the three semesters taught by the Department of Biochemistry and Molecular Biology and have more than 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 having to write a written part of the biochemistry and molecular biology final exam. Minimum questions of the Biochemistry final exam will also contain basic questions of Molecular Biology.

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

Division of Pediatric Dentistry and Orthodontics

Subject: **PREVENTIVE DENTISTRY I.**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Seminar: **15**

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: Caries: clinical signs and symptoms, diagnostic methods.

4th week:
Seminar: The disease of the periodontium, diagnosis and treatment.

5th week:
Seminar: 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: The caries risk and assessment.

15th week:
Seminar: Written test.

Requirements

Requirements

Conditions of signing the lecture book:
- Active participation on the seminars
- With Acceptable written certificate students may miss 2 seminars

Assessment:
- 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%
- 5 grade (AW5) practical mark will be offered according to the average of the result of the SCTs.
- If the average of the SCTs is under 60% the student must take an end semester (oral) exam.
- Students are not obliged to accept the grade offered and may opt for taking an oral examination.

Calculation of the offered grade:

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 Basic Medical Sciences

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

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: 13. fejezet: Preparing for the oral exam, end term test

15th week:
Practical: Oral exam

Requirements

Requirements of the course:

Attendance

Attending language classes is compulsory. Students should not be absent from more than 10 percent of the classes. If a student is late it is considered as an absence. If a student misses more than two occasions, the final signature may be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week. Maximum one language class may be made up with another group. Students have to ask for the teacher's written permission (by e-mail) 24 hours in advance. Students can attend any class (make up or regular) only if they take their coursebook with them.

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. 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.

Course book: 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.

Division of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS I.: DENTAL MATERIALS**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **15**

Practical: **30**

1st week:

Lecture: Classification of dental materials.

Practical: About the practice lessons in general. The instruments used during the practice.

2nd week:

Lecture: Plasters used in dentistry. Thermoplastic materials.

Practical: The trial of plasters and waxes used by dental technicians.

3rd week:

Lecture: Basics about metals.

Practical: The presentation of casting of metals I.

4th week:
Lecture: Metals used in dentistry.
Practical: The presentation of casting metals II.

5th week:
Lecture: Methods for evaluating dental materials.
Practical: Mechanical testing of dental polymers I.

6th week:
Lecture: Polymers.
Practical: Practical and theoretical test I. Mechanical testing of dental polymers II.

7th week:
Lecture: Plastics used in dentistry.
Practical: Fabrication of denture base from polymers.

8th week:
Lecture: Dental filling materials.
Practical: The trial of dental filling materials.

9th week:
Lecture: Dental cements.
Practical: The trial of dental cements.

10th week:
Lecture: Adhesion in dentistry.
Practical: Practical and theoretical test II. The trial of dental adhesives.

11th week:
Lecture: Impression materials.
Practical: The trial of impression materials.

12th week:
Lecture: Basics about ceramics.
Practical: Application of ceramics in practice.

13th week:
Lecture: Ceramics and tooth colour in dentistry.
Practical: The presentation of technical phasis of a ceramic fused to metal crown.

14th week:
Lecture: Secondary materials in prosthetics.
Practical: Practical and theoretical test III. Introduction of secondary materials used in prosthetics.

15th week:
Lecture: Biocompatibility, corrosion.
Practical: Remedial.

Requirements

Conditions of signature in the lecture book:

The ratio of missed practices cannot exceed 3 practices, even if it is certificated. All the missed practices must be certificated. There is no possibility to compensate any missed practices. Being late for a practice means a missed practice. Missed practice means 'not-accepted' practice automatically, and failed mark of the official self-control test and practical self-control tests. During the practice wearing of labcoats is necessary.

Conditions of signature at Phantom Laboratory Practice:
Practical self-control tests will be held before each practice. The aim of the practical self-control tests is to evaluate the students' basic knowledge of the actual weekly topic. The evaluation of the practical self-control tests could be ACCEPTED or UNACCEPTED. The missed practice means UNACCEPTED practical self-control test. If the amount of the UNACCEPTED practical self-control tests reach or exceed 3 automatically means refusal to sign.
Conditions of offered mark:
At least 3 written or oral self-control tests will be held during the semester, according to the time-table at a predefined time and place. The result of a missed self-control is 'fail'. The result of the

worst self-control can be improved as a remedial during the 15th week of the semester. Oral or written tests during the semester will be registered as practices. One opportunity will be provided for checking each test results at a predefined time and place.
If the final result of the self-controls reaches the minimum average of 3,51, (3,51-4,5 good; 4,51-5 excellent), and none of the test results are "fail", the average result will be offered as the grade of the ESE. Students are not obliged to accept the grade offered and may opt for taking an examination.

Division of Dental Anatomy

Subject: **ORAL ANATOMY, HISTOLOGY AND EMBRYOLOGY II.**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **20**
Seminar: **60**
Practical: **60**

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

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

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: See: practical
Practical: Anatomy: Topographical anatomy of the head and the neck: V-VI. a. Head: Infratemporal fossa. At the side of the removed parotid gland dissect the alveolar nerve and artery from the mandibular canal and remove that half of the mandible. Cut out the masseter, the external and internal pterygoid muscles by careful preparation of the structures between the two pterygoid muscles. Preparation of the inferior alveolar nerve, lingual nerve, chorda tympani, maxillary artery, auriculotemporal nerve, middle meningeal artery, stylohyoid, styloglossus, stylopharyngeus muscles, glossopharyngeal nerve. Remove the lateral plate of the pterygoid process of the sphenoid bone. Find the muscles of the soft palate. 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.
Histology: Palate l. 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

4th week:
Lecture: Lymphatic tissue-part three. The skin. The hypothalamo-hypophyseal system. Hypophysis and epiphysis.
Seminar: See: practical
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.
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

5th week:
Lecture: Thyroid, parathyroid and suprarenal glands. The APUD system Heart - part one. Heart - part two.
Seminar: See: practical
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.
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

6th week:
Lecture: Heart - part three Development of the heart - part one Development of the heart - part two Trachea and lungs
Seminar: See: practical
Practical: Anatomy: a. CONSULTATION: Topographical anatomy of the head and neck. Oral and nasal cavities, pharynx, larynx. b. SELF CONTROL: Topographical anatomy of the head and neck. Oral and nasal cavities, pharynx, larynx.
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

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: See: practical
Practical: Anatomy: Thoracic wall. Thoracic cavity I. a. Bones, joints and muscles of the thorax. 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. These drawings are to be transmitted into the body scheme provided in your anatomy schedule handout. Carefully relate the projections to the position of the sternum and ribs in the schematic drawing! Presentation of radiographs.
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)

8th week:
Lecture: Digestive system - introduction. Development of the primitive gut Stomach Small intestines Large intestine
Seminar: See: practical
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 silhoutte. 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).
Histology: SELF CONTROL: Histology of lip, tongue, salivary glands, palate, lymphatic tissues, skin, endocrine system. Structure and development of teeth and their supporting

tissues.

9th week:
Lecture: Histology of the stomach and the intetines Pancreas. Liver - part one Liver - part two. Portal system Peritoneum. Bursa omentalis
Seminar: See: practical
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. These drawings should be introduced in the body scheme in your anatomy schedule handout. 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.
Histology: Respiratory system l. Larynx (HE stain) 2. Trachea (HE stain) 3. Lung (HE stain) 4. Demonstration: Lung, the vascular system filled with drawing ink (HE stain)

10th week:
Lecture: Development of the peritoneum and intestines Separation of the body cavities Retroperitoneum Gross anatomy of the kidneys
Seminar: See: seminar
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.
Histology: Digestive system - part one l. 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)

11th week:
Lecture: Structure of the kidneys and urinary system Development of the urinary system Topographical anatomy of the wall of the pelvis and perineal region Male genital organs: testis and epidydimis
Seminar: See: practical
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.
Histology: Digestive system - part two l. 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)

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: See: practical
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.
Histology: Urogenital system- part one l. 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)

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: See: practical
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. 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.
Histology: The urogenital system - part two l. Testis and epididymis (HE stain) 2. Ovary (HE stain) 3. Demonstration: Prostate (Goldner's stain), ovary with corpus luteum (HE stain)

14th week:
Lecture: Placenta - part two. Fetal circulation Development of the blood vessels Development of the genital organs. Subdivision of the cloaca Sexual differentiation. Sexual anomalies of genetic and hormonal origin
Seminar: See: practical
Practical: Anatomy: a. True pelvis and perineal region V. **b.** Consultation: Thoracic cavity, abdominal cavity, pelvis and perineal region
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

15th week:
Lecture: No lecture.
Seminar: See: practical
Practical: Anatomy: a. SELF CONTROL: Thoracic cavity, abdominal cavity, pelvis and perineal region. **b.** -
Histology: SELF CONTROL: Respiratory system, digestive system, urogenital system

Requirements

Concerning attendance, the rules written in the Regulations Governing Admission, Education and Examinations of the Faculty of Medicine, University of Debrecen are valid. The presence in practices, seminars and lectures will be recorded. The head of the department may refuse to accept the academic performance if a student is absent more than four times from practices and seminars (including anatomy, histology and embryology) in one semester even if he/she has an acceptable reason. Compensation of practices and seminars is possible only on the same week at an other student's group. This compensation is not possible for those practices and seminars when the dental program is different from that of the general medicine. The compensation of three practices and/or seminars is allowed (including anatomy, histology and embryology) in one semester. The program of the lectures, seminars and practices are written in the English Program Bulletin.

Rules of the examinations:

Midterm examinations:

Attendance in the midterm examinations (dates and topics are indicated in the English program Bulletin) is compulsory. The exams cover the topics of lectures, seminars and practices of the semester, and include relevant material from official textbooks. Two anatomy and two histology midterm examinations will be organized with the following topics:
Anatomy 1: Gross and topographic anatomy of the head and neck.
Anatomy 2: Gross and topographic anatomy including visceral relations of the organs of the thorax., abdomen, pelvis and perineum.
Histology 1: Histology of the lip, tongue, salivary glands, palate, lymphatic tissue, skin, endocrine system. Structure and development of teeth and their supporting tissues.

Histology 2: Histology of the respiratory, digestive and the urogenital systems.
Evaluation of the midterm examinations: Midterm examinations will be evaluated with points. The midterm examination is successful in case of 60% or better performance. In case of successful midterm examinations the student will be exempted from the corresponding parts of the final practical examination.
Conversion of the successful midterm examination to grades for the end-semester final exam:
The achievements on successful midterm examinations are converted to grades for the end-semester final exam on the basis of the following scheme of conversion: 60-69 % 2 (pass) 70-79 % 3 (satisfactory) 80-89 % 4 (good) 90-100 % 5 (excellent)

Final examination at the end of the 1st semester:

The final examination consists of a practical and a theoretical parts. The examination begins with the practical part. Students can sit for the theoretical part only after passing all parts of the practical examination.
Practical examination:

The exam is an oral examination conducted with the continuous aid of anatomical and histological preparations.
The exam consists of the following parts:
Anatomy(2 topics from different regions of the human body)
a1. Head and neck: (gross and topographic anatomy including visceral relations)

a2. Visceral organs 1: (gross and topographic anatomy including visceral and skeletal relations of the organs of the thorax, abdomen, pelvis and perineum)

Histology (2 slides)

h1. Histology 1: Histology of the lip, tongue, salivary glands, palate, lymphatic tissue, skin, endocrine organs. Structure and development of teeth and their supporting tissues

h2. Histology 2: Histology of respiratory, digestive and urogenital system.
The parts of the exam will be evaluated separately from each other with a five grade mark. The exam is successful if the student pass all six parts successfully. On the "B" and "C" examinations the student will be exempted from the parts that have been successfully passed previously.

Theoretical examination

The exam is an oral examination. The topics of the examination are formulated in a way that students should present a synthetic knowledge from anatomy, histology and embryology. The final mark of the theoretical exam (t1) will be calculated as the average of the anatomy, histology and embryology parts (recorded separately on the examination sheet). The entire theoretical examination will be failed if the student got fail (1) from any parts of the theoretical examination. On the "B" and "C" examinations the entire theoretical examination has to be repeated.

Calculation of the mark for the final examination

The mark of the final examination will be calculated on the base of the following rules:
anatomy practical = (a1 + a2) / 2

histology practical = (h1 + h2) / 2
theoretical = t1
The final mark is calculated as the average of the anatomy, histology and theoretical parts (rounded up from x.5 to the nearest integer)
Final mark = (anatomy practical + histology practical + theoretical) / 3

Registration for the examination:

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

Division of Dental Biochemistry

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

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

2nd week:
Lecture: Introduction. Main pathways of the carbohydrate metabolism, central role of glucose. Absorption and transport of monosaccharides. Carbohydrate metabolism in various tissues. Glycolytic pathway. Rapoport-Luebering shunt. Energy production of the glycolytic pathway. Non-physiological inhibitors of the glycolytic pathway. Shuttle pathways. Cori cycle. Glucose-alanine cycle. Gluconeogenesis. Substrates of the gluconeogenesis.
Practical: Studies on the coupling of mitochondrial electron transport by proton motive force to ATP synthesis.

3rd week:
Lecture: Regulation of the glycolytic pathway in liver and muscle. Regulation of gluconeogenesis. Glycogen in liver and muscle. Degradation and synthesis of glycogen. Regulation of glycogen synthesis and degradation. Metabolism of galactose and fructose.
Practical: Studies on the coupling of mitochondrial electron transport by proton motive force to ATP synthesis.

4th week:
Lecture: Pentose phosphate pathway. Synthesis of disaccharides. Metabolism of glucuronic acid. Inherited diseases in the carbohydrate metabolism. Biochemistry of diabetes mellitus. Pyruvate dehydrogenase complex.
Practical: Studies on the coupling of mitochondrial electron transport by proton motive force to ATP synthesis.

5th week:
Lecture: Organization of lipid structures. Mixed micelles in the digestive tract. Lipoproteins in blood plasma. Covalent interactions between proteins and lipids. Oxidation of fatty acids. Synthesis of fatty acids.
Practical: Determination of the activity of glycolytic enzymes (aldolase, LDH), electrophoresis of LDH. Bioinformatics I.

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

Practical: Determination of the activity of glycolytic enzymes (aldolase, LDH), electrophoresis of LDH. Bioinformatics I.

7th week:
Lecture: The mevalonate metabolic pathway. Synthesis of cholesterol Cholesterol transport in the body. The LDL receptor and its gene. Excretion of cholesterol. Biochemical explanation of elevated blood cholesterol levels.
Practical: Determination of the activity of glycolytic enzymes (aldolase, LDH), electrophoresis of LDH. Bioinformatics I.

8th week:
Lecture: Steroid hormones. Bile acids. Vitamin D. Eicozanoids. Lipid peroxidation. Synthesis of sphyngolipids and phospholipids
Practical: Studies on transaminases

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

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

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.
Practical: Evaluation and discussion of the practices. Control test.

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

13th week:
Lecture: De novo synthesis of pyrimidine nucleotides. Regulation of pyrimidine nucleotide synthesis. Salvage pathways for the pyrimidines. Degradation of pyrimidine nucleotides. Nucleoside and nucleotide kinases. Synthesis of deoxythymidilate. Nucleotide coenzyme

synthesis (NAD, FAD, CoA). Antitumour and antiviral action of base and nucleoside analogues.

14th week:
Lecture: Biochemistry of nutrition. Energy requirement. Basic metabolic rate. Energy content of the food. Energy storage and thermogenesis. Biochemical mechanism of obesity. Protein as N and energy source. N balance. Essential amino acids. Protein malnutrition. Vegetarianism. Clinical aspects of protein nutrition. Carbohydrates and lipids. Pathological mechanisms in obesity. Vitamins. Structure, biochemical functions. Relationship between the biochemical functions and the symptoms of deficiency. Essential inorganic elements of the food (metabolism, function, deficiency).
Self Control Test

Requirements

Requirements for signing the semester: attendance in all laboratory practices and seminars.
Required knowledge from Biochemistry I.: topics of metabolism presented at the lectures (slides are available at the e-learning site of the Department https://elearning.med.unideb.hu) and topics discussed in the seminars.

Attendance on the **lectures** is not compulsory, but recommended: in case of one lecture absence seminar bonus points are erased, in case of two lecture absence all collected points (control test points of the semester) are also erased. Please arrive in time for the lectures, because the door of lecture hall will be closed at the beginning of the lecture. Repeaters can collect bonus points without visiting the lectures.

On the **seminars** the lectures of the previous week can 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). In case of the seminars maximum three absences are accepted. Students can't make up seminars with another group. Seminars are not obligatory for repeaters, if they previously attend them. Only those students can collect seminar bonus points, who don't miss more than three seminars.

Every **laboratory practices** must be performed, if someone is absent due to any serious reason proved by medical papers, the missing experiment have to be performed within the three weeks practice period joining another group (after obtaining permissions from the practice teacher of the other group). In case of more than one remedial practice, students cannot get any points for the additional practice units. Practices are not obligatory for repeaters (if they previously attend them).

Achievements during the semester will be evaluated in terms of points. During the semester 100 (+ 10) points can be collected. 100 points could come from the laboratory test (8 points), note book (3 x 4 points) and from the control tests of the material of the lectures (80 points). Control tests consist of test questions and recognition of chemical structures. The list of the chemical structures can be found on the homepage of the department. Bonus points earned by the seminar tests (10 points) will be added to the total collected points. Semester points will be automatically erased of those students, who break the rules of test writings.

In the first semester 110 points can be collected together with the seminar bonus points. Grade will be offered on the basis of the collected points for all those students, who collected at least 60 points (and reached at least 60% of the practical points!): pass for 60-69.5 points;

satisfactory for 70-79,5 points; good for 80-89,5 points; excellent for 90-110 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** 50 points can be collected, the test consists of single- and multiple choice test questions from the lecture material (45 points) and from the practice (5 points). 60% (30 points) is needed to get a passing mark, and the grade increases with every 5 points (30-34.5 pass, 35-39.5 satisfactory, 40-44.5 good, 45-50 excellent).

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

Please follow the announcements of the department about the control tests, exams and other current information on the announcement table (LSB downstairs, 1st corridor), and on the homepage of the Department (http://bmbi.med.unideb.hu). You can enter to the homepage with your university ID and password.

Division of Dental Physiology and Pharmacology

Subject: **DENTAL PHYSIOLOGY I.**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **45**
Seminar: **30**
Practical: **45**

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

2nd week:
Lecture: Electrical properties of the cell membrane
Mechanisms underlying the action potential
Neuromuscular junction
Synapse
The autonomic nerves
Basic receptor function.

Practical: INVESTIGATION OF THE CARDIOVASCULAR FUNCTIONS

3rd week:
Lecture: Regulation of striated muscle contraction
Smooth muscle physiology
Electrical properties of the heart
Mechanisms of the different types of arrhythmia; the ECG
Practical: COMPUTER AIDED ACQUISITION AND PROCESSING OF BIOLOGICAL SIGNALS

4th week:
Lecture: Excitation-contraction coupling in

cardiac muscle
Cardiac Ca2+-entry mechanisms
Contractile properties of the heart
Effects of humoral agents and the autonomic nervous system on the heart
Practical: EFFECTS OF ELECTROLYTES ON THE UTERINAL SMOOTH MUSCLE FUNCTION

5th week:
Lecture: "My heart...."
Measurement of intracellular Ca2+ concentration
Regulation of cell function II.
Practical: SIMULATION OF THE ACTION POTENTIAL IN THE SQUID AXON

Self Control Test

6th week:
Lecture: Principles of hemodynamics
Features of arterial circulation
Microcirculation
Lymphatic circulation, venous circulation
Practical:
DETERMINATION OF PARAMETERS CHARACTERISING THE RESPIRATORY FUNCTIONS

7th week:
Lecture: Components of vascular tone
The cardiac output and the cardiac cycle
Cardiovascular reflexes I.
Cardiovascular reflexes II.
Practical: Remedial lab

8th week:
Lecture: Humoral control of circulation.
Endothelial functions
Integrated regulation of circulation
Pulmonary circulation
Cerebral and coronary circulation
Practical: COMPUTER SIMULATION OF THE HUMORAL REGULATION OF INTESTINAL SMOOTH MUSCLE

9th week:
Lecture: Splanchnic, cutaneous and muscular circulation
Circulatory shock
Practical: COMPUTER SIMULATION OF THE FRANK-STRALING-MECHANISM

10th week:
Lecture: Physiology of the body fluids, homeostasis
Red blood cells, blood types
Blood plasma, jaundice Hemostasis
Practical: INVESTIGATION OF THE ENDOTHELIAL FUNCTION ON ISOLATED ARTERIAL RING

Self Control Test

11th week:
Lecture: Blood derivatives in human therapy
Mechanics of respiration
Compliance, work of breathing
Gas transport in the blood
Practical: EXAMINATION OF THE CRANIAL NERVES

12th week:
Lecture: Control of breathing
Integrated response of the cardiovascular and respiratory system
Energetics of muscle contraction
Exercise physiology
Practical: EXAMINATION OF THE SOMATOSENSORY AND MOTORIC SYSTEMS

13th week:
Practical: Remedial lab

14th week:
Practical: Closing lab

Requirements

1. Signature of Lecture Book

Attendance of lectures, laboratory practices and seminars is compulsory. The signature of the Lecture Book may be refused for the semester in case of more than three absences from the seminars and/or more than two absences from the practices.
Completion of a missed seminar with a different group is not possible. All missed practices must be must be made up, however this does not reduce the number of absences! Completion of all topic sheets in the Exercise Book, each verified by the signature of the teacher, is also a precondition of the signature of the Lecture Book.
If one has three or more lecture absences, the end-semester examination (ESE) may not be substituted with the average test score (see later).
Each student must attend seminars with the group specified by the Education Office. For continuous updates on all education-related matters, please check the departmental web-site (http://phys.med.unideb.hu).
The lectures of Dental Physiology I. are listed at the web site of the Department of Physiology (http://phys.med.unideb.hu)

2. Evaluation during the semester

The knowledge of students will be tested 3 times per semester in the form of a written test (multiple choice questions). Participation on mid-semester written tests is compulsory. If one wishes to improve on his/her general performance, it is possible to take a make-up (remedial) test on one of the three topics. Note that the calculation of the average score will be based upon the result of the remedial test, even if it is worse than the original score. At the end of the 2nd semester the 1st semester test results will be used to calculate your bonus points. The bonus points are valid only for a given academic year! The calculation of bonus points is detailed at the description of Dental Physiology II.
Laboratory practical knowledge of the students will be tested at the end of the first semester as part of the Closing Lab, evaluation with two level marks (accepted or not accepted). As a precondition of attending the Closing Lab, the fully completed Exercise Book (with all the verified topics) must be presented during the Closing Lab. Students are expected to perform the given experiment on their own and must be familiar with theoretical background also. In case of a negative result, the Closing Lab can be repeated, but only once. If the final evaluation of the Closing lab is "Not Accepted", then the student will be given laboratory practical questions on the end-semester examination.

3. Examination

The first semester is closed by an oral end-semester exam (ESE) covering the topics of all lectures, seminars and laboratory practices of the semester. The list of exam questions is available on the departmental website (http://phys.med.unideb.hu).
If the final evaluation of the Closing lab is "not accepted", then the student will be given laboratory practical questions, too.

An 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
- (s)he successfully completed the Closing Lab, and
- (s)he has fewer than 3 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.

Department of Basic Medical Sciences

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

1st week:
Practical: 1. fejezet: Emlékszel?

2nd week:
Practical: 1. fejezet: Emlékszel? / 2. fejezet: Testrészek 1.

3rd week:
Practical: 2. fejezet: Testrészek 2.

4th week:
Practical: 3. fejezet: Tünetek

5th week:
Practical: 4. fejezet: Gyógyszerek

6th week:
Practical: 5. fejezet: Klinikák és szakorvosok

7th week:
Practical: 6. fejezet: Lassítsunk egy kicsit!

8th week:
Practical: 7. fejezet: Összefoglalás (Revision), midterm test

9th week:
Practical: 8. fejezet: Szoktál kanapészörfölni?

10th week:
Practical: 9. fejezet: Jó és rossz szokások

11th week:
Practical: 10. fejezet: Instrukciók

12th week:
Practical: 11. fejezet: Tessék mondani!

13th week:
Practical: 12. fejezet: Anamnézis

14th week:
Practical: 13. fejezet: Összefoglalás / Preparing for the oral exam, end term test

15th week:
Practical: Oral exam

Requirements

Requirements of the course:

Attendance

Attending language classes is compulsory. Students should not be absent from more than 10 percent of the classes. If a student is late it is considered as an absence. If a student misses more than two occasions, the final signature may be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week. Maximum one language class may be made up with another group. Students have to ask for the teacher's written permission (by e-mail) 24 hours in advance. Students can attend any class (make up or regular) only if they take their coursebook with them.

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. 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.

Course book: 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.

Division 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: **15**
Practical: **30**

1st week:
Lecture: Basics of gnathology, and antropology. The connection of gnathology with prosthodontics
Practical: Discussion about the subject, and the practical work.

2nd week:
Lecture: Articulators. Mounting of casts into articulators I.
Practical: Investigation of cast and occlusion. Mounting of cast into articulators.

3rd week:
Lecture: Positions of the mandible.
Practical: Mounting of cast into articulators.

4th week:
Lecture: Mandibular movements I.
Practical: Occlusal reduction of casts. Test

5th week:
Lecture: Mandibular movements II.
Practical: Wax up of occlusal surfaces

6th week:
Lecture: Facebow, panthograph. Mounting of casts into articulators II
Practical: Wax up of occlusal surfaces

7th week:
Lecture: Occlusion and articulation in natural dentition. Chewing.
Practical: Wax up of occlusal surfaces

8th week:
Lecture: Introduction into fixed prosthodontics. Fixed prosthesis.
Practical: Wax up of occlusal surfaces

9th week:
Lecture: Occlusal theories related to prosthodontics.
Practical: Wax up of occlusal surfaces. Test

10th week:
Lecture: General aspects of tooth preparation (full veneer crown).
Practical: Wax up of occlusal surfaces

11th week:
Lecture: Instruments used for tooth preparation.
Practical: Practice with handpieces

12th week:
Lecture: Preparation of molars and premolars.
Practical: Preparation of molar.

13th week:
Lecture: Preparation of incisors and canines.
Practical: Preparation of incisor

14th week:
Lecture: Clinical phases of crown fabrication.
Practical: Preparation of canine. Test

15th week:
Lecture: Discussion.
Practical: Preparation of molar. Test.

Requirements

Conditions for signing the lecture book:

* Active participation on the practices!
* There is no possibility to compensate missed practices!
* Regarding delays the principle of zero tolerance is applied!
* Missed practices must be certificated. The ratio of missed practices cannot exceed 1 practice.
* The practical work will be evaluated (with marks 1-5).
* The grades of practical evaluation will be considered at the end of semester grade (ESE).
* The signature of the lecture book will be refused in case of more than four “fail” (1) practical evaluation.
* Being late for a practice automatically results “fail” practical evaluation.

End semester exam (ESE) evaluation:

* The ESE grade will be calculated from the results of the practical evaluations, the practical tests and the online midterm tests.
* Two online midterm tests will be held during the semester at a prearranged time (not during the practices).
* During the semester at least 2 practical self-control tests will be held in order to evaluate the students’ practical performance. In case the result of the practical test is “fail”, the same day’s practical grade will be automatically “fail”.
* Further written tests may be held without prior notice.
* Topics of the online midterm tests are the following:
o 1st test: topics of week 1-9
o 2nd test: topics of week 10-15
o The 2nd tests may include questions from the topics of first tests.
o Tests may include questions from topics of previously taught subjects (eg. Dental Materials, Odontology)
* If the student does not attend the midterm online tests or the tests held during the practices, the result of these tests will be automatically failed.
* In order to get an offered grade, students must pass all the midterm online tests.
* Students will be given the chance to improve either of the failed midterm online tests (from all the two topics of midterm online tests) during the last week of the semester. If the student fails, or does not attend the remedial test the students must exam in the examination period improved as a „B” or „C” chance during the exam period.
* The remedial test consists of two separate parts, covering the topics of the midterm online tests. The parts can be written separately, so a student for example improving only the 2nd test, will be given questions only from the topic of the 2nd online midterm test.
* The exams held during the exam period, are written (tablet) exam.
* Oral exam may be held only on the „C” chance exam, in case the student fails the written (tablet) exam.

Division of Dental Anatomy

Subject: **NEUROBIOLOGY (NEUROANATOMY, NEUROBIOCHEMISTRY, NEUROPHYSIOLOGY)**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **52**
Seminar: **10**
Practical: **56**

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.
Practical: 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:
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.
Practical: Anatomy: Dissection of the brain – Part II. The structures and the position of the lateral ventricles.

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: Anatomy: Dissection of the brain – Part III. Flechsig'scut, basal ganglia, diencephalon, third ventricle
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: Anatomy: Dissection of the brain – IV. Structures of the brainstem, cerebellar peduncles. Coronal sections of the brain – I.
Histology: II. Cerebellum, thalamus, basal ganglia

5th week:
Lecture: Consultation lecture: Neurophysiology
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: Anatomy: Dissection of the brain – Part V. Fourth ventricle, rhomboid fossa, circulation of cerebrospinal fluid. Cerebellum.
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
Practical: Anatomy: Dissection of the brain – VI. Coronal sections of the brain – II. Spinal cord.

7th week:
Lecture: General sensory functions
Sensory functions of the spinal cord; receptors, primary afferents.
The viscerosensory system.
The somatosensory system.
Practical: Anatomy: Dissection of the brain – In situ I. Demonstration: trigeminal nerve, trigeminal ganglion; facial nerve

8th week:
Lecture: Neuronal mechanisms of temperature and pain sensation
Physical background of sensory functions I. (Wave-motions)
The vestibular system.
The acoustic system and the physiology of auditory function I.

Practical: Anatomy: Dissection of the brain – In situ II. Demonstration of the oculomotor, trochlear, abducent, glossopharyngeal, vagus, accessory and hypoglossal nerves.
Histology: IV. Spinal cord, brainstem.
Physiology: Computer simulation – action potential of nerve fibres

9th week:
Lecture: The acoustic system and physiology of auditory function II.
Structures of the eye and the retina – I.
Physical background of sensory functions – II. (optics)
Structures of the eye and the retina – II. (retinal mechanisms)
Practical: Anatomy: Consultation – I.
Histology: Inner ear
Physiology: Computer simulation – ionic currents of nerve fibres

10th week:
Lecture: Central processing of visual information I.
Central processing of visual information II.
The sense of taste and the olfactory system I.
The sense of taste and the olfactory system II.
Practical: Anatomy: Sensory organs – I.
Structures of the ear, n. VIII.
Histology: Eye, palpebra, lacrimal gland
Physiology: Examination of the cranial nerves

11th week:
Lecture: Somatomotor functions of the spinal cord. The motor endplate. The motor unit and spinal motor apparatus.
Reflex functions of the spinal cord.
Proprioceptive and nociceptive reflexes.
Roles of the basal ganglia and cerebral cortex in the coordination of movements.
Practical: Anatomy: Sensory organs – II.
Structures of the eye, structures of the orbit
Physiology: Examination of the somatosensor and motor systems.

12th week:
Lecture: Autonomic nervous system: peripheral and central mechanisms.
Functions of the hypothalamus.
The limbic system.
The monoaminergic system; reward motivation, addiction. Regulation of behaviour.
Practical: Anatomy: Consultation – II.
Physiology: Examination of peripheral nerves and muscles innervated by peripheral nerves.

13th week:
Lecture: Roles of the basal ganglia and cerebral cortex in the coordination of movements. (P) Physiology of taste and smell. (P) The monoaminergic system. (A) The limbic system. (A)Central vegetative regulation I. (P) Central vegetative regulation II. (P) EEG, sleep. (P) Learning, memory. (P)
Practical: Anatomy: Consultation – II
Physiology: Remedial

14th week:
Lecture: -
Practical: -

15th week:
Practical: Anatomy: Consultation – III (open lab)

Requirements

NEUROBIOLOGY
2017/18
Course description, requirements

Neurobiology is tought by teachers of the Department of Physiology and the Department of Anatomy, Histology and Embryology.

Attendance of the lectures, seminars and practicals are compulsory.
The course director may refuse to sign the lecture book, if a student misses more than two seminars and/or more than five practicals. Making up of missed seminars is not possible. Making up of practicals conducted in the histology room or in the dissecting room are possible with the same rules that applied for the courses: Anatomy-I and I. Completion of the practicals conducted in the practical room of the Department of Physiology are proven by filling out the appropriate chapters of the laboratory practice book and getting it signed by the lab-teacher. Without these signing the lecture book may be refused.

In order to pass the course successfully students are advised to use textbooks (below), lectures and notes taken during the practical classes. Course thematics and lecture slides (including figures) can e downloaded from.

Compulsory literature:
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.
A. Fonyó: Principles of Medical Physiology. Medicina Publishing House, Hungary, 2002. ISBN: 963-242-726-2.
Haines, D.E.: Fundamental Neuroscience Haines. 3rd edition. Churchill Livingstone, 2006. ISBN: 0-443-06751-1.
Snell, R.E.: Clinical Neuroanatomy for Medical Students. 5th edition. Lippincott Williams & Wilkins. ISBN: 0-7817-2831-2.
L. Komáromy: The Dissection of the Brain. A Topographical and Technical Guide Medicina. ISBN: 9-632-26050-3.
Ross, M.H., Romrell, L.J., Kaye, G.I.: Histology. A Text and Atlas. 5th edition. Lippincott Williams & Wilkins, 2006. ISBN: 0-781-75056-3.
Physiology Practice. A Laboratory Guide. revised edition.2000.
Physiology Practice. Exercise Book. revised edition.2000.
Exercise Book. 2nd (revised) edition.2007.
Purves: Neuroscience. Fourth Edition. Sinauer Publishing, 2008.
George J Siegel: Basic Neurochemistry. 6th edition.. ISBN: 10: 0-397-51820-X.
Lecture handouts (including figures).

Suggested literature:

Fitzgerald's Clinical Neuroanatomy and Neuroscience (7th Edition By Estomih Mtui, MD, Gregory Gruener, MD, MBA and Peter Dockery, BSc, PhD, Elsevier, ISBN: 978-0-7020-5832-5)

D.E. Haines: Fundamental Neurosicence (3edition, Churchill Livingstone, ISBN 0-443-06751-1)

K.L. Moore, A.F. Dalley: Clinically Oriented Anatomy (5edition, Lippincott Williams & Wilkins, ISBN 0-7817-3639-0

M.H. Ross, L.J. Romrell, G.I. Kaye: Histology. A Text and Atlas (5edition, Lippincott Williams & Wilkins, ISBN 0-7817-5056-3

Guyton And Hall Textbook Of Medical Physiology 12th edition, W.B. Saunders Co., Philadelphia ISBN-13: 978-1416045748

The knowledge of students will be tested once during the semester in the form of a written test (multiple choice questions). The goal of this test is to provide feedback about the student's knowledge.

The semester is closed by an end-semester exam (ESE) that consists of a practical exam (oral in the dissecting room) and a theoretical part (written). The later includes all material from the lectures and practicals conducted in the histology room and in the practical room of the Department of Physiology.
The oral practical exam is evaluated by a grade between 1 and 5 (1-fail, 2-pass, 3-satisfactory, 4-good, 5-excellent) while the evaluation of the written theoretical test is based on the scale below:

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

The result of the exam is „fail” if the student fails any of the two parts (oral practical / written theoretical). The final mark is calculated as the average of the oral and written parts.

Improvement of the grade is possible during the regular examination period by repeating both the oral and the written part of the exam. The previous grade will be discarded.

(For more details see the website of the Department of Anatomy, Histology and Embryology)

Division of Dental Biochemistry

Subject: **BIOCHEMISTRY II.**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **45**
Seminar: **15**

1st week:
Lecture: Levels of eucariotic gene expression. The active chromatin. Regulation of transcription. Regulation at the mRNA level. Translational regulation. Posttransational events. Gene therapy.
Practical: Introduction to the practicals.

2nd week:
Lecture: Term and levels of regulation. Significance and interrelationship between metabolic, cytokine, hormonal and neuronal regulation. Term and levels of regulation. Significance and interrelationship between metabolic, cytokine, hormonal and neuronal regulation. Forms of external signals. 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.
Practical: Studies on neurotransmitters

3rd week:
Lecture: Other phospholipases. cGMP phosphodiesterase sytem. 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.
Practical: Studes on neurotransmitters

4th week:
Lecture: 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.
Practical: Studies on neurotransmitters

5th week:
Lecture: Biochemistry of cell proliferation. Mitotic cascade. M-phase kinase. Products and biochemical function of protooncogenes. Mechanism of oncogene formation.
Practical: Fractionation and quantitative determination of plasma proteins.

6th week:
Lecture: Tumor suppressor genes and their biochemical function. Biochemical features of terminal differentiation. Biochemistry of programmed cell death.
Practical: Fractionation and quantitative determination of plasma proteins.

7th week:
Lecture: Stress proteins and enzymes in eukariotic cells. Heat shock proteins and their functions under normal circumstances. Hsp 70 and hsp 60 protein families. Role of chaperones and chaperonins. Thermotolerance of the cell. Hsp 90 protein family and their role in the cells. Transcriptional regulation of heat shock genes. Stress signals.
Practical: Fractionation and quantitative determination of plasma proteins.
Self Control Test

8th week:
Lecture: Biochemistry of the liver. Biotransformation. Biochemical consequences of ethanol consumption.
Practical: Studies on blood clotting. Bioinformatics II.

9th week:
Lecture: Biochemistry of the blood. Metabolism of red blood cells. Genetic diseases leading to haemolysis. Hemoglobin; structure, function and regulation. Pathological forms of hemoglobin. Specific biochemical reactions of leukocytes. Leukocytes and inflammation. Serum proteins.
Practical: Studies on blood clotting. Bioinformatics II.

10th week:
Lecture: Uroporphynoids, hem-proteins. Synthesis of hem, regulation of the synthesis in eukariotic cells. Degradation of hem: formation, conjugation and excretion of bile pigments. Hem oxygenase. Disorders in hem metabolism. Iron transport, storage and distribution in the human body. Molecular regulation of the iron level in cells: stability of transferrin receptor and ferritin mRNA, IRE binding protein. Risk of the free iron and intracellular hemolysis.
Practical: Studies on blood clotting. Bioinformatics II.

11th week:
Lecture: Cellular, humoral and vascular aspects of blood clotting. Structure, activation, adhesion and aggregation of thrombocytes. Classification of blood clotting factors and their role. Factors depending on vitamin K.
Practical: Evaluation of the results of practicals. Control test. Visit of the department.

12th week:
Lecture: Contact phase of blood coagulation. Blood clotting in the test tube and in the body. Classification of blood coagulation. Role of thrombocytes and the vascular endothel. Limiting factors, inhibitors and activators of blood coagulation. Fibrinolysis. Neurobiochemistry I.

13th week:
Lecture: Biochemistry of the extracellular matrix: function and components. Glucosaminoglycans and proteoglycans. Collagens: structure, function and genetic origin. Synthesis of type I. collagen. Macromolecular organization of collagen monomers. Disorders in the synthesis of collagen. Collagenases. Structure and function of elastin. Elastase. Structure and functional domains of fibronectins. Plasma and tissue fibronectins, genetic background: alternative splicing. Receptors of fibronectins: integrins and other type of receptors. Role of fibronectins. Other adhesion proteins (laminin, entactin, thrombospondin, von Willebrand factor, tenascin, etc). Neurobiochemistry II.
Self Control Test

14th week:
Lecture: 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.

15th week:
Lecture: 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.

Requirements

Requirements for signing the semester: attendance in seminars.

Required knowledge from Biochemistry II.: topics of cell-and organ biochemistry presented at the lectures (available at the elearning website of the Department https://elearning.med.unideb.hu) and discussed in the seminars.

Attendance on the **lectures** is not compulsory, but recommended: in case of one lecture absence seminar bonus points are erased, in case of two lecture absence all collected points (control test points of the semester) are also erased. Please arrive in time for the lectures, because the door of lecture hall will be closed at the beginning of the lecture. Repeaters can collect bonus points without visiting the lectures.

On the **seminars** the lectures of the previous week can 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 the seminar teachers). The seminar bonus 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. Students can't make up seminar with another group. Seminars are not obligatory for repeaters (if they previously attended them). Only those students can collect seminar bonus points, 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 100 (+ 10) points can be collected. 100 points could come from the control tests from the material of the lectures (80 points). Control tests consist of single- and multiple choice test questions. (The control tests contain all together 80 test questions, each for 1 point. The result will be multipled by 1.25 points to get the max. 100 points). Bonus points earned by seminar activity will be added to the total points collected during the semester. 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 5 exam bonus points, those who reach 75 points will get 8 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 for everyone. The written exam consists of single- and multiple choice test questions: 25 from "Cell- and organ biochemistry" and 5 from "Dentist biochemistry", each for 1 points. (Collected points will be multiplied by 1.66, so you can collect maximum 50 points with the written exam).

Oral exam can be taken only if the student collects at least 60 % (30 points) in the written part. The successful result of the written part is valid for the "B" and "C" exams. In case of unsuccessful written "C" exam, students will get oral questions, too.

The oral part of the examination starts with a questions of „molecular biology" and a „medical orientation problem" (containing questions connected to basic metabolism), that should be answered immediately. The list of these questions will be given to students at the end of the semester together with the exam titles of the final exam. After properly answering the minimum questions, students will have two theoretical questions (from cell- and from organ biochemistry).

Students must register for the exams on the NEPTUN until the end of the 15th week.

Please follow the announcements of the department on the announcement table (LSB downstairs 1st corridor), and on the homepage of the department (http://bmbi.med.unideb.hu). You can enter to the homepage with your university network ID and password.

Division of Dental Physiology and Pharmacology

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
Motor functions of the gastrointestinal tract

2nd week:
Lecture: Secretion of saliva and gastric juice
Exocrine functions of pancreas, liver and intestines
Absorption of nutrients

3rd week:
Lecture: Food intake and its regulation
Energy balance
Regulation of body temperature

4th week:
Lecture: Stem cell
Self Control Test

5th week:
Lecture: Quantitative description of kidney functions
Glomerular filtration
Tubular transports

6th week:
Lecture: Urinary concentration & dilution
Water-balance, osmoregulation
Control of body fluid volume

7th week:
Lecture: Acid-base balance
Acid-base disturbances, Ca2+ homeostasis I.
K-homeostasis
Micturition

8th week:
Lecture: Ca2+ homeostasis II.
Physiology of bone
Hormones of the skin

9th week:
Lecture: General principles of endocrinology
Hypothalamus-pituitary system, Growth hormone
The hormones of adrenal medulla
Self Control Test

	pancreatic islets
10th week:	General principles in the regulation of gonadal functions
Lecture: The thyroid gland	Female & Male gonadal functions
The hormones of adrenal cortex	
The hormones of pancreatic islets	
11th week:	
Lecture: Regulation of the function of	

Requirements

1. Signature of Lecture Book

Attendance of lectures and seminars is compulsory. The signature of the Lecture Book 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 two lecture absences these special advantages are 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 departmental web-site (http://phys.med.unideb.hu)
The lectures of Dental Physiology II. are listed at the web site of the Department of Physiology (http://phys.med.unideb.hu)

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 departmental website (http://phys.med.unideb.hu).

Depending on the average result of the five self-controls of 2017/2018 academic year, the following special advantages are granted:

The average score of the six mid term tests (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.

- If the Department of Physiology refuses to sign the lecture book or in cases of more than two lecture absences these special advantages are withdrawn!

- If the result of the written examination together with the bonus points does not reach the 60% limit, the examination attempt will be regarded as a failed exam, without giving the chance to perform the oral part.

If one took the end-semester examination during the 2017/2018 academic year, the mark of the oral exam is converted into percentage scores in the following way (each 1st term self-control will be replaced with these percentage scores):

- If the end-semester examination was taken in order to improve on an otherwise valid grade, the conversion is: 2: 69%; 3: 79%; 4: 89%, and 5: 100%.
- If the examination was attempted because no score could be offered (i.e. one had to take the exam), the conversion is: 2: 65%; 3: 75%; 4: 85%; 5: 95%.

CHAPTER 18
ACADEMIC PROGRAM FOR THE 3RD YEAR

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

3rd week:
Lecture: 5. Blood group serology, biochemistry, inheritance, antigens and antibodies of ABO blood group system

9th week:
Practical: Hematology I. Blood collection, anticoagulants. Preparation of a blood smear, staining.

12th week:
Lecture:
6. Biochemistry, inheritance, antigens and antibodies of Rh blood group system and its clinical significance. Compatibility testing
7. Other blood group system (Kell, Kidd, Duffy, MN, Ss, Ii). Regulation of transfusion

13th week:
Lecture:
8. Blood products

Practical: Hematology IV. Evaluation of peripheral smears in malignant haematological diseases. Protein elfo, myeloma multiplex.

14th 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.

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: **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

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: **HUNGARIAN LANGUAGE III/1.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: Introduction, orientation / Bevezetés, kurzusszervezés.

2nd week:
Practical: Revision / Ismétlés.

3rd week:
Practical: The tooth / A fog anatómiája.

4th week:
Practical: The oral cavity / A szájüreg anatómiája

5th week:
Practical: Numbering / A fogak számozása

6th week:
Practical: Dental materials / Fogászati anyagok

7th week:
Practical: Dental tools / Fogászati eszközök.

8th week:
Practical: Mid-term test (written).

9th week:
Practical: Dental specialists / Fogászati szakterületek

10th week:
Practical: Dental problems / A fogak betegségei, tünetek

11th week:
Practical: General history taking / Általános anamnézis

12th week:
Practical: Dental history taking / Fogászati anamnézis.

13th week:
Practical: Instructions / Utasítások a betegnek

14th week:
Practical: Complaints / Panaszok

15th week:
Practical: End-term oral exam, evaluation

Requirements

Requirements of the course:
Attendance

Attending language classes is compulsory. Students should not be absent from more than 10 percent of the classes. If a student is late it is considered as an absence. If a student misses more than two occasions, the final signature may be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week. Maximum one language class may be made up with another group. Students have to ask for the teacher's written permission (by e-mail) 24 hours in advance. Students can attend any class (make up or regular) only if they take their coursebook with them.

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 students fail or miss any word quizzes they cannot start their midterm and end term exams. They also have to take a vocabulary exam that includes all 100 words before 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.

fail (1)
pass (2)
satisfactory (3)
good (4)
excellent (5)

Course book: 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.

Subject: **IMMUNOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Seminar: **30**

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: B-lymphocytes. An introduction to antibody structure and function.

4th week:
Seminar: T-lymphocytes. Antigen presentation, T cell types.

5th week:
Seminar: Inflammation and the acute phase response. Mucosal immune system.
Self Control Test

6th week:
Seminar: The polimorphism of MHC molecules, structure and function of proteins encoded by the major histocompatibility (MHC) gene complex.

7th week:
Seminar: Naive and effector T cells. Functions of T-lymphocytes.

8th week:
Seminar: Antigen-dependent differentiation of B-lymphocytes.

9th week:
Seminar: The molecular basis of antigen recognition by B and T-lymphocytes. B and T cell development.

10th week:
Seminar: The development of immunological memory. Immunotolerance.

11th week:
Seminar: The immune response to intracellular pathogens. The immune response to extracellular pathogens. Oral inflammatory diseases.

12th week:
Seminar: Hypersensitivity reactions, allergy.

13th week:
Seminar: Mechanisms of the development of autoimmune diseases.

14th week:
Seminar: Oral manifestation of autoimmune diseases.

15th week:
Seminar: Tumor immunology, tumor immunotherapy.
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 test (SCT) will be organised (weeks 5 and 15).
The first SCT contains the material of seminars on weeks 1-4. 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 5-15.
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.immunology.unideb.hu).
Lecture materials and other information concerning education can be found on our website at www.immunology.unideb.hu.

Division of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS III.: PROPEDEUTICS AND TECHNOLOGY OF FIXED PROSTHODONTICS**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **10**
Practical: **40**

1st week:
Lecture: Clinical and laboratory phases of fixed prosthesis. Preparation steps. Preparation for bridges.
Practical: Preparation for crown. **Test.**

2nd week:
Lecture: CR determination for fixed prosthesis.
Practical: Preparation for bridge. Alginate impression.

3rd week:
Lecture: Impression making for fixed prosthesis I.
Practical: CR determination for fixed prosthesis.

4th week:
Lecture: Impression making for fixed prosthesis II.
Practical: Preparation for bridge and crown.

5th week:
Lecture: Provisional restorations.
Practical: Preparation for bridge and crown.
Test.

6th week:
Lecture: Framework try in of fixed prosthesis. Cementation. Removal of fixed prosthesis.
Practical: Provisional restoration.

7th week:
Lecture: Post and core restorations I.
Practical: Preparation for bridge and crown

8th week:
Lecture: Post and core restorations II.
Practical: Preparation for bridge. Impression making for fixed prosthesis.

9th week:
Lecture: Factors affecting bridge planning.
Practical: Post and core restorations made with direct and indirect techniques. **Test.**

10th week:
Lecture: Consultation.
Practical: Preparation for bridge and crown.
Test.

Requirements

Conditions of signature in the lecture book:
* Active participation on the practices!
* There is no possibility to compensate missed practices!
* Regarding delays the principle of zero tolerance is applied!
* Missed practices must be certificated. The ratio of missed practices cannot exceed 1 practice.
* The practical work will be evaluated (with marks 1-5).
* The grades of practical evaluation will be considered at the end of semester grade (ESE).
* The signature of the lecture book will be refused in case of more than four “fail” (1) practical evaluation.
* Being late for a practice automatically results “fail” practical evaluation.

Assessment: ESE (involving possibility of failure).

ESE grade:
* The ESE grade will be calculated from the results of the theoretical test and the practical grade.
* The grade of the ESE will be “fail” and must be improved during the examination period, as a “B” or “C” chance, if the result of either the theoretical test or the practical test is “fail”.
* The “B” or “C” chance exam in the exam period begins with the practical part. If the result of the practical part is “fail”, the result of the exam is “fail”, the oral part will not be held.
* If the practical assessment is completed successfully, but the theoretical grade cannot be offered based on the result of the mid-term tests or the remedial, the student must attend only the oral exam during the exam period (A, B, C).
* If the practical assessment is completed successfully, but the theoretical grade cannot be offered based on the result of the mid-term tests or the remedial, the student must attend only the oral exam during the exam period (A, B, C).

Theoretical grade:
* The theoretical grade will be based on the average result of the two tests written during the semester, or a successfully completed oral exam in the exam period.
* If the average result of the two tests written during the semester reaches the minimum average of 3.51 it will be offered as a theoretical grade (3.51-4.5 good; 4.51-5 excellent). If the average result of the two tests does not reach the minimum average of 3.51 it must be improved during the exam period as an “A” chance oral exam.
5+3= good (4)
4+4= good (4)
4+5= good (4)
5+5=excellent (5)
* The result of one of the self-controls can be improved as a remedial during the 15th week of the semester.
* The result of the missed self-control is 'fail'.

Practical grade and practical exam:
* The practical performance of the student will be assessed during the 15th week of the semester. If the result of the assessment is between 1 and 5 (fail-excellent), it will be offered as the grade of the practical exam. The aim of the practical exam is the objective assessment of the student’s suitability for performing clinical practice during his/her 4th year studies.
* During the semester one practical assessment will be held, with the aim of filtering out students who needs support, and catching them up in time. If the student’s performance does not meet the requirements of this assessment, the student must attend a seminar series on tooth preparation. Details of these seminars will be announced depending on the number of students involved throughout the semester.
* DURING THE EXAM PERIOD students may attend two extra practices (2x 60 min) in order to prepare for the practical test.
* Students are required participate actively on practices. To ensure the high quality of patient care, any cases causing repeated years due to poor performance on practices, will be rigorously judged by the Department. If the student fails the practical exam in spite of the multiple exam opportunities and remedial seminars, he/she will be excluded from patient care on practices.
* The grades of the online midterm tests, the 15th week remedial test and the exams, will be calculated as the following:
o 0-59%fail (1)
o 60%-69%pass (2)

o 70%-79%satisfactory (3)
o 80%-89% good (4)
o 90%- excellent (5)
* In case of subject retaking, grades obtained in previous semesters, will be canceled.

Subject: **INTRODUCTION TO PROSTHODONTICS IV.: ODONTOTECHNOLOGY I.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **10**
Practical: **40**

1st week:
Lecture: Working cast and dies
Practical: Introduction of the instruments

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: Technology of aesthetic covering of metal framework
Practical: Sprue placement

9th week:
Lecture: High-tech technology in dental laboratory
Practical: Burn out, casting

10th week:
Practical: Cleaning the casting, sandblasting

11th week:
Practical: Processing of the metal

12th week:
Practical: Framework

13th week:
Practical: Framework

14th week:
Practical: Ceramic and polymer covering of metal framework

15th week:
Practical: Mistakes of aesthetic covering

Requirements

Conditions of signature in the lecture book:

- The ratio of missed practices cannot exceed 20 %. All the missed practices must be certificated.
- 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 number of accepted practices must be above 50% of all practices.

- Missed practice is ‘not-accepted’.
- At least 2 written or oral self-control tests will be held during the semester, according to the time-table. More self-control tests can be held without any notification. The result of the missed self-control is ‘fail’.
- The result of one of the self-controls can be improved as a remedial during the 14th week of the semester.
- If the result of the self-controls reaches the minimum average of 3,51, good or excellent mark will be offered as the grade of the ESE (3,51-4,5 good; 4,51-5 excellent).
- Students are not obliged to accept the grade offered and may opt for taking an examination.

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 60% or less, the final exam grade is “failed” (1).

Division of Oral Pathology and Microbiology

Subject: **DENTAL MICROBIOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **30**
Practical: **30**

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 infection

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 defenses 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 tumor viruses.

Practical: Protozoal diagnostic methods, chemotherapy of protozoal infections.

14th week:
Lecture: 27. Mycology I. Fungal stucture, antifungal drugs.
28. Mycology II. Yeasts.
Practical: Case reports of infections with dental importance

15th week:
Lecture: 29. Mycology III. Molds.
30. Protozoa.
Practical: Consultation.

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: **GENERAL PATHOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **33**
Practical: **45**

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.- Tissue regeneration. Reparation and wound healing. Calcification.
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: - Morphologic patterns of the acute inflammatory response.- The role of macrophages in inflammation. Granulomatous inflammation.
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.- Tumor dignity. Proliferation. Grading and staging.
Practical: 18. Pulmonary edema 19. Nutmeg liver 20. Appendicitis acuta suppurativa 21. Meningitis purulenta

7th week:
Lecture: - Charasterictics of tumor cell populations (clonality, heterogenity and progression).- Characteristics of benign and malignant tumors. Differentiation and anaplasia.
Practical: 22. Bronchopneumonia with lung abscess 23. Septic abscesses in the myocrdiumban due to systemic fungal infection (PAS staining)24. Chronic non-specific salpingitis25. Foreign body granuloma

8th week:
Lecture: - Diagnostic immunohistochemistry. markers of differentiation.- Prognostic and predictive tumor markers.
Practical: 26. Keratoachantoma 27. Condyloma 28. Bowen's disease 29. Invasive cervical cancer

9th week:
Lecture: - Mechanisms of local and distant tumor spread. Angiogenesis.- The biology of tumor growth. Heredity in cancer.
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: - Opportunistic infections. Systemic effects of neoplasia (cachexia, immunosupression, paraneoplastic syndromes).- Humoral and cellular immunopathological mechanisms.
Practical: 35. Allergic vasculitis 36. Polyarteritis nodosa 37. End stage lesion in Burger's disease 38. Gouty tophus

11th week:
Lecture: - Immunodeficiencies. Tuberculosis.- 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: - Mono-, and polygenic disorders.- Pathology of the lymphatic system.
Practical: 47. Diffuse large B-cell lymphoma

(DLBCL) 48. Gastric lymphoma (MALT type) 49. Hodgkin's disease (HL) 50. Myelofibrosis

14th week:
Lecture: - Malignant lymphomas.- Leukemias.
Practical: Repeating practice

15th week:
Lecture: - AML. Chronic myeloproliferative disorders.- Myelodysplasia. Anaemias.
Practical: Repeating practice

Requirements

Validation of semester in Pathology:

Missing two practicals (histopathology and gross pathology together) is tolerable. Intracurricular replacement of histopathological and/or gross pathological classes is possible on the same week.
Examination:
On the 14th week (computerized) written exam, 15th week practical exams on both semester (these exams are parts of the ESE and FE - the student is released from the written and/or practical part of ESE or FE if her/his evaluation is: pass). In case of failure student can repeat these parts of the exam during the exam period.
At the end of the 1st semester the student is required to take **End of Semester Examination** (ESE) based on the material taught in the semester.

The Exam consists of: written, practical exam and theoretical parts.
The written exam: the students get questions (can be found on the Department's website) and has to reach 70% to pass this part of the exam. In the 2nd semester the questions comes from the 1st and the 2nd semester.
The practical exam takes place in the autopsy room. An acceptable result in the practical exam is mandatory to apply for the oral part.
During the theoretical exam 3 titles are to be worked out and presented orally and one photo about a slide (with different magnification) has to be described and diagnosed orally. The knowledge of the student is assessed on a five-grade scale.
At the end of the 2nd semester the student is required to the take **Final Exam** (FE). Exam consists of: written, practical and theoretical parts. The written and practical exams are the same as above. During the theoretical exam three titles are to be worked out (one from the material of the 1st semester, one from the material of the 2nd semester, and one dentistry topic). One photo about a slide (with different magnifications) has to be described and diagnosed (from the whole year – dentistry slides included). At least a (2) level of gross pathological examination and recognition of the histopathological alteration achieved in the course of a previous unsuccessful examination are acceptable without repeating on the next (B or C chance) examination.

For further information: http://pathol.med.unideb.hu

Division 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
- practice a root surface debridement on phantom head prior to seeing their first patient on the clinical sessions

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.
REQUIREMENTS:
Lectures: As given in the timetable (time & place)

Practices: In the building of Faculty of Dentistry (Phantom lab.)

Conditions of signature in the lecture book:
- active participation in practices
- no more absence than 20%

Assessment: written exam (5 grade)

Compulsory reading:
- lectures and practices materials (handouts are available)

Prerequisites: Biochemistry, Odontology, Dental materials

Division of Restorative Dentistry

Subject: **ORAL BIOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **15**
Seminar: **15**

1st week:
Lecture: Craniofacial development
Seminar: Film on craniofacial development

2nd week:
Lecture: Amelogenesis
Seminar: Written test. The mineral component of dental hard tissues

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: Development of the dental pulp. Pulp matrix
Seminar: Blood and nerve supply to the pulp

7th week:
Lecture: Eruption
Seminar: Discussion of the eruption

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
Seminar: Vitamins

14th week:
Lecture: Metabolism of fluoride
Seminar: Toxic effects of fluoride

15th 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 2 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.

Requirements for taking up the subject:

Odontology, Dental Physiology II, Anatomy, histology embryology II

Subject: **RESTORATIVE DENTISTRY PROPEDEUTICS I. (CARIOLOGY)**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **45**

1st week:
Lecture: Dental caries characteristics, hystopathology. Handpieces, hand instruments, burs. (used in Phantom lab)
Practical: Subject, aims and methods of propedeutics. Labour health regulations and rules of the Phantom lab. Handing out the instruments. Introduction of Phantom 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: Black's cavity and caries classification, nomenclature. Basic rules of cavity preparation.
Practical: Preparation of cavity class I. for amalgam restoration.

4th week:
Lecture: Preparation of cavity class II. for amalgam restoration. Lower and upper premolar and molar cases.
Practical: Preparation of cavity class II. for amalgam restoration.

5th week:
Lecture: Matrices, retainers, wedge placement. Separation of the teeth. The protective role of liners and bases.
Practical: Placement of liners and bases. Amalgam restoration in cavity class I. case. Matrices and retainers.

6th week:
Lecture: Amalgam restorations in cavity class I. II. cases. Finishing, polishing of amalgam restorations.
Practical: Amalgam restoration in cavity class II. case. Finishing, polishing the amalgam restorations.

7th week:
Lecture: Preparation of cavity class V., IV. for amalgam restoration. Lower and upper premolar and molar cases. Amalgam restorations in cavity class V., VI. cases
Practical: Preparation of cavity class V. for amalgam restoration. Placement of amalgam in cavity class V. cases.

8th week:
Lecture: Composites
Practical: Mirror using techniques. Insertion of temporary restorative material. Cavity preparation in real tooth, removal of the caries.

9th week:
Lecture: Preparation for composite restorations. Conventional, modified conventional, and minimal invasive preparation techniques. 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.

10th 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., for composite restorations.

11th week:
Lecture: Adhesive technique. Adhesion on the enamel surface. Adhesives. Composite restoration in cavity class III., IV. cases.
Practical: Composite restoration in cavity class III., V.

12th week:
Lecture: Composite restoration in cavity class I., II., V., VI. cases.
Practical: Composite restoration in cavity class I., II.

13th week:
Lecture: Self control test.
Practical: Composite restoration in cavity class IV.

14th week:
Lecture: Diagnostic possibilities of dental caries.
Practical: Amalgam and composite restorations in real teeth. Removal of the caries.

15th week:
Lecture: Registration of dental status, documentation. Making a problem orientated treatment plan.
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 in accordance with the course requirements there is 1 written test that takes place during a lecture. There is a chance of improvement of this written test on the 15th week of the semester. There can be more tests without any previous notification during the practices. The results of these impact on the evaluation of the daily work. Result of any missed tests conclude to a fail (1) grade.
• 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 a lecture book it is required to have more than 70% 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 grade.
• On the 15th week student is required to take a practical exam.

Grade formation:
• The average of the grades of the 15 week practice classes, +
• The average of the written tests during the practices, and the result of the written test taken during a lecture,+
• 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.

Department of Basic Medical Sciences

Subject: **BIOETHICS**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **6**
Seminar: **9**

1st week:
Seminar: What is bioethics? Introduction to ethics. The foundation of dental ethics. Virtues, values, and norms in dentistry. Moral and legal regulation of the medical practice. The Hippocratic Oath. The Declarations of The Word Medical Association. International Principles of Ethics for the Dental Profession. Moral theories:

Deontological (duty) theories, W.D. Ross: prima facie duties Consequentialist (teleological) theories. Types of Utilitarianism. Social Contract Theory. The development of bioethics.

2nd week:
Seminar: Bioethics and the four principles: beneficence, non-maleficence, respect for autonomy, justice. Confidence and truth-telling. Paternalism: conflicts between beneficence and autonomy (case illustrates in p. 62). The principle of double effect. The new ethos of patient autonomy. Autonomous persons and autonomous choices. Competence. Normative Principles of Dental Ethics: cases analysis (case 1., case 6. pp. 20-40).

3rd week:
Seminar: The dentist-patient relationship. The basis of the dentist-patient relationship. Inform consent and refusal. The proxy consent. The elements of informed consent: disclosure of information, comprehension of information, voluntarism. The therapeutic privilege (case for discussion in pp. 78-79). Truth-telling. Rules of Privacy (case illustrates in p. 58). Patient's rights.

4th week:
Seminar: Abortion and ethics of human reproductive technologies.

5th week:
Seminar: Death and dying. Euthanasia. What is death? Right to die or right to life? Aggressiveness of treatment. Patient autonomy and death with dignity. Withholding treatment. Suicide and ethics. Hospice movement. (Student's reports)

6th week:
Seminar: Issues in organ transplantation. Organs for Transplant: donation or Payment? Ethical problems in human and animal experimentation. Randomized clinical trials. Dental Research (in pp. 164-184).

7th week:
Seminar: Justice, welfare, and health care. Allocation of Resources.

8th week:
Seminar: Case analysis, written ethical workup.

Requirements

Marks will be given to the ethical workup. A 5 scale practical mark will be given based on the ethical analysis done in the seminar of the seventh week and the written answers to questions which will be assigned to students at seminars during the year. The index will only be signed if the condition of seminar attendance is met.
Teacher in Bioethics: Péter Kakuk, Ph.D.

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. Inherited thrombophilias
Practical: Laboratory Informatics

2nd week:
Lecture: 4. Other coagulopathies, platelet function disorders 5. Acquired thrombophilias 6. Prethrombotic state, thromboembolias, consumption coagulopathies
Practical: Laboratory diagnostics of platelet function disorders. Laboratory monitoring of anti

platelet therapy

3rd week:
Practical: Laboratory diagnostics of platelet function disorders. Laboratory monitoring of anti platelet therapy

4th week:
Practical: Laboratory informatics

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 practicies 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.
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: **HUNGARIAN LANGUAGE III/2.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: Bevezetés, kurzusszervezés

2nd week:
Practical: Ismétlés

3rd week:
Practical: Gyermekfogászat

4th week:
Practical: Gyermekkori fogszabályozás

5th week:
Practical: Kezelés előtt

6th week:
Practical: Tömés

7th week:
Practical: Vérző íny

8th week:
Practical: Mid-term test

9th week:
Practical: Fogkő

10th week:
Practical: Korona, híd

11th week:
Practical: Foghúzás

12th week:
Practical: Gyökérkezelés

13th week:
Practical: Protézis, műfogsor

14th week:
Practical: Fogászati ellenőrzés

15th week:
Practical: Oral final exam, evaluation

Requirements

Requirements of the course:
Attendance

Attending language classes is compulsory. Students should not be absent from more than 10 percent of the classes. If a student is late it is considered as an absence. If a student misses more than two occasions, the final signature may be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week. Maximum one language class may be made up with another group. Students have to ask for the teacher's written permission (by e-mail) 24 hours in advance. Students can attend any class (make up or regular) only if they take their coursebook with them.

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 an oral midterm and at the end of the term a final oral exam. 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 midterm and end term exams. They also have to take a vocabulary exam that includes all 100 words before 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.
fail (1)
pass (2)
satisfactory (3)
good (4)
excellent (5)

Course book: 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.

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: Lab presentation, Presentation of modalities: X-ray, dental x-ray technology, digital picture recording systems. Fluoroscopy, ultrasound, CBCT, CT, MRI. (General Radiology)

2nd week:
Lecture: Head and neck CT, CBCT, MRI given opportunities (General Radiology)
Seminar: Introduction of Anatomy: Projection anatomy with skull x-ray, sectional anatomy: CT, ultrasound, MRI in the head and neck region. The bones of the facial skeleton and soft tissues of the region. Temporomandibular joint representation and functional tests. Using the different modalities in fractures, inflammation and tumor diagnosis. (General Radiology)

3rd week:
Lecture: Musculoskeletal system (General Radiology)
Seminar: The radiology of bone disease, examination of joints. Formal deformity, inflammatory and tumor lesions of bones and their diagnostic imaging. The representation of joints in normal and pathological states. (X-ray, ultrasound, CT, MRI) (General Radiology)

4th week:
Lecture: Emergency radiology (General Radiology)
Seminar: Interactive practice in front of the computer. Practice of the head and neck radiology and the diagnostic of bones. (General Radiology)

5th week:
Lecture: Neuroradiology
Seminar: Neuroradiology
The diagnosis of brain and spinal cord. Malformations, inflammatory and tumorous diseases. Stroke imaging studies, interventions.

6th week:
Lecture: Chest (General Radiology)
Dento-Alveolar radiology (Dental Radiology)
Seminar: Chest
The lungs, pleura, mediastinum, and cardiac imaging diagnostics, the most common chest diseases. (General Radiology)

7th week:
Lecture: Examination of the GIT system (General Radiology)
Maxillofacial Radiology (Dental Radiology)
Seminar: Abdomen: GIT, urinary system
The esophagus, gastrointestinal diagnosis. Kidney, ureter, bladder disorders. Conventional x-ray, contrast-enhanced and ultrasound, CT, MRI studies. (General Radiology)

8th week:
Lecture: Kidney-bladder system. Screening tests for breast examination, prostate, low dose CT. Cardio CT, radiation protection. (General Radiology)
Periodontal formula of radiological imaging methods (Dental Radiology)
Seminar:
Interactive computer practice.
General radiology practice. (General Radiology)
Imaging diagnosis in Dento-Alveolar Surgery (Dental Radiology)

9th week:
Lecture: Radiography of periodontal lesions (Dental Radiology)
Seminar: Imaging diagnosis in Maxillofacial Surgery (Dental Radiology)

10th week:
Lecture: Radiology in Conservative Dentistry (Dental Radiology)
Seminar: Radiological anatomy of periodontal formulas (Dental Radiology)

11th week:
Lecture: Radiology in Conservative Dentistry (Dental Radiology)
Seminar: Different mapping methods of periodontal diseases (Dental Radiology)

12th week:
Lecture: Radiology in Prosthetic Dentistry (Dental Radiology)
Seminar: Radiology in Conservative Dentistry (Dental Radiology)

13th week:
Lecture: Radiology in Prosthetic Dentistry (Dental Radiology)
Seminar: Dental Radiology: Radiology in Prosthetic Dentistry (Dental Radiology)

14th week:
Lecture: Radiology in Pediatric Dentistry (Dental Radiology)
Seminar: Radiology in Pediatric and Orthodontic Dentistry (Dental Radiology)

15th week:
Lecture: Radiology in Orthodontic Dentistry (Dental Radiology)
Seminar: Test (offered grade)

Requirements

The students are required to attend the seminars.

The Department may refuse to sign the students' Lecture book if they are absent from more than 20% of all seminar lessons in a semester.

Lectures and seminars: as given in the timetable (time and place).

Conditions of signature in the lecture book:
- participation in seminars
- no more absence than 20%
- meeting of the minimum requirements
- doing the written tests
- maximum two compensated absence

Assessment: end of semester examination combined with general Radiology. Oral Radiology exam can be taken from the 15th week of the semester. General Radiology exam can be taken only after successfully completing Oral Radiology.

(Ten of the lectures are about Dental Radiology, 23 of the practicals are about Dental Radiology)
Place of practicals: Dept. of Oral Radiology, Faculty of Dentistry. Dental Radiology Lectures and Practical lessons: from the 6th week in the building of the Faculty of Dentistry.

Subject: **MEDICAL PSYCHOLOGY II.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **15**
Practical: **20**

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 (first 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: Somatoform and psychosomatic disorders.

10th week:
Lecture: Placebos and the interrelationship among beliefs, behaviour and health.

Requirements

Requirements for signing the lecture book: By signing the Lecture Book the Department confirms that the student has met the academic requirements of the course and this enables him/her to take the examination. The Head of the Department may refuse to sign the Lecture Book if a student: is absent more than twice from practices or seminars of the same subject in a semester even if he/she has an acceptable reason. The way of compensation of absences: students will be given appropriate psychological material and will be asked to elaborate on it properly.
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.)

Division of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS V.: PROPEDEUTICS AND TECHNOLOGY OF TOTAL AND PARTIAL REMOVABLE DENTURES**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **40**

1st week:
Lecture: Anatomical and final impression taking. Clinial anatomy

2nd week:
Lecture: Centric relation position

3rd week:
Lecture: Total denture's try-in. Total denture's correction. Instructing patients with dentures.

4th week:
Lecture: Reasons and consequences of tooth loss. Classification of the RPD

5th week:
Lecture: Classification and function of the RPD

6th week:
Lecture: Clasp retention

7th week:
Lecture: Broken denture reparation

8th week:
Lecture: Combined dental prosthesis I

9th week:
Lecture: Combined dental prosthesis II

10th week:
Lecture: Consultation

Requirements

Conditions of signature in the lecture book:
* The ratio of missed practices cannot exceed 20 %. All the missed practices must be certificated.
* 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 number of accepted practices must be above 50% of all practices.
* Missed practice is 'not-accepted'.
* At least 2 written or oral self-control tests will be held during the semester, according to the time-table. More can be held without any notification. The result of the missed self-control is 'fail'.
* The grade of the self-control tests may be considered at the final exam grade.

Assessment:
Final exam (Introduction to Prosthodontics I-VI). 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: **INTRODUCTION TO PROSTHODONTICS VI.: ODONTOTECHNOLOGY II.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **40**

1st week:
Lecture: Laboratory phases of total denture I.
Practical: Cast fabrication

2nd week:
Lecture: Laboratory phases of total denture II.
Practical: Custom tray fabrication

3rd week:
Lecture: Clasp retention
Practical: Occlusal rim fabrication

4th week:
Lecture: Laboratory phases of partial removable denture I.
Practical: Mounting into an articulator

5th week:
Lecture: Laboratory phases of partial removable denture II.
Practical: Tooth setup

6th week:
Lecture: Repair of damaged dentures, broken clasps, and broken tooth
Practical: Denture processing

7th week:
Lecture: State of the art dental solutions
Practical: Denture processing

8th week:
Practical: Cast fabrication

9th week:
Practical: Occlusal rim fabrication

10th week:
Practical: Duplication of master cast into a working cast

11th week:
Practical: RPD's wax pattern

12th week:
Lecture: Combined dental prosthesis I.
Practical: Casting in case of RPD

13th week:
Lecture: Combined dental prosthesis II.
Practical: RPD framework's elaboration

14th week:
Lecture: Combined dental prosthesis III.
Practical: Tooth setup

Requirements

Conditions of signature in the lecture book:
* The ratio of missed practices cannot exceed 20 %. All the missed practices must be certificated.
* 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 number of accepted practices must be above 50% of all practices.
* Missed practice is 'not-accepted'.
* At least 2 written or oral self-control tests will be held during the semester, according to the time-table. More can be held without any notification. The result of the missed self-control is 'fail'.
* The grade of the self-control tests may be considered at the final exam grade.

Assessment:
Final exam (Introduction to Prosthodontics I-VI). 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)

Division of Human Surgery and Operative Techniques

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. Bioplasts and tissue adhesives.
Seminar: Application of surgical tissue adhesives and bioplasts - video demonstration. (1 hour)
Practical: Ligatures on gauze model. Demonstration and practicing 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. 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 missed classes. The make-up of the first 3 practices is obligatory. Compensation for 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 will may refuse to sign the Lecture Book. Performance is assessed on the five-grade scale (AW5) and it is based on the work through the curriculum and the completion of the final written test at the end of the course.

Division of Oral Pathology and Microbiology

Subject: **ORGAN AND ORAL PATHOLOGY**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **49**
Practical: **45**

1st week:
Lecture: - Ophthalmic pathology. Cerebrovascular diseases. - Infective diseases of the CNS. - Tumors of the CNS.
Practical: 63. Nephropathia diabetica 64. Crescentic glomerulonephritis 65. Acute pyelonephritis 66. Clear cell kidney carcinoma

2nd week:
Lecture: - Neurodegenerative diseases I.- Dementias.- Neurodegenerative diseases II.- Movement disorders.- Diseases of the peripherial nerves and skeletal muscles.
Practical: 67. Carcinoma transitiocellulare vesicae urinariae 68. Prostatic adenocarcinoma 69. IRDS 70. Bronchial asthma

3rd week:
Lecture: - Soft tissue tumors.- Melanocytic and epithelial skin tumors.- Diseases affecting tubuli and interstitium. Kidney stones. Hydronephrosis.
Practical: 71. Boeck's sarcoidosis 72. Bronchial squamous carcinoma 73. Intrabronchial carcinoid tumor 74. Small cell carcinoma

4th week:
Lecture: - Glomerular diseases.- Cystic diseases and tumors of the kidney.- Pathology of the urinary tract.
Practical: 75 a és b Barrett's esophagus (a; HE + b; PAS-AB) 76. Ulcus pepticum ventriculi 77. Crohn's disease 78. Ulcerative colitis

5th week:
Lecture: - Hyperplasia and carcinoma of the prostate.- Diabetes mellitus.- Arteriosclerosis. Hypertension and hypertensive vascular disease.
Practical: 79. High grade adenoma in the colon 80. Malignant transformation of adenoma 81. Mucinous adenocarcinoma 82. Liver cirrhosis with HCC

6th week:
Lecture: - Cardiomyopathies. Myocarditis.- Ischemic heart disease. Coronary heart disease.- Disease of the endocardium and the cardiac valves.-Maldevelopment and aquired disorders of teeth.
Practical: D1. Follicular cyst of the maxilla. D2. Keratin cyst of the mandibule. D3. Thyreoglossal cyst. D4. Brachiogenic cyst. D5. Mucokele.

7th week:
Lecture: - Congenital heart diseases. venous and lymphatic vessel disorders.- Interstitial lung disease.- Chronic obstructive pulmonary diseases.- Caries and Pulpitis
Practical: D6. Dental plaque. Chronic periodontitis. D7. Fissural and cervical caries. D8. Premolar coronal caries. Polypoid pulpitis. D9. Radicular cyst. D10. Chronic osteomyelitis of the mandibule.

8th week:
Lecture: - Tumors of the lung and pleura.- ARDS. Pneumonia. Pulmonary embolisms.-

Benign, preneoplastic and neoplastic lesions in the oral cavity. Diseases of salivary glands.- White spot diseases and benign and premalignant leukoplakias of oral mucosa.
Practical: D11. Hyperplastic gingivitis. D12. Traumatic ulcus. D13. Pyogenic granuloma. D14. Epulis. D15. Leukemic ulceronecrotic stomatitis.

9th week:
Lecture: - Esophageal diseases. Gastritis. Gastroduodenal ulcers.- Gastric tumors.- Maldevelopment of the intestine. Megacolon. Circulatory intestinal lesions.-Oral and odontogenic tumors.
Practical: D16. Miliary tuberculosis of the tongue. D17. Lichen planus. D18. Lupus erythematosus. D19. Pemphigus vulgaris.

10th week:
Lecture: - Enteritis. Enterocolitis. malabsorption. Inflammatory bowel diseases.- Colorectal cancer.- Intra-, and extrahepatic biliary tract diseases.-Ulcerous and vesiculobullons oral mucosa lesions.
Practical: D22. Solar cheilitis. D23. Leukoparakeratosis. D25. Planocellular papilloma. D27. Planocellular carcinoma of the tongue. D28. Basocellular carcinoma.

11th week:
Lecture: - Viral hepatitis. Drug induced liver diseases. Acute and chronic hepatic failure.- Liver cirrhosis.- Tumors and circulatory disorders of the liver. Inherited metabolic liver diseases.-Diseases of the tongue. Granulomatons oral disorders.
Practical: D29. Melanoma malignum. D30. Lymphangioma. D31. Lipofibroma. D32. Granular cell schwannoma. D33. Schwannom.

12th week:
Lecture: - Cholestatic liver diseases. Disorders of the gallbladder and the extrahepatic biliary tract.- Pathology of the thyroid and parathyroid.- Pathology of the adrenals.-Periodontitis. Oral connective tissue diseases. Wound healig.
Practical: D34. Osteoma. D35. Fibrous dysplasia. D36. Cementifying fibroma. D37. Ameloblastoma of the mandibule. D38. Cementoma.

13th week:
Lecture: - The pathology of the pancreas and the appendix.- Testicular tumors.- Non-neoplastic and preneoplastic conditions of the breast.-Bone diseases of the maxilla and mandible.
Practical: D39. Sialolithiasis; Chronic sialoadenitis. D40. Sjögren syndrome. D41. Adenolymphoma (Warthin-tumor). D42. Pleomorphic adenoma. D43. Adenoid cystic carcinom.

14th week:
Lecture: - Breast cancer.- Uterine tumors.- Tumors of the ovarium.
Practical: Repeating practice

15th week:
Lecture: - Pathology of the pregnancy. Pathomorphological aspects of most frequent diseases of the newborn.- Non-neoplastic lesions of the bone. Pathology of the joints.- Bone tumors.
Practical: Repeating practice

Requirements

Validation of semester in Pathology:

Missing two practicals (histopathology and gross pathology together) is tolerable. Intracurricular replacement of histopathological and/or gross pathological classes is possible on the same week.

Examination:
On the 14th week (computerized) written exam, 15th week practical exams on both semester (these exams are parts of the ESE and FE - the student is released from the written and/or practical part of

ESE or FE if her/his evaluation is: pass). In case of failure student can repeat these parts of the exam during the exam period.
At the end of the 1st semester the student is required to take **End of Semester Examination** (ESE) based on the material taught in the semester.

The Exam consists of: written, practical exam and theoretical parts.
The written exam: the students get questions (can be found on the Department's website) and has to reach 70% to pass this part of the exam. In the 2nd semester the questions comes from the 1st and the 2nd semester.
The practical exam takes place in the autopsy room. An acceptable result in the practical exam is mandatory to apply for the oral part.
During the theoretical exam 3 titles are to be worked out and presented orally and pne photo about a slide (with different magnification) has to be described and diagnosed also orally. The knowledge of students is assessed on a five-grade evaluation scale.

At the end of the 2nd semester the student is required to the take **Final Exam** (FE).

Exam consists of: written, practical(15th week) and theoretical parts. The written and practical exams are the same as above. During the theoretical exam 3 titles are to be worked out (one from the material of the 1st semester, one from the material of the 2nd semester, and one dentistry topic). One photo about a slide (with different magnifications) has to be described and diagnosed (from the whole year – dentistry slides included). At least a (2) level of gross pathological examination and recognition of the histopathological alteration achieved in the course of a previous unsuccessful examination are acceptable without repeating for the next (B or C chance) examination.

For further information: http://pathol.med.unideb.hu

Division of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY PROPEDEUTICS**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **15**
Practical: **35**

1st week:
Lecture: Anatomy of the maxillofacial region
Practical: Introduction to Oral Surgery Department

2nd week:
Lecture: Examination of the oral surgical patient
Practical: Complementary examination methods

3rd week:
Lecture: Imaging techniques in oral surgery I.
Practical: Imaging techniques in oral surgery II.

4th week:
Lecture: Local anaesthetics, pharmacology
Practical: Introduction of the local anaesthetic methods 1.

5th week:
Lecture: Complications of local anaesthesia
Practical: Introduction of the local anaesthetic methods 2.

6th week:
Lecture: TEST 1.
Practical: Practice of techniques of examination and local anaesthesia

7th week:
Lecture: Oral surgery instruments
Practical: Oral surgery instruments

8th week:
Lecture: Indications and techniques of dental extraction
Practical: Practice of techniques of examination and local anaesthesia dental extraction, instruments

9th week:
Lecture: Complications of dental extraction
Practical: Practice of techniques of examination and local anaesthesia, dental extraction, instruments

10th week:
Lecture: Basic techniques in oral surgery I.
Practical: Practice of techniques of examination and local anaesthesia, dental extraction, instruments

11th week:
Lecture: Basic techniques in oral surgery II.
Practical: Practice of techniques of examination and local anaesthesia, dental extraction, instruments

12th week:
Lecture: Asepsis, antisepsis, sterility, sterilization in oral surgery
Practical: Visit to the Central Sterilization Unit. Methods of sterilization

13th week:
Lecture: TEST 2.
Practical: Practice of techniques of examination and local anaesthesia, dental extraction, instruments

14th week:
Lecture: Final consultation
Practical: Practical assessment

15th week:
Lecture: Remedial TEST
Practical: Practice of techniques of examination and local anaesthesia, dental extraction, instruments

Requirements

REQUIREMENTS:
The students are starting from the 4th week the practice on the phantom heads in the 5 unit oral surgery out patient center.
Conditions of signature in the lecture book:
Active participation in the practices (there is no possibility to compensate for missed practices), delay from the practices is not permitted. Students are required to attend the practices.
Every student have to participate in the practices in their preassigned groups. There is no possibility to change between the practical groups. With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 20%, even if it is certificated.
Only one absence may be accepted from the obligatory lectures, in case of more absences the semester won't be accepted. **Missed practices and compulsory lectures should be certified in a credible way within three workdays.**
Prerequisites: Oral Anatomy, Histology and Embryology II,, Biochemistry II., Pathology I
Assessment: end semester exam (involving possibility of failure).
There are two tests and one remedial during the semester. The results of the two best tests are calculated into the end semester grade. End semester exam contains two titles: „A" title-practical and „B" title-theoretical. The exam always starts with the practical title. The practical exam includes patient's examination, instrumentation and demonstration of techniques of local

anaesthesia. Students failing in the practical part cannot continue the exam.
There is no electronical test (tablet) on C exams.
Compulsory lectures:
4th week Local anaesthetics, pharmacology
5th week Complications of local anaesthesia
8th week Indications and techniques of dental extraction, upper teeth
9thweek Indications and techniques of dental extraction, lower teeth
10th week Complications of extraction

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

Division 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

15th week:
Practical: 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
- to treat and maintain the patient with periodontal disease in a holistic manner

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.

REQUIREMENTS:
Lectures: As given in the timetable (time & place)

Practices: In the building of Faculty of Dentistry

Conditions of signature in the lecture book:
- active participation in practices
- no more absence than 20%

Assessment: oral exam (5 grade)
Compulsory reading:

- lectures and practices materials (handouts are available)

Prerequisites: Preclinical Periodontology, Biochemistry

Division of Restorative Dentistry

Subject: **RESTORATIVE DENTISTRY PROPEDEUTICS II. (ENDODONTICS)**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **15**
Practical: **45**

1st week:
Lecture: Anatomy of the teeth (upper and lower: number, localization and shape of the roots and root canals).
Practical: Root canal morphology of the upper teeth.

2nd week:
Lecture: Morphology of the pulp chamber and the root canal system (accessory root canals, apical delta and apical foramens).
Practical: Root canal morphology of the lower teeth.

3rd week:
Lecture: Preservation of pulp vitality (direct and indirect pulp capping).
Practical: Pulp capping methods.

4th week:
Lecture: The purpose, indications, contraindications and steps of the root canal treatment. The most common pulp diagnoses. Differential diagnosis.
Practical: Access cavity preparation.

5th week:
Lecture: Endodontic instruments. Access cavity preparation (upper and lower teeth).
Practical: The usage of the different endodontic hand instruments. Rubber dam application.

6th week:
Lecture: X-rays during Endodontic treatment.
Practical: Working length determination. Practice of shaping and cleaning of the root canal: standardized technique. Root canal irrigation, drying and intracanal medicament (materials and methods).

7th week:
Lecture: The role, objectives and principles of the chemomechanical preparation of the root canal system. Standardized technique and step-back preparation.
Practical: Practice of shaping and cleaning of the root canal: step-back preparation

8th week:
Lecture: Different materials in the root canal system: irrigation materials, intracanal medicaments and root canal filling materials (classification).
Practical: Written exams I.

9th week:
Lecture: Root canal obturation: classification; single cone and lateral compaction.
Practical: Root canal obturation methods: single cone and lateral compaction.

10th week:
Lecture: Removing of root canal filling materials.
Practical: Removing of root canal filling materials .

11th week:
Lecture: Reconstruction of endodontically treated teeth (intrapulpal pin, inlay and onlay).
Practical: One visit endodontic treatment in extracted tooth.

12th week:
Lecture: Endodontic surgery: retrograde root canal filling
Practical: Written exam II. Endodontic surgery: retrograde root canal filling.

13th week:
Lecture: Medical history, patient assessment,

treatment plan, pulp diagnostic in endodontics. Documentation.
Practical: Medical history, patient assessment, treatment plan, pulp diagnostic in endodontics. Documentation.

14th week:
Lecture: Written exam

Practical: Preparation of curved and / or narrow root canals

15th week:
Lecture: Consultation / remedial written exam
Practical: Consultation. Grade calculation.

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 1 written test that takes place during a lecture and 2 tests during the practicals. Result of any missed tests conclude to a fail (1) grade.
* 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 a lecture book it is required to have more than 70% 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 a failed!

* Any missed practices result in a fail (1) grade.

Grade formation
* If the average of:
* the mark of the semester (15) +
* the result of test during a lecture +
* the result of 2 test during the practicals.

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)

CHAPTER 19
ACADEMIC PROGRAM FOR THE 4TH YEAR

Department of Basic Medical Sciences

Subject: **DERMATOLOGY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **15**

1st week:
Lecture: Dermatology in oral medicine. Structure of skin.

2nd week:
Lecture: Primary and secondary lesions.

3rd week:
Lecture: Dermatologic surgery.

4th week:
Lecture: Papulosquamous dermatoses.

5th week:
Lecture: Drug eruption.

6th week:
Lecture: Skin Tumors.

7th week:
Lecture: Viral dermatoses. Epizoonozes.

8th week:
Lecture: Autoimmune and allergic skin diseases.

9th week:
Lecture: Photodermatoses.

10th week:
Lecture: Bacterial skin diseases. (tuberculosis, leprosy, pyoderma)

11th week:
Lecture: Mycology-Dermatomycoses.

12th week:
Lecture: Vasculitis. Postthromobotic syndrome.

13th week:
Lecture: STD.

14th week:
Lecture: Role of infectious foci, alopecias.

15th week:
Lecture: Seborrhoic diseases. Role of local therapy in dermatology.

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: **OTOLARYNGOLOGY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Seminar: **15**

1st week:
Lecture: Anatomy of external and middle ear. Examination of the external and middle ear. Significance, physiology of the auditory tube. Subjective hearing tests (Tuning fork tests, threshold audiometry).

2nd week:
Lecture: Symptoms of ear diseases. Inflammatory processes of external ear. Injuries of external ear. Ear vax. Acute suppurative otitis media.

3rd week:
Lecture: Anatomy and physiology of larynx. Diagnosis of laryngeal diseases.

4th week:
Lecture: Symptoms of upper respiratory strictures.Tracheotomy. Conicotomy. Trauma of the larynx. Acute inflammatory diseases of the larynx. Oedema laryngis.

5th week:
Lecture: Symptoms of laryngeal cancers. Therapy of the laryngeal cancers. Foreign bodies of the larynx and trachea.

6th week:
Lecture: Anatomy of the oral cavity and the pharynx. Physiology and examination of the oral cavity and pharynx. Mechanical and chemical injuries of the oral cavity and pharynx. Foreign bodies.

7th week:
Lecture: Hyperplasy ot the lymphoepithelial organs of the pharynx. Indications of tonsillectomy and adenotomy. Ludwig's angina, peritonsillar abscess, tonsillar sepsis. Acute inflammatory diseases of the Waldeyer's ring. Herpangina, angina monocytotica, angina ulceromembranacea, angina agranulocytotica. Soor.

8th week:
Lecture: Chronic inflammatory diseases of the Waldeyer's ring. Indication and contraindication of tonsillectomy. Juvenile anginofibroma. Malignant diseases of the pharynx.

9th week:
Lecture: Anatomy and function of the nasal cavity and the paranasal sinuses. Examination of the nasal cavity and the paranasal sinuses. Smell disturbances. Sleep apnoe syndrome.

10th week:
Lecture: Trauma and inflammatory disorders of the external nose. Epistaxis and its menagement. Trauma of the paranasal sinuses and frontobasal region

11th week:
Lecture: Obstruction of the nasal cavity. Inflammatory diseases of the nasal cavity. Inflammatory diseases of the paranasal sinuses.

12th week:
Lecture: Tumors of the nasal cavity and the paranasal sinuses. Differential diagnosis of the diseases of the nasal cavity and paranasal sinuses.

13th week:
Lecture: Anatomy, physiology and examination of the oesophagus. Injuries of the oesophagus. Anatomy and examination of the neck. Anatomy, physiology and function of salivary glands. Examination methods of the salivary glands.

14th week:
Lecture: Inflammatory diseases of the salivary glands. Tumors of the salivary glands. Differential diagnosis of neck masses. Foreign bodies in the ear, nose and phaynx.

15th week:
Lecture: Differential diagnosis of the headache.

Requirements

Education: The form of education is seminar. During the semester one seminar is hold every week, so altogether the course consist of 15 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: **30**
Seminar: **26**
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. Principles of prevention

2nd week:
Lecture: 3. Air pollution and health4. Water pollution and health
Seminar: 3-4. Demographic methods to study the health status of the population

3rd week:
Lecture: 5. Health effect of the occupational environment. I. Physical hazards 6. Health hazards of ionising radiation and radioactive substances
Seminar: 5-6. Occupational health and safety in dentist practice

4th week:
Lecture: 7. Health effects of the occupational environment. II. Toxicology of inorganic industrial toxicants 8. Health effects of the occupational environment. III. Toxicology of organic solvents and pesticides
Practical: 7-8. Chemical and microbiological examination of drinking water (laboratory practice for small groups)

5th week:
Lecture: 9. The general effect of environmental pollution 10. Lifestyle and health

Practical: 9-10. Chemical and microbiological examination of drinking water (laboratory practice for small groups)

6th week:
Lecture: 11. Healthy nutrition. Nutritional deficiency disorders 12. Food poisoning
Seminar: 11-12. Mercury toxicity, case study

7th week:
Lecture: 13. Public health consequences of substance abuse 14. Social factors and health
Seminar: 13-14. Health promotion, Health education

8th week:
Lecture: 15. Epidemiology of respiratory diseases 16. Epidemiology of skeletal and dental diseases I
Seminar: 15-16. Midterm test

9th week:
Lecture: 17. Public health problems of disadvantaged people18. Introduction into the general epidemiology of non-communicable diseases
Seminar: 17-18. Epidemiological measures

10th week:
Lecture: 19. Epidemiology of neoplastic diseases 20. Epidemiology of cardiovascular diseases
Seminar: 19-20. Epidemiological studies

11th week:
Lecture: 21. Epidemiology of skeletal and dental diseases II22. General epidemiology of communicable diseases
Seminar: 21-22. Preventive strategies

12th week:
Lecture: 23. Epidemiology of respiratory infectious diseases 24. Infection Control in Dental Health-Care Settings
Seminar: 23-24. WHO/HFA database

13th week:
Lecture: 25. Communicable diseases transmitted through the skin 26. Epidemiology of sexually transmitted diseases and AIDS
Seminar: 25-26. Reporting and control of communicable diseases, vaccination

14th week:
Lecture: 27. Epidemiology of viral hepatitis28. Health policy principles
Seminar: 27-28. Sterilization and disinfection

15th week:
Lecture: 29. Health care systems of developed countries 30. Needs, demands and use of health services
Seminar: 29-30. Central sterilization Unit of the Medical University (visit)

Requirements

Requirements for signing the lecture book
Attendance of lectures is highly recommended. Attendance of the seminars, practices and visits is obligatory. The head of the department can refuse to sign the lecture book, if a student is absent more than two times from seminars (including practices and visits) during the semester even if he/she has an acceptable excuse.

Requirements for the final exam
On the eighth week of the semester, writing a midterm test is obligatory. The midterm test consists of multiple choice questions covering the topics of the lectures, seminars and practices of the first 7 weeks. The grade of the midterm test is included into the assessment of the final mark of the subject. If the midterm test is failed, there is no possibility for repetition. The final exam involves written and oral sections covering the topics of all lectures, seminars and practices of the subject. The oral exam covers the topics of all seminars and practices of the semester. The written exam consists of multiple choice test questions related to Environmental Health, Epidemiology and Health Policy. The final grade is assessed on the basis of the average of five marks and 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 those section(s) 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.

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 dental practice, epidemiology of dental caries and oral diseases, 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, seminars, practices and visits. 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. The practices are closely related to the environmental health part of the course. 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 during the epidemiology seminars.

Prerequisite

microbiology, pathology II.

Department of Surgery

Subject: **SURGERY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **15**

1st week:
Lecture: The history of surgery. Asepsis, antisepsis. Disinfection.
Practical: Presentation of the clinic. Structure and working system of the surgical department.

2nd week:
Lecture: Operations. Postagression syndrome, pathophysiological relations of surgical interventions. Recognition and treatment of postoperative complications.
Practical: Visit at the operation room and sterilization unit.

3rd week:
Lecture: Anesthesia. Postoperative care. Clinical aspects of bleeding, transfusion.
Practical: Transfusiology in practice.

4th week:
Lecture: Burns and other thermal injuries. Types of wounds. Wound healing. Wound dressings.
Practical: At the Department of Dermatology. Presentation of patients with burns.

5th week:
Lecture: Principles of vascular surgery. Thrombosis and embolism.
Practical: Peripheral venous catheterization.

Catheters. Different types of injections. Prevention of postoperative thrombosis in practice.

6th week:
Lecture: Surgical infections. Aerob and anaerob infections. Viral infections.
Practical: Treatment of infected wounds (incision, drainage, wound dressing).

7th week:
Lecture: Antibiotics in surgery. Surgical oncology.
Practical: Practice on the wards, presentation of patients.

8th week:
Lecture: First aid. Resuscitation. Shock.
Practical: Visit at the Intensive Care Unit.

9th week:
Lecture: Organ transplantation.
Practical: Practice on the wards, presentation of patients.

10th week:
Lecture: Head and neck surgery. Endocrine and breast surgery.
Practical: Treatment of wounds. Wound dressing. Demonstration of different types of bandages. Suture and clip removals.

11th week:
Lecture: Thoracic surgery. Surgical aspects of esophageal and mediastinal diseases.
Practical: At the thoracic surgical ward. Presentation of patients.

12th week:
Lecture: Surgical diseases of the stomach and the intestines. Hernias.
Practical: Video presentation of different types of operations (I).

13th week:
Lecture: Diseases of the pancreas liver and biliary tract. Acute abdomen Peritonitis.
Practical: Video presentation of different types of operations (II).

14th week:
Lecture: Basic cardiac surgery.
Practical: Visit at the cardiac surgery center of the Department of Cardiology.

15th week:
Lecture: Kidney, prostate and urinary bladder.
Practical: Case presentations. Discussion.

Requirements

Students attend 15 lectures during the semester. There are no weekly practices.
At the end of the semester the department signs the Lecture Book confirming that the student has fulfilled the requirements of the course.
The student should pass an examination (ESE) at the end of the semester.

Division of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **5**
Practical: **110**

1st week:
Lecture: General nursery procedure in the dental surgery

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: Nursery procedures during prosthetic treatment

4th week:
Lecture: Extraction related nursery procedures

5th week:
Lecture: Nursery procedure during periodontial treatment

Requirements

Assessment:
End semester exam. The mark given on the basis of the student's term-time practical performance will be offered
as mark of the end semester exam. The marks can be improved during exam period.

Conditions of signature in the lecture book:
-Completion of the required minimum.
-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 (included the assistant practices as well) cannot exceed 20 %, even it is certificated.
-The practical work will be evaluated with grades. The final grade is calculated on basis of the average results of the term-time practices.
-The student's performance provided on general practices will be evaluated twice during the semester. In case the performance is not-acceptable, the student will be warned. Students with two warnings shall not be given signature in the lecture book.
-With failed final practical grade based on the student's term-time practical performance the signature will be rejected.

Prerequisites: Propedeutics and technology of total and partial removable dentures, Endodontics propedeutics, Oral surgery propedeutics

Subject: **PROSTHETIC DENTISTRY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **15**
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: Luting agents.

14th week:
Lecture: Postoperative care.

15th week:
Lecture: Consultation.

Requirements

Conditions of signature in the lecture book:

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. The signature in the lecture book will be refused in cases of absences from more than 50% of any special practice. All the absences must be certificated.
One self-control test will be held during the semester based upon the material of the lectures and practices, at a date announced later. The result of the self-control test will be offered as the grade of the end of semester exam. This grade can be improved during the exam period from the material of the titles attached.

Prerequisites:
Propedeutics and Technology of Total and Partial Removable Dentures

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.

Division of Dental Medicine

Subject: **INTERNAL MEDICINE I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **15**

1st week:
Lecture: Stomatology and internal medicine (Dr. I. Tornai)
Practical: History taking, physical examination (Department of Internal Medicine building B).

2nd week:
Lecture: Symptoms and diagnostic procedures in cardiology (Dr. I. Tornai)
Practical: History taking, physical examination (Department of Internal Medicine building B)

3rd week:
Lecture: Acquired valvular and congenital heart diseases (Dr. Zs. Vitális)
Practical: History taking, physical examination (Department of Internal Medicine building B)

4th week:
Lecture: Angina pectoris (Dr. I. Hegedűs)
Practical: Examination of cardiac patients (Dept. Cardiology)

5th week:
Lecture: Myocardial infarction (Dr. Zs. Kőszegi)
Practical: Examination of cardiac patients (Dept. Cardiology)

6th week:
Lecture: Infective endocarditis (Dr. I. Tornai)
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

7th week:
Lecture: Arrhythmias, pacemaker treatment (Dr. I. Tornai)
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

8th week:
Lecture: Cardiac failure, antithrombotic treatment in cardiology (Dr. I. Tornai)
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine)

9th week:
Lecture: Hypertension (Dr. I. Tornai)
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine)

10th week:
Lecture: Venous thromboembolic disorders (Prof. Z. Boda)
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

11th week:
Lecture: Arterial thromboses (Prof. Z. Boda)
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

12th week:
Lecture: Pneumonias, tuberculosis, lung cancer (Dr. A. Fodor)
Practical: Patients with pulmonary disorders (Dept. Pulmonology)

13th week:
Lecture: COPD, respiratory failure (Dr. A. Fodor)
Practical: Patients with pulmonary disorders (Dept. Pulmonology)

14th week:
Lecture: Glomerulonephritis, pyelonephritis (Dr. I. Tornai)

Practical: Patients with renal disorders (Department of Internal Medicine building A)

15th week:
Lecture: Renal failure (Dr. I. Tornai)

Practical: Patients with renal disorder (Department of Internal Medicine building A)

Division of Dental Physiology and Pharmacology

Subject: **DENTAL PHARMACOLOGY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **30**
Seminar: **15**

1st week:
Lecture: Drug receptors and pharmacodymamics 1. Drug receptors and pharmacodynamics 2.
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.
Seminar: WRITTEN EXAMINATION.

15th week:
Lecture: Drugs acting on the gastrointestinal tract 1. Drugs acting on the gastrointestinal tract 2.
Seminar: Prescription writing.

Requirements

Attendance at seminars is compulsory. The Department may refuse to sign the student's Lecture Book if he/she is absent from more than two seminars. The current knowledge of the students will be tested twice in each semester by 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 (ESE) and the Final Examination (FE). At the end of the 1st semester the students are required to take the ESE (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 FE, based on the material taught in Pharmacology in both semesters.

Division of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: Surgical treatment of tooth-eruption disorders

2nd week:
Lecture: Endodontic surgery

3rd week:
Lecture: Oral surgical treatment of patients with hemostatic disorders

4th week:
Lecture: Odontogenic and non-odontogenic inflammations of the head and neck region and their treatment I.

5th week:
Lecture: Odontogenic and non-odontogenic inflammations of the head and neck region and their treatment II.

6th week:
Lecture: Antibiotics in oral surgery
Osteomyelitis of the jaws

7th week:
Lecture: Test 1.

8th week:
Lecture: Pathology and therapy of head and neck cysts I.

9th week:
Lecture: Pathology and therapy of head and neck cysts II.

10th week:
Lecture: Diseases of the maxillary sinus and their treatment.

11th week:
Lecture: Diseases of the salivary glands and their treatment.

12th week:
Lecture: Preprosthetic surgery I.

13th week:
Lecture: Dysgnathias and their treatment.

14th week:
Lecture: Test 2.

15th week:
Lecture: Final consultation.

Requirements

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 cannot join the practice or the lecture. Students should take part in the practice from its beginning to the end. 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 missing. Without certification and compensation of the missed practice, students won't get a signature.

Assessment:
5AW practical grade, calculated from the results of the 2 mid-term written tests. Students who do not write a test automatically get a fail. If the average of the 2 written tests is less than 1,51, remedial test should be written on the 15th week (after the final consultation), the remedial contains the whole material of the 1st semester of the 4th year. Student, who fail to write the remedial test or get a fail, should take an oral end semester exam in the exam period.
We are introducing entrance minimum questions in electronic form (tablet). The oral exam examination is bound to successful entrance exam (min. score to pass is 70%), students will be required to write the tablet test before the oral exams.
Prerequisites: Pathology II, Oral Surgery propedeutics

OBLIGATORY LECTURES:
1st week Surgical treatment of tooth-eruption disorders.
2nd week Endodontic surgery
3rd week Oral surgical treatment of patients with hemostatic disorders
4th week Odontogenic and non-odontogenic inflammations of the head and neck region and their treatment
6th week Antibiotics in oral surgery. Osteomyelitis of the jaws

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

Division of Pediatric Dentistry and 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 and development.

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 appliance, combined appliances).

13th week:
Lecture: The sequence of tooth eruption.
Treatment timing, prevention.
Self-control test.

Requirements

Practice thematics:
- Introduction the orthodontic practice, documentation
- Impression, bite registration
-Orthodontic assessment, create orthodontic diagnosis
- Evaluation of x-rays and casts
- Removable orthodontic appliances

Practice minimum requirements:
- 10 orthodontic diagnosis and treatment plan suggestions

Conditions of signing the lecture book:
Active participation in the practices (there is no possibility to compensate the missed practices). With acceptable certificate students may miss one practice (5hours).
Five grade (AW5) practical grade evaluation: The final AW5 marks are decided according to the marks given during the semester. 2 written tests will be held during the semester. The average mark of the 2 written tests will give the final mark. If it is less than 1,51 than the grade is 'failed' (1) and the grade must be improved during the examination period, as an A, B or C chance.

Assessment of course work: five grade (AW5).

Requirements:
Propedeutics and technology of total and partial removable dentures
Endodontics Propedeutics
Compulsory textbook:

Proffit W., Fields H., Sarver D.: Contemporary orthodontics 5th ed., Elsevier 2013
+ all of the lectures during the semester

Subject: **PREVENTIVE DENTISTRY II.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Seminar: **15**

1st week:
Seminar: Oral status and indices

2nd week:
Seminar: Caries risk assessment

3rd week:
Seminar: Fluoride therapy, remineralization techniques

4th week:
Seminar: Fissure sealing

5th week:
Seminar: The effect of diet on oral health

6th week:
Seminar: How to plan preventive programs? How to educate patients?

7th week:
Seminar: Preventive programs in practice

8th week:
Seminar: Self-control test

9th week:
Seminar: Preventive care in conservative dentistry

10th week:
Seminar: Preventive care in prosthetic dentistry

11th week:
Seminar: Preventive care in orthodontics

12th week:
Seminar: Preventive care in oral surgery

13th week:
Seminar: Preventive care in periodontology

14th week:
Seminar: Up-to-date preventive methods

15th week:
Seminar: Self-control test

Requirements

Requirements
Seminars: In the building of the Faculty of Dentistry.
Conditions of signing the lecture book:
- Active participation in the seminars
- With acceptable written certificate students may miss 2 seminars (there is no possibility to compensate the missed seminars).

Assessment:
- 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%
- 5 grade (AW5) practical mark will be offered according to the average of the result of the SCTs.
- If the average of the SCTs is under 60% the student must take an end semester (oral) exam.

- Students are not obliged to accept the grade offered and may opt for taking an oral examination.
Calculation of the offered grade:
60-69,9% pass (2)
70-79,9% satisfactory (3)
80-89,9% good (4)
above 90% excellent (5)
Prerequisites of taking the subject: Preventive dentistry I., Conservative dentistry propedeutics II

Division of Periodontology

Subject: **PERIODONTOLOGY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: Dental calculus, bacterial plaque and other deposits. The role of bacterial plaque and other local factors in the etiology of periodontal diseases. Microbiology of periodontal disease.

2nd week:
Lecture: Orthodontics lectures

3rd week:
Lecture: Etiology of periodontal diseases: the role of systemic factors.

4th week:
Lecture: Pathogenesis of periodontal diseases. Role of the immune system.

5th week:
Lecture: Written exam.

6th week:
Lecture: Clinical diagnosis of periodontal disease in general.

7th week:
Lecture: National holiday.

8th week:
Lecture: Progression of periodontal disease. Classification of periodontal disease.

9th week:
Lecture: Written exam.

10th week:
Lecture: Orthodontics lectures.

11th week:
Lecture: Gingivitis: Clinical features and diagnosis Periodontitis: Clinical features and diagnosis.

12th week:
Lecture: Gingival enlargement. Desquamative gingivitis.

13th week:
Lecture: Early onset and rapidly progressing periodontitis. Refractory periodontitis.

14th week:
Lecture: Emergencies in periodontology.

15th week:
Lecture: Advanced diagnostic methods in periodontology. Consultation.

Requirements

Requirements
Lectures: As given in the timetable (time and place)
Practices: In the building of Faculty of Dentistry (Dept. of Periodontology)
Conditions of signature in the lecture book:
-Active participation in the practices (there is no possibility to compensate the missed 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 practices is not-accepted.
- Students have to fulfill 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.
- The tests, written during the semester should be passed. The result of the failed tests 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.
Assessment: End of Semester Exam.

Division of Restorative Dentistry

Subject: **RESTORATIVE DENTISTRY I. (CARIOLOGY)**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **15**
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. Dentin adhesion. Generations of adhesives.

8th week:
Lecture: Adhesive technique II. Types of composites. Available products and their usage.

9th week:
Lecture: Layering techniques, light curing possibilities to reduce polimerization shrinkage and improve marginal seal. Rebonding. Polishing of composites.

10th week:
Lecture: Up to date matrice systems.

11th week:
Lecture: Treatment of cervical lesions. Sandwich technique.

12th week:
Lecture: Written test.

13th week:
Lecture: Chairside direct composite inlay, onlay.

14th week:
Lecture: Dental treatments in elderly. Caries of the roots, treatment options.

15th week:
Lecture: Case presentations./ Consultation.

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. There is a chance of improvement of this written test on the 15th week of the semester. Result of any missed tests conclude to a fail (1) grade.

• 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.

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 (V. 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), .Prop. and Techn. of Total and Partial Removable Dentures, together with Prosthetic Dentistry I.

Special practices (4th 1st semester):
1. Relative and absolute isolation in dentistry.
2. Sensitivity 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 tract 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, Module-based teaching program entitled “Basic Life Support module (BLS)” and course material equivalent to 2.0 credits according to the electronic, Module-based teaching program entitled “Advanced Life Support module (ALS)”

Division of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **5**
Practical: **110**

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:
End semester exam. Mark given on the basis of the student's term-time practical performance will be offered as mark of the end semester exam. The marks can be improved during exam period.
Conditions of signature in the lecture book:
-Completion of the required minimum.
-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 (included the assistant practices as well) cannot exceed 20 %, even it is certificated.
-The practical work will be evaluated with grades. The final grade is calculated on basis of the average results of the term-time practices.
-The student's performance provided on general practices will be evaluated twice during the semester. In case the performance is not-acceptable, the student will be warned. Students with two warnings shall not be given signature in the lecture book.
-With failed final practical grade based on the student's term-time practical performance the signature will be rejected.
Prerequisites: Complex Dentistry I.

Subject: **DIGITAL DENTISTRY**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **15**
Practical: **15**

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.
Practical: Machining design with CAM (Computer Aided Manufacturing) applications.

9th week:
Lecture: Introduction to additive technologies.
Practical: Rapid Prototyping with 3D printing.

10th week:
Lecture: Custom-made implant design and fabrication based on 3D printing
Practical: Custom-made implant design and fabrication based on 3D printing

11th week:
Lecture: Possibilities of digital dentistry in orthodontics
Practical: Possibilities of digital dentistry in orthodontics

12th week:
Lecture: Digital techniques in oral surgery
Practical: Digital techniques in oral surgery

13th week:
Lecture: Digital techniques in prosthetic dentistry
Practical: Digital techniques in prosthetic dentistry

14th week:
Lecture: Digital dentistry in the praxis
Practical: Digital dentistry in the praxis

15th week:
Practical: Consultation. Test.

Requirements

Conditions of signature to the lecture book:
* Active participation on the practices (there is no possibility to compensate the missed practices).
* The practices begin/end according to the timetable, being late for a practice is not permitted.
* The signature in the lecture book will be refused in cases of absences from more than 2 practices. All the absences must be certificated.

Final five grade practical (AW5) evaluation:
The evaluation will be held during the 15th week of the semester at a prearranged time. 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: **15**
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.

15th week:
Lecture: Consultation.

Requirements

Conditions of signature in the lecture book:
* 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.
* The signature in the lecture book will be refused in cases of absences from more than 50% of any special practice. All the absences must be certificated.
* AW5 mark may be given on the basis of the student's term-time practical performance, which may be considered at the ESE grade.

Topics of the special practices:

Tooth color determination
Application of CAD-CAM systems

Prerequisites:
Prosthetic Dentistry I.

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.

Division of Dental Medicine

Subject: **INTERNAL MEDICINE II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **30**
Practical: **30**

1st week:
Lecture: a. Disorders of the esophagus: reflux, tumors. b. Disorders of the stomach: ulcer, gastritis
Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

2nd week:
Lecture: a. Disorders of the bowel system: malabsorption, irritable bowel, IBDb. Viral hepatitis
Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

3rd week:
Lecture: a. Non-viral chronic liver diseases. b. Cirrhosis hepatic, liver transplantation
Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

4th week:
Lecture: a. Disorders of the gall bladder, obstructive jaundiceb. Disorders of the pancreas
Practical: Patients with hematological disorders and bleedings (Department of Internal Medicine building B)

5th week:
Lecture: a. Coagulopathiesb. Thrombocytopenias, thrombocytopathies.
Practical: Patients with hematological disorders and bleedings (Department of Internal Medicine building B)

6th week:
Lecture: a. DIC, TTP, HUS. b. Bleedings induced by antithrombotics, dental aspects.
Practical: Patients with hematological disorders or thrombosis (Department of Internal Medicine building B)

7th week:
Lecture: a. Acute leukaemiasb. Anemias, transfusion
Practical: Patients with hematological and bleeding disorders (Department of Internal Medicine building B)

8th week:
Lecture: a. Chronic myeloproliferative disorders. b. Chronic lymphoproliferative disorders.
Practical: Patients with hematological and bleeding disorders (Department of Internal Medicine building B)

9th week:
Lecture: a. Disorders of the pituitary and adrenal gland. b. Disorders of the thyroid gland.

10th week:
Lecture: a. Disorders of the parathyroid gland, osteoporosis, osteomalatia. b. Disorders of the lipid metabolism, obesity, gout.
Practical: Patients with endocrinological disorders and diabetes mellitus (Department of Internal Medicine building A)

11th week:
Lecture: a. Diabetes mellitus.
b. Rheumatoid arthritis, degenerative joint disorders.
Practical: Patients with endocrinological disorders and diabetes mellitus (Department of Internal Medicine building A)
Patients with immunological disorders (3rd Dept. Medicine).

12th week:
Lecture: a. Systemic autoimmune disorders I.: SLEb. Systemic autoimmune disorders II.: Sjögren's sy., systemic sclerosis, polymyositis, MCTDb. Systemic autoimmune disorders: vasculitis, Behcet sy, etc.

Practical: Patients with immunological disorders (Institute of Internal Medicine Building C)

13th week:
Lecture: a. Systemic autoimmune disorders III.: vasculitides, Bechet sy. b. Immunodeficiency (oral aspects), AIDS, immunosuppressive therapy.b. Atopic disorders, anaphylaxis.

Practical: Patients with immunological disorders (Institute of Internal Medicine Building C)

14th week:
Lecture: a. Atopic disorders, anaphylaxisb. Rheumatoid arthritis, degenerative joint disorders
Practical: Institute of Internal Medicine, Division of Rheumatology

15th week:
Lecture: a. Shock. Peripheral circulatory insufficiency b. Electrolyte therapy
Practical: Institute of Internal Medicine Building B

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.

Division of Dental Physiology and Pharmacology

Subject: **DENTAL PHARMACOLOGY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **30**
Seminar: **15**

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.
Seminar: Consultation.

14th week:
Lecture: Drugs for medical emergencies 2.Drugs for medical emergencies 3.
Seminar: WRITTEN EXAMINATION.

15th week:
Lecture: Toxicological aspects of dental practice 1.Toxicological aspects of dental practice 2.
Seminar: Consultation.

Requirements

Attendance at seminars is compulsory. The Department may refuse to sign the student's Lecture Book if he/she is absent from more than two seminars. The current knowledge of the students will be tested twice in each semester by 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.

Division of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: Maxillofacial traumatology, soft tissue and tooth injuries, pathology of fractures

2nd week:
Lecture: Diagnosis and treatment of mandible fractures I.

3rd week:
Lecture: Diagnosis and treatment of mandible fractures II.

4th week:
Lecture: Central and lateral midface fractures and their treatment.

5th week:
Lecture: TMJ diseases.

6th week:
Lecture: Test

7th week:
Lecture: Neurological diseases of the face

8th week:
Lecture: Developmental anomalies of maxillofacial region

9th week:
Lecture: Benign tumours

10th week:
Lecture: Odontogenic tumour

11th week:
Lecture: Craniofacial surgery

12th week:
Lecture: Differential diagnosis of facial pain

13th week:
Lecture: Pre Test consultation

14th week:
Lecture: Test

15th week:
Lecture: Final consultation. Remedial Test.

Requirements

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 cannot join the practice or the lecture. Students should take part in the practice from its beginning to the end. 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. Without certification and compensation of the missed practice, students won't get a signature.
Assessment: End Semester Examination contains the material of the 1st and 2nd semester of the 4th year. Results of the two midterm written tests are calculated in the end semester grade (missed midterm tests are considered as failed).
By (OS II) colloquium ESE we are introducing entrance minimum questions in electronic form (tablet). The oral exam examination is bound to the successful entrance exam (min score to is 70 %), students will be required to write the tablet test before the oral exams. If the average score of the tests written during the semester is 3 we will omit the entrance exam. Not writing the test is automatically considered as failed (1). The question can be from the material of Oral Surgery Propedeutics to the OS II's topics.
In order to prepare properly, to retake the exam by colloquium (ESE) 2 days must be elapsed.
Prerequisites: Oral Surgery I.

OBLIGATORY LECTURES:
1st week Maxillofacial traumatology, soft tissue and tooth injuries, pathology of fractures
4th week Central and lateral midface fractures and their treatment.
5th week TMJ diseases.

8th week Developmental anomalies of maxillofacial region
12th week Differential diagnosis of facial pain

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

Division of Pediatric Dentistry and Orthodontics

Subject: **ORTHODONTICS II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **15**
Seminar: **1**
Practical: **15**

1st week:
Lecture: Treatment of Angle class I. anomalies. Local and general anomalies.

2nd week:
Lecture: Treatment of Angle class II. anomalies.

3rd week:
Lecture: Treatment of Angle class III. anomalies.

4th week:
Lecture: Elements of fixed appliances.

5th week:
Lecture: Types and characters of orthodontic archwires.

6th week:
Lecture: Multiband systems (edgewise, light-wire, twin-wire).

7th week:
Lecture: Headgear, facebow, quad helix, hyrax and temporary anchorage devices

8th week:
Lecture: Extraction in orthodontics.

9th week:
Lecture: Adult treatment in orthodontics.

10th week:
Lecture: Orthodontic treatment by missing teeth.

11th week:
Lecture: Complex therapy of cleft lip and palate.

12th week:
Lecture: Ambulant surgical interventions in orthodontics.

13th week:
Lecture: Prevention of orthodontic anomalies.

14th week:
Lecture: Retention and recidive in orthodontics.

15th week:
Lecture: Final consultation.

Requirements

Requirements

Orthodontics I
Lectures: As given in the timetable (time and place).
Practices: In the building of Faculty of Dentistry.
Conditions of signature in the lecture book: Active participation on the practices (there is no possibility to compensate
the missed practices). With acceptable certificate students may miss one practice (5 hours).
Assessment: Final exam (oral).

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: Up-to-date fluoride treatment, materials and methods

6th week:
Practical: Infection control

7th week:
Lecture: Accurate oral status assessment is case of primary, mixed and permanent dentitions

8th week:
Lecture: Fissure sealing

9th week:
Lecture: Class I preparation in primary molars

10th week:
Lecture: Class II cavity preparation in primary teeth, matrix placement and wedging

11th week:
Lecture: Pulpotomy in primary tooth

12th week:
Lecture: Crown build up and preparation for SS crowns

13th week:
Lecture: Apexification

14th week:
Lecture: Splinting of traumatized teeth

15th week:
Lecture: Fluoride modalities

Requirements

Requirements
Seminars: In the building of Faculty of Dentistry
Practical: At the Department of Pediatric Dentistry.
Conditions of signing the lecture book:
- Active participation on the seminars
- With acceptable written certificate students may miss 1 seminar
- Participation in practices is obligatory. In case of absence practice should be made up for by attending the practical with another group.

Assessment:
- 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%
- 5 grade (AW5) practical mark will be offered according to the average of the practical grades and the result of the SCTs.
- If the average of the SCTs is under 60% the student must take an end semester (oral) exam.
- Students are not obliged to accept the grade offered and may opt for taking an oral examination.

Prerequisites of taking the subject: Preventive dentistry II, Orthodontics I

Division of Periodontology

Subject: **PERIODONTOLOGY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **15**
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: Scaling and root planing

4th week:
Lecture: Surgical Phase of periodontal therapy: Gingivectomy

5th week:
Lecture: Surgical phase of periodontal therapy: Flap procedures.

6th week:
Lecture: Surgical phase of periodontal therapy: Mucogingival surgery.

7th week:
Lecture: Treatment of furcation-involved teeth. Guided tissue regeneration. Growth factors and biochemical means.

8th week:
Lecture: Written exam

9th week:
Lecture: Connection between periodontology and other subdisciplines.

10th week:
Lecture: Effectiveness of periodontal therapy. Maintenance phase.

11th week:
Lecture: Chemical plaque-controll. Drugs in periodontology.

12th week:
Lecture: Trauma from occlusion.

13th week:
Lecture: Written exam.

14th week:
Lecture: Biological and clinical aspects of dental implants.Diagnosis and treatment of peri-implant disease.

15th week:
Lecture: Epidemiology of periodontal diseases.

Requirements

Clinical practice on periodontology 4th year:
1. Examination of periodontium
1.1. Physical examination

a) Taking previous medical history - the patients complaint(s)
b) Inspection - healthy periodontium - distinction from the diseased
c) Clinical examination of periodontium - periodontal probing; probing depth, pocket depth, definition of loss of attachment and their relationship
d) Periodontal charting and recording - definition and periodontal indices

2. Treatment of periodontal disorders in dental practice
2.1. Instruction and motivation of patients

a) Disclosing agents and their application in practice

b) Demonstration of different tooth brushing methods on model
2.2. Causative treatment of periodontal disorders: Scaling and root planning, curettage
a) Instruments and their usage (hand, rotational and ultra sound scalers; instruments for polishing, polishing pastes, maintenance of instruments)
b) Therapy assessment: results, failures, follow up

2.3. Periodontal surgery Indications and of contraindications of periodontal surgery, post surgical treatments

3. Medicaments in periodontal therapy

a) Chemical plaque control
b) Antibiotics in periodontics
c) Subgingival irrigation
d) Periodontal dressings, tissue adhesives in practice
e) Treatment of root hypersensitivity. Special oral hygiene aids, instruments

4. Periodontal aspects of implantology

Requirements:
Lectures: As given in the timetable (time and place).
Practices: In the building of Faculty of Dentistry.

Conditions of signature in the lecture book:
- Active participation on the practices (there is no possibility to compensate the missed 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 practice is not-accepted.
- Students have to fulfill 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.
- Each of the tests, written during the semester should be passed. The result of the failed tests must be repeated once during the semester. The appointment of the remedial will be punctually announced on the information board.

Five grade (AW5) practical grade evaluation:

The final AW5 marks are decided according to the marks (test and practical) given during the semester. At least 2 written self-control tests will be held during the semester, the pre-announciation of which is not obligatory for the department. 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 an 'A', 'B' or 'C' chance.
Assessment: five grade proposed marks AW5 (involving possibility of failure)

Division of Restorative Dentistry

Subject: **RESTORATIVE DENTISTRY II. (ENDODONTICS)**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: The pulp and periapical area: anatomy and histology. The dentin-pulp complex.The principles of endodontology

2nd week:
Lecture: Establishment of endodontic diagnosis. History, patient examination

3rd week:
Lecture: The biology of dental pulp: pathology, symptoms and therapy.

4th week:
Lecture: The periapical area: pathology, symptoms and therapy.

5th week:
Lecture: Guidelines in endodontics.

6th week:
Lecture: Modern concepts and methods in the course of shaping the root canal (hand and 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: Endodontics in health related problems

10th week:
Lecture: Root canal treatment: problems, failures and complications. Flare-ups in endodontics.

11th week:
Lecture: Endodontic revision (surgical and non-surgical retreatment).

12th week:
Lecture: Restoration of endodontically treated teeth.

13th week:
Lecture: Traditional and microsurgical techniques in endodontic surgery.

14th week:
Lecture: Written exam

15th week:
Lecture: Consultation / remedial 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. There is a chance of improvement of this written test on the 15th week of the semester. Result of any missed tests conclude to a fail (1) grade.
• **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.

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 (V. 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)

Special practices 4th 2nd semester 2x5 lessons
1. Class IV cavity preparation and composite filling with parapulpal pin.
2. Rotary instrumentation I. and obturation (lat. comp.).

CHAPTER 20
ACADEMIC PROGRAM FOR THE 5TH YEAR

Department of Basic Medical Sciences

Subject: **FORENSIC MEDICINE**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Seminar: **15**
Practical: **15**

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 diaster management (forensic odontologic consideration).

6th week:
Lecture: Report on wounds (general/ surgical/description, wound characteristics, healing process, consequences).

7th week:
Lecture: Bite marks (human and other, examining, reporting, evaluating).

8th week:
Lecture: Child abuse (dentistry's role in reporting and preventing).

9th week:
Lecture: Evaluation of malpractice cases in forensic dentistry.

10th week:
Lecture: Civil and criminal case involvement. Effective medical testifying.

11th week:
Lecture: Dental jurisprudence. Courtroom practice. Dental report on personal injuries.

12th week:
Lecture: Case evaluation. Description of teeth (systematic charting, morphology, marking schemes, caries, filling, missing teeth, bridges, prostheses).

13th week:
Lecture: Death body evaluation on the scene or in the autopsy room (external description, case report).

14th week:
Lecture: Techniques in Forensic Odontology (forensic photography, computer assisted identification).

15th 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 -involuntary 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

1. There is one lecture and one seminar every week in the first ten weeks of the 1st semester.
2. After the end of the lectures and seminars, before the beginning of exam period, there is prefinal exam (test exam, four possible answers, one correct). Material covered in the lectures and seminars is asked. The 'prefinal test is not the 'A' exam. Offered grades can be: 'passed', 'satisfactory', 'good' and 'excellent'. Offered grades must be accepted in the Neptun until the end of the following week (after the date of the prefinal). If the offered grade is not accepted the student will have to take the exam.
4. At the end of the semester all students should pass a written exam (test exam, four possible answers, one answer is correct). Places for exams are opened every week during exam period. Students have to register on Neptun for the exam. Without registration the exam cannot be taken. The first exam is the 'A' chance, the second exam is the 'B' chance, both are written (test) exams. If somebody failed 'A' and 'B' chance the third possibility is the 'C' chance, which is oral

exam at the respective group tutor. In this case the student has to agree an appointment with the group tutor. Material covered in the lectures are asked at exams.
Grade improvement is possible once, in this case registration in the Neptun is necessary for an unoccupied exam place. Grade improvement will not be considered as 'B' chance.
5. Lecture book will be signed after successfull written exam by the Head of the department.

7. Educational advisors are: Dr Csépány Tüned, Dr. Csapó Krisztina, Dr. Boczán Judit

Subject: **PEDIATRICS**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **15**

1st week:
Lecture: The field of pediatrics, growth and development.
Practical: Infrastructure of the Department of Pediatrics, pediatric history taking.

2nd week:
Lecture: Fluid and electrolyte homeostasis. Metabolic disorders.
Practical: Physical examination - Infants Department.

3rd week:
Lecture: Infant feeding, feeding disorders, vomiting in infants.
Practical: Perinatal Intensive Care Unit.

4th week:
Lecture: Gastrointestinal disorders.
Practical: Infants Department - Nursing and feeding.

5th week:
Lecture: Upper respiratory tract disease.
Practical: Department of Pulmonology - Examination of patients, assessment of chest X-ray pictures.

6th week:
Lecture: Contagious infectious diseases in children. Pediatric AIDS.
Practical: Emergency Unit - Examination of patients, assessment of astrup test.

7th week:
Lecture: Disorders of dentition, tongue anomalies.
Practical: Infants Department - Examination of patients, prophylaxis and treatment of rickets.

8th week:
Lecture: Buccal disorders. Tonsillopharyngeal diseases.
Practical: Department of Pulmonology - Examination of patients.

9th week:
Lecture: Oral manifestation of malignant diseases. Disorders of orofacial lymph nodes.
Practical: Department of Hematology - Examination of patients.

10th week:
Lecture: Diseases of salivary glands. Dysphagia.
Practical: Department of Pediatric Internal Diseases - Urinalysis.

11th week:
Lecture: Disorders of the hematopoietic system.
Practical: Department of Hematology - Transfusion.

12th week:
Lecture: Lower respiratory tract diseases.
Practical: Department of Pulmonology - Examination of patients.

13th week:
Lecture: Disorders of the circulation.
Practical: Department of Cardiology - Examination of patients, assessment of ECG.

14th week:
Lecture: Neuroinfections.
Practical: Department of Pediatric Internal Disorders - Febrile and epileptic seizures.

15th week:
Lecture: Disorders of the kidneys.
Practical: Checking skills in developing physical examinations of pediatric patients, assessment of oral health.

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 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.

Division of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY III.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **5**
Practical: **300**

1st week:
Lecture: General nursery procedure in the dental surgery
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: Nursery procedures during prosthetic treatment

4th week:
Lecture: Extraction related nursery procedures

5th week:
Lecture: Nursery procedure during periodontial treatment

Requirements

Assessment:
End semester exam. The mark given on the basis of the student's term-time practical performance will be offered
as mark of the end semester exam. The marks can be improved during exam period.

Conditions of signature in the lecture book:
-Completion of the required minimum.
-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 (included the assistant practices as well) cannot exceed 20 %, even it is certificated.
-The practical work will be evaluated with grades. The final grade is calculated on basis of the average results of the term-time practices.
-The student's performance provided on general practices will be evaluated twice during the semester. In case the performance is not-acceptable, the student will be warned. Students with two warnings shall not be given signature in the lecture book.
-With failed final practical grade based on the student's term-time practical performance the signature will be rejected.

Prerequisites: Complex Dentistry II.

Subject: **PROSTHETIC DENTISTRY III.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: Rigid and elastic impression materials.

2nd week:
Lecture: Advanced impression materials.

3rd week:
Lecture: Working cast and dies.

4th week:
Lecture: Polymers in dentistry. Techniques for producing dentures made of polymers.

5th week:
Lecture: Adhesive materials in dentistry.

6th week:
Lecture: Metal alloys used in dentistry.

7th week:
Lecture: Dental ceramics.

8th week:
Lecture: Biocompatibility and corrosion.

9th week:
Lecture: CAD / CAM systems in dentistry.

10th week:
Lecture: TMI disorders.

11th week:
Lecture: Removing post and core restorations.

12th week:
Lecture: Making the final prosthetic plan.

13th week:
Lecture: Design and fabrication of fixed-and-partial denture combinations.

14th week:
Lecture: Complex and multidisciplinary prosthodontic treatment.

15th week:
Lecture: Advanced technologies and materials used in prosthetic dentistry.

Requirements

Conditions of signature in the lecture book:

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. The signature in the lecture book will be refused in cases of absences from more than 50% of any special practice. All the absences must be certificated.

One self-control test will be held during the semester based upon the material of the lectures and practices, at a date announced later. The result of the self-control test will be offered as the grade of the end of semester exam. This grade can be improved during the exam period from the material of

the titles attached.

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.

Prerequisites:
Prosthetic Dentistry II.

Division of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY III.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: Premalignant conditions, precancers

2nd week:
Lecture: Malignant tumours in general. Lip cancer and its treatment.

3rd week:
Lecture: Cancer of the bucca, the gingiva and the tongue. Cancer of the floor of the mouth and the maxillary sinus

4th week:
Lecture: Tumour metastases, RND.

5th week:
Lecture: Complex therapy, of head and neck cancers. Reconstructive surgery of the head and neck region.

6th week:
Lecture: Radiotherapy and chemotherapy of malignant tumours. Intraoral Side effects

7th week:
Lecture: Test I.

8th week:
Lecture: Differential diagnosis of swellings of the neck

9th week:
Lecture: General anaesthesia in the dental practice

10th week:
Lecture: Implantology I.

11th week:
Lecture: Implantology II.

12th week:
Lecture: Preoperative perspectives of oral surgery operations, feeding Pharmacological analgesia in oral surgery

13th week:
Lecture: Test II.

14th week:
Lecture: Final consultation

15th week:
Lecture: Remedial test

Requirements

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 cannot join the practice or the lecture. Students should take part in the practice from its beginning to the end. 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. Without certification and compensation of the missed practice, students won't get a signature.
Assessment: 5AW practical grade, calculated from the results of the 2 mid-term written tests. Students who do not write a test automatically get a fail. If the average of the 2 written tests is less than 1,51, remedial test should be written on the 15th week (after the final consultation) , the remedial contains the whole material of the 1st semester of the 4th year. Student, who fail to write the remedial test or get a fail, should take an AW5 oral end semester exam in the exam period.
We are introducing entrance minimum questions in electronic form (tablet). The oral exam examination is bound to successful entrance exam (min. score to pass is 70%), students will be required to write the tablet test before the oral exams.
Prerequisites: Oral Surgery II.

OBLIGATORY LECTURES:

2nd week Malignant tumors in general Lip cancer and its treatment
3rd week Cancer of the bucca, the gingiva and the tongue Cancer of the floor of the mouth and the maxillary sinus.
4th week Tumour metastases, RND.
8th week Differential diagnosis of swellings of the neck
10th week Implantology I.

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

Division of Pediatric Dentistry and Orthodontics

Subject: **PEDIATRIC DENTISTRY I.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **15**

1st week:
Lecture: Introduction to Pediatric Dentistry.
Practical: Examination methods, instrumentation, treatment planning

2nd week:
Lecture: Pain control, topical and local anesthesia, minor oral surgery in childhood.
Practical: Describe the normal anatomic structures of oral cavity of the infant

3rd week:
Lecture: Etiology of dental caries and its characteristics in childhood.
Practical: Discuss and recognize common developmental disturbances of the teeth

4th week:
Lecture: Caries in the primary dentition, diagnosis, treatment.
Practical: Classify common oral lesions and infections by clinical features

5th week:
Lecture: Caries and consecutive diseases, diagnosis and treatment
Practical: Discuss etiological factors influencing the formation of dental caries in children

6th 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

7th week:
Lecture: Traumatic injuries to the teeth and supporting tissues.
Practical: Do step by step amalgam filling in posterior primary and permanent teeth

8th week:
Lecture: Prosthetic dentistry for children.
Practical: Identify and distinguish morphological differences in the primary teeth

9th week:
Lecture: Common growth and developmental anomalies of the teeth.
Practical: Prepare cavity in primary posterior teeth. Extract primary tooth.

10th week:
Lecture: Common structural disturbances of the teeth.
Practical: Carry out pulpotomy and pulpectomy. Recognize and treat dental injuries. Fabricate a simple splinting device.

11th week:
Lecture: Periodontology in pediatric dentistry.
Practical: Fabricate a space maintainer Restore an anterior primary and permanent tooth.

12th week:
Lecture: Oral manifestation of infective diseases.
Practical: Restore a fractured incisor with composite material. Carry out apexification

13th week:
Lecture: Oral manifestation of systemic diseases.
Practical: Seal fissures

14th week:
Lecture: Oral manifestation of systemic diseases II.
Practical: Use preventive methods

15th week:
Lecture: Test (written examination)

Requirements

Requirements
Lectures: As given in the timetable (time and place).
Practices: In the building of Faculty of Dentistry, Department of Pediatric Dentistry.
Conditions of signing the lecture book:
- Active participation on the practices
- With acceptable written certificate students may miss 1 practical lesson, there is no possibility to compensate the missed practices.

Assessment: 5 grade (AW5) practical mark.
- During the semester we evaluate the practical work with grades.
- The semester ends with a written examination (test). The result of the test must be at least 60% to pass.
- If the result of the test is under 60% the student must take an end semester (oral) exam.
- The offered grade is calculated on basis of the average of the practical grade and the test result.
- Students are not obliged to accept the grade offered and may opt for taking an oral examination.

Prerequisites of taking the subject: Preventive dentistry II, Orthodontics II

Division of Periodontology

Subject: **ORAL MEDICINE**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: Principles of diagnosis of oral mucosal diseases. Changes of oral mucosa without real diseases. Variations of the healthy oral mucosa. (Fordyce-spot: line alba; geographic tongue, fissurated tongue, sublingual varicositas coated tongue, median rhomboid glossitis. Subject and importance of oral medicine. Dental care of patients suffering from systemic diseases.

2nd week:
Lecture: Mucosal diseases I. Ulcerative, bullous & vesicular disorders.

3rd week:
Lecture: Mucosal diseases II. White and red lesions.

4th week:
Lecture: Mucosal diseases III. Other disorders with different discolorations

5th week:
Lecture: Oral malignant tumors. Gingival hyperplasia.

6th week:
Lecture: Oral benign tumors.

7th week:
Lecture: Diseases of the tongue.

8th week:
Lecture: Diseases of the temporomandibular

joint.

9th week:
Lecture: Written exam.

10th week:
Lecture: Orafacial complaints without physically detectable disorders. (Burning mouth syndrome, subjective xerostomy, dysgeusia etc.).

11th week:
Lecture: Diseases of salivary glands

12th week:
Lecture: Stomatological symptoms of systemic disorders I. Cardiovascular and respiratory system.

13th week:
Lecture: Stomatological symptoms of systemic disorders II. Gastrointestinal tract and renal diseases.

14th week:
Lecture: Stomatological symptoms of systemic disorders III. Hematological diseases, and dental care of patients with hemostasis disorders.

15th week:
Lecture: Stomatological symptomps of endocrinological and immunological diseases. Consultation.

Requirements

Lectures: As given in the timetable (time and place)

Practices: In the building of the Faculty of Dentistry (Dept. of Period.)

Conditions of signature in the lecture book:
- Active participation on the practices (there is no possibility to compensate the missed 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 practice is not-accepted.
- Students have to fulfill 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.
- Each of the tests, written during the semester should be passed.

Assessment: ESE.

Division of Restorative Dentistry

Subject: **RESTORATIVE DENTISTRY III. (CARIOLOGY AND ENDODONTICS)**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **15**
Practical: **10**

1st week:
Lecture: Up-to date preparation techniques: Laser, oscillating instruments, chemical. Mechanical caries removal, airabrasion in

restorative dentistry.

2nd week:
Lecture: Dentin-hypersensitivity and treatment options.

3rd week:
Lecture: Erosion. Causes, manifestations in oral cavity, diagnosis making and its therapy.

4th week:
Lecture: Bleaching of vital and non-vital teeth.

5th week:
Lecture: Modern concepts and methods in the course of shaping the root canal.

6th week:
Lecture: Obturation materials - a comparative evaluation.

7th week:
Lecture: Pulp-periodontal interrelationship.

8th week:
Lecture: Microscope in endodontics.

9th week:
Lecture: Written exam

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.

15th week:
Lecture: Case presentation/ Consultation

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. There is a chance of improvement of this written test on the 15th week of the semester. Results of any missed tests conclude to a fail (1) grade.

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.

Grade formation
The result of the test and the grades of the special practicals can impact on the grade of the oral exam.
Special practice (5th 1st semester):
1.Rotary instrumentation II. + obturation
2.Intrapulpal pin Class IV.

Requirements for taking up the subject: Restorative Dentistry II. (Endodontics)

Division 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:
End semester exam. The mark given on the basis of the student's term-time practical performance will be offered as mark of the end semester exam. The marks can be improved during exam period.

Conditions of signature in the lecture book:
-Completion of the required minimum.
-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 (included the assistant practices as well) cannot exceed 20 %, even it is certificated.
-The practical work will be evaluated with grades. The final grade is calculated on basis of the average results of the term-time practices.
-The student's performance provided on general practices will be evaluated twice during the semester. In case the performance is not-acceptable, the student will be warned. Students with two warnings shall not be given signature in the lecture book.
-With failed final practical grade based on the student's term-time practical performance the signature will be rejected.

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: Treatment plan considerations for periodontically involved abutment teeth.

2nd week:
Lecture: Problems with fixed prosthesis.

3rd week:
Lecture: Problems with removable replacements. Complications with using different attachments.

4th week:
Lecture: 4th-12th week: Case presentation

Requirements

Conditions of signature in the lecture book:

* 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.
* The signature in the lecture book will be refused in cases of absences from more than 50% of any special practice. All the absences must be certificated.
* AW5 mark may be given on the basis of the student's term-time practical performance, which may be considered at the final exam grade.

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.

Prerequisites:
Prosthetic Dentistry III.

Compulsory reading:
Alan B. Carr, Glen P. McGivney, David T. Brown: McCracken’s Removable Partial Prosthodontics Mosby, 11th edition, ISBN: 0-323-02628-1

Recommended Books:
G.Graber: Color Atlas of Dental Medicine 2, Removable Partial Dentures
Thieme Medical Publisher inc. New York, 1988.

Division 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: PPT presentations

2nd week:
Lecture: PPT presentations

3rd week:
Lecture: PPT presentations

4th week:
Lecture: PPT presentations

5th week:
Lecture: PPT presentations

6th week:
Lecture: PPT presentations

7th week:
Lecture: PPT presentations

8th week:
Lecture: PPT presentations

9th week:
Lecture: PPT presentations

10th week:
Lecture: PPT presentations

11th week:
Lecture: PPT presentations

12th week:
Lecture: PPT presentations

Requirements

Requirements:

Conditions of signature in the lecture book:
Active participation on the special practices, any delays are not permitted. Students being late for the special practices cannot join the practice. All of the absences should be certified in a credible way within three workdays. 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. One Power Point presentation during the semester is compulsory for every student. There are attendance lists on the lectures. Students failing the presentation or missing over 30% of lectures cannot get signature.
Prerequisite: Oral Surgery III
Assessment: Final Exam

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

Division of Pediatric Dentistry and Orthodontics

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: Dental fear and anxiety
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: Structure of the dental consultation. The fearful child. Conscious sedation, general anaesthesia
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: Children with special care and need
Practical: Recognize and treat dental injuries. Fabricate a simple splinting device

7th week:
Lecture: Child abuse and neglect
Practical: Fabricate a space maintainer

8th week:
Lecture: Minimally invasive dentistry
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: The importance of age groups in preventive dentistry and in pediatric dentistry
Practical: Use the several clinical procedures available for pulp care. Carry out successful pulpectomy.

11th week:
Lecture: The latest methods and dental materials in pediatric and preventive dentistry
Practical: Carry out a successful apexification.

12th week:
Lecture: Self-control test
Practical: Seal fissures Use preventive methods

Requirements

Requirements
Lectures: As given in the timetable (time and place)

Practices: In the building of Faculty of Dentistry, Department of Pediatric Dentistry and Orthodontics.

Conditions of signing the lecture book:
- Active participation on the practices
- With acceptable written certificate students may miss 1 practical lesson, there is no possibility to compensate the missed practices

Assessment: Final Exam.

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.

Division 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

Lectures: As given in the timetable (time and place).

Case presentation and analysis: The aim of case presentations is to know all details and associations concerning the patients. Each student has to present the previous medical history and the results of physical examination, X-ray one of his/her own patient/s. 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.

Practices: In the building of the Faculty of Dentistry (Periodontology Department). Periodontology practices: A) Case presentation and analysis. The aim of case presentations is to know all details and associations concerning the patients. Each student presents the 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.

Conditions of signature in 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 80% of practices.

Missed practice is not-accepted.

Students have to fulfill 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.

If the required cases are not presented during the lectures, the signature of the lecture book will be refused.
Assessment: final exam.
1. Physical examination a) Taking previous medical history - the patients complaint(s) b) Inspection

- healthy periodontium - distinction from the diseased c) Clinical examination of periodontium - periodontal probing; probing depth, pocket depth, definition of loss of attachment and their relationship d) Periodontal charting and recording - definition of periodontal indices
2. Treatment of periodontal disorders in dental practice 2. 1 Instruction and motivation of patients a) Disclosing agents and their application in practice b) Demonstration of different tooth brushing methods on model 2. 2 Causative treatment of periodontal disorders: Scaling and root planning, curettage a) Instruments and their usage (hand, rotational and ultra sound scalers; instruments for polishing, polishing pastes, maintenance of instruments) b) Therapy assessment: results, failures, follow up 2. 3 Periodontal surgery Indications and contraindications of periodontal surgery, post surgical treatments
3. Medicaments in periodontal therapy a) Chemical plaque control b) Antibiotics in periodontics c) Subgingival irrigation d) Periodontal dressings, tissue adhesives in practice e) Treatment of root hypersensitivity Special oral hygiene aids, instruments 4. Periodontal aspects of implantology Treatment of patients in practice. B) Includes the examination and treatment of the patients during the complex dental practices (prosthetic dentistry, pediatric dentistry, restorative dentistry). 1. Examination of the patient: 1. 1 Physical examination: a.) History taking - complaints of the patients. b.) Inspection - separating the healthy and sick periodontium. c.) Clinical examination - using the periodontal probe. d.) Registration of the periodontal status, periodontal indices. 2. Periodontal treatments in practice: 2. 1 Motivating, private tuition of the patient: a.) Plaque staining. b.) Demonstration of different tooth brushing techniques. 2. 2 Scaling, polishing, curettage: a.) presentation of the instruments (hand used, rotating, ultrasonic instruments use and care). b.) assessment of the treatment. Surgical treatments (indications, contraindications, post operative treatments). 3. Drug use in periodontal therapy: 1. Examination of the periodontium a.) chemical plaque control. b.) antibiotics. c.) subgingival irrigation. d.) treatment of root hypersensitivity.
4. Periodontal aspects of dental implants (use of special oral hygienic instruments).

Division of Restorative Dentistry

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.

2nd week:
Lecture: Esthetic direct restorations I. (Diastema closure, form corrections, smile design.)

3rd week:
Lecture: Esthetic 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 / Consultation

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. There is a chance of improvement of this written test on the 12th week of the semester. Result of any missed tests conclude to a fail (1) grade.

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.

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)

Special practice (2nd semester) 2x5 lessons:
1. Rotary instrumentation III. Warm obturation: vertical compaction
2. Chair-side direct composite inlay

CHAPTER 21
REQUIRED ELECTIVE COURSES

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: Aging: 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: **17**
Seminar: **18**

1st week:
Lecture: Introduction, cellular and molecular factors of pathologic cardiac excitability.
Seminar: The basics of ECG.

2nd week:
Lecture: Pathologic contractile function of the heart(contractile proteins, intracellular Ca2+-homeostasis andcardiac pumping).
Seminar: ECG diagnosis of arrhytmias I.

3rd week:
Lecture: Myocardial ischemia, myocardial infarction and newischemic syndromes (hibernation, preconditioning, stunning).
Seminar: ECG diagnosis of arrhytmias II.

4th week:
Lecture: Cardiac hypertrophy and failure.
Seminar: Differential diagnostics or arrhytmias, evaluation of ECG recordings.

5th week:
Lecture: Heart failure (molecular pathophysiology).
Seminar: Conduction disorders, ECG sings of volume and pressure overload.

6th week:
Lecture: Endothelium, smooth muscle, vessels.
Seminar: Angina pectoris, myocardial infarction.

7th week:
Lecture: Hypertension.
Seminar: Exercise stress test ECG, Holter ECG.

8th week:
Lecture: Cellular and molecular background of cardiovascular drugs.
Seminar: Electronic pacemakers, mechanisms of arrhythmias.

9th week:
Lecture: Stem cells in cardiovascular medicine.
Seminar: ECG signs of electrolyte disorders, differential diagnostics, practicing.
Self Control Test (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 respiratorysystem with clinical significance.
Seminar: Evaluation of ECG recordings.

11th week:
Lecture: Clinical physiology of the respiratory system.

12th week:
Lecture: Clinical physiology of nutrition and metabolism I.

13th week:
Lecture: Clinical physiology of nutrition and metabolism II.

14th week:
Lecture: Clinical physiology of the nervous system I.

15th week:
Lecture: Clinical physiology of the nervous system II.
Self Control Test (Result of the 9th and 15th weeks tests will form the basis for a recommended final mark))

Requirements

Students are expected to attend lectures and obliged to attend seminars. The Department may refuse to sign the students' Lecture Book if a student is absent from more than two seminars. The successful oral mid-semester ECG test (during the 10th week of the second semester) is also a requirement for the signature of the students' Lecture Book. Third year students are invited to participate in two written mid-semester tests ("Assessment of the work" (AW)) during the 9th and 15th weeks of the second semester organized by the Division of Clinical Physiology. Results of these tests will form the basis for a recommended final mark. Single choice test questions (a single correct or a single false answer should be chosen out of five possibilities) will address students' proficiency from the material of all lectures and seminars. If a final grade cannot be offered, written exams will be performed during the examination period. Failed exams are repeated in the written test (B chance) and in an oral test (C chance). Students may also improve their mark in an oral exam. Lecture Books are signed by the head of the Division of Clinical Physiology. More information: klinfiz.unideb.hu

Subject: **COMMUNICATION SKILLS**
Year, Semester: 1st year/1st semester
Number of teaching hours:
Practical: **30**

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

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

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

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

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

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

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

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

9th week:
Lecture: Field practice.

10th week:
Lecture: Field practice.

11th week:
Lecture: Movie.

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

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

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

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

Requirements

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

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

Subject: **COMPUTER SCIENCE**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: Exemption Tests.

2nd week:
Practical: Word processor programs, MS Word I. 1. File: save, save as, print, new document, open 2. Editing text 1: input letters, cursor, copy, paste, paste special, cut, move, clipboard, undo, redo 3. Editing text 2: selecting text, mouse, keyboard, shift, control, home, end, pgup, pgdown 4. Home 1: formatting font, font size, font color, typeface, bold, italic, underline, highlighting, super/subscript, customize menu 5. Home 2: formatting paragraph, line spacing, indentation (left, right, first line, hanging), alignment (Tabs: left, center) 6. Home 3: bulleted, numbered list, searching text, find, replace, select all 7. Insert: tables, inserting pictures, shapes, page numbers, header, footer, page break, symbols, (text box) 8. Page layout: margins, orientation, size, manual setting of margins , columns, line numbers, watermark, page color, page borders
9. References: table of contents
10. Review: Word count, Track changes
Extra Exemption test appointments ONLY for students with late registration!

3rd week:
Practical: Word processor programs, MS Word II.

4th week:
Practical: Word processor programs, MS Word III.

5th week:
Practical: Spreadsheets programs, MS Excel I. 1. Entering data (difference b/w text & numbers), autofill series (numbers, days, months, etc.), adjusting column width 2. Editing: copy, paste, move, inserting/deleting lines/rows, selecting non-adjacent rows/columns (Ctrl) 3. Entering formulas (=), symbols for mathematical operations (+-*/^EXP()), copying cells with formulas, relative/absolute reference 4. Using functions, statistical functions: average, stdev, count, sqrt, countif, if, calculating SEM, etc. 5. Creating charts: bar chart, scatter plot, error bars, labels 6. Formatting charts: colors, symbols, axis scaling, chart title, axis title 7. Data sorting by one or more criteria, filters 8. (Statistical tests (F-test (equal variance test), t-test assuming equal/unequal variances))

6th week:
Practical: Spreadsheets programs, MS Excel II.

7th week:
Practical: Spreadsheets programs, MS Excel III.

8th week:
Practical: Spreadsheets programs, MS Excel IV.

9th week:
Practical: Computerised presentation, MS PowerPoint. 1. Entering text, inserting figures / drawing objects 2. Editing: selecting multiple objects, resizing, rotating, copy, paste, move, undo, redo 3. Colors: background (templates), line, fill 4. Alignment, grouping, order (front/back), arranging objects (distribute horiz. / vert.) 5. Slide sorter, slide show 6. Slide transitions, animations

10th week:
Practical: Fundamentals and basic concepts of informatics.

11th week:
Practical: Logical and physical realization of networks.

12th week:
Practical: Internet.

13th week:
Practical: Summary.

14th week:
Practical: Test I.

15th week:
Practical: Test II.

Requirements

The acquisition of fundamental theoretical and practical knowledge from the function of the modern personal computers. Course description: PC architecture, operating systems, file management, network knowledge, internet and its opportunities of application, word processor, spreadsheet, the usage of presentational programs, the achievement of scientific databases and its use. Without registration, there is no way to do the course! First year students who missed/skipped the exemption test, but signed up for the course in the Neptun must attend the course and do the final test at the end. For students attending the informatics course a maximum of 4 absences are allowed during the semester to receive a signature (we recommend to use as few as possible, in case an emergency comes up). This is taken very seriously! Missing more than 4 classes automatically means losing the chance to pass the course. There will be a final test at the end of the semester. For students attending the informatics course a maximum of 4 absences are allowed during the semester (we recommend to use as few as possible, in case an emergency comes up). This is taken very seriously! Missing more than 4 classes automatically means refused signature therefore losing the chance to pass the course. Every student allowed to make up the missed practicals with another group but only on the given week, if there are enough free seats in the room. For students attending the informatics course a maximum of 4 absences are allowed during the semester to receive a signature (we recommend to use as few as possible, in case an emergency comes up). This is taken very seriously! Missing more than 4 classes automatically means losing the chance to pass the course. There will be a final test at the end of the semester. Every student is allowed to make up the missed practicals with another group but only on the given week, if there are enough free seats in the room. The course start with an exemption test. Only first year students allowed to write the exemption test at the first week of the given semester with their group (appointment should be checked in the given timetable). In any other cases (students older than first year/repeaters/students who are not exempted) has a final test at week 14 of the given semester. There is no other self control test during the semester. At the end of the course students will write a final test. The exemption and the final tests covers topics and skills in connection with Microsoft office Word, Excel, and PowerPoint (versions:2007/2010) programs, as written in the curriculum. Both of the tests (exemption and the final test) are written tests. The tests are practical tests, conducted in the computer room. Students passing the exemption test will automatically receive 5 (excellent) grade

at the end of the semester. Final grades based on the final test score will be given according to the following table: 61% = grade 1 (fail) 61%-70% = grade 2 (pass) 71% - 80% = grade 3 (satisfactory) 81% - 90% = grade 4 (good) 91% = grade 5 (excellent) Students should download free Office guide books from the following link. (Email registration is required for downloading files). Students who did not get exemption/did not show up at the exemption test/repeaters/students older than first year MUST ATTEND on the course. They should join to one of the groups mentioned in the timetable. The number of the seats is limited in the classroom. Students who has informatics course in the given appointment (according to the timetable) have priority to attend the lesson. Others are allowed to join to the given group if there are more free seats. Older students have to do the whole course as well. Students passing the exemption test will automatically receive 5 (excellent) grade at the end of the semester. Students who failed the exemption test must attend the course and do the final test at the end. Students having ECDL (European Computer Driving Licence) are not required to write the exemption test, instead, they can submit exemption request to the Education Office. Until You are waiting for the decisions, You should also come to the course!!!

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

1st week:
Practical: Introduction into medical terminology; Greek and Latin origins of nomenclature.

2nd week:
Practical: Directional terms, anatomical positions

3rd week:
Practical: Body parts.

4th week:
Practical: The dictionary form of Latin nouns, basic Latin grammar

5th week:
Practical: The mouth and the teeth. Basic terminology of the skull

6th week:
Practical: Regions

7th week:
Practical: Formation of adjectives

8th week:
Practical: Revision. Mid-term test

9th week:
Practical: Skeleton 1

10th week:
Practical: Skeleton 2

11th week:
Practical: Joints, complex adjectives

12th week:
Practical: Muscles.

13th week:
Practical: Greek roots. Latin and Greek prefixes.

14th week:
Practical: Revision. End term test

15th week:
Practical: Evaluation

Requirements

Requirements of the course:
Attendance

Attending language classes is compulsory. Students should not be absent from more than 10 percent of the classes. If a student is late it is considered as an absence. If a student misses more than two occasions, the final signature may be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week. Maximum one language class may be made up with another group. Students have to ask for the teacher's written permission (by e-mail) 24 hours in advance. Students can attend any class (make up or regular) only if they take their coursebook with them.

Testing, evaluation

In each Latin language course, students must sit for 2 written language tests.

A further minimum requirement is the knowledge of 300 words per semester. There is a written word quiz in the first 5-10 minutes of the class, every week. If a student fails 4-4 successful 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 minimum 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.

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: **15**
Practical: **15**

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. The structure of the genes.
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) The function of genes. Gene expression. (This lecture will be in extra time on Monday morning.) (5) Gene regulation in prokaryotes. (6) Gene regulation in eukaryotes. (7) Cytogenetics I. Karyogram, ideogram, banding techniques. Human autosomal trisomies.
Practical: Seminar on gene structure, function, regulation.

3rd week:
Lecture: (8) Cytogenetics II. Abnormalities of the X and Y chromosomes. Sex determination in humans. (9) Cytogenetics III. Structural aberrations of human chromosomes. Genomic imprinting. Uniparental disomy. Molecular cytogenetics. (10) Epigenetics, the genetic role of RNA.
Practical: Seminar on cytogenetics.

4th week:
Lecture: (11) Transmission genetics. Genes and alleles. Genotype and phenotype. Monohybrid cross. Mendel's 1st law. Reciprocal cross and test cross. Autosomal and X-linked genes. 12) Dihybrid cross. Mendel's 2nd law. Different types of inheritance. Dominant and recessive genes: a molecular view. Genotype and phenotype. Extranuclear inheritance. (13) Gene interactions, epistasis, lethal genes. Multiple alleles.
Practical: Seminar on mendelian genetics I. Theoretical background, problem solving.
Self Control Test (1st test in extra time on Monday morning.)

5th week:
Lecture: (14) The genetic basis of complex inheritance. (15) Mutation and repair.
Practical: Study of X chromatin: the Barr body. Demonstration of mammalian chromosomes. Preparation of metaphase spreads.

6th week:
Lecture: (16) Human genetic diversity. DNA polymorphism. (17) Human genetic diversity. Genetics of blood types and MHC. (18) Genomics, proteomics, the human genome project.
Practical: Detection of human polymorphism by polymerase chain reaction.

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: PCR evaluation of the human polymorphism experiment.
Induction of beta-galactosidase in E. coli cells.

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.

9th week:
Lecture: (25) Human gene mapping and disease gene identification. (26) Human gene mapping and disease gene identification. (27) Bacterial genetics
Practical: Seminar on molecular genetics of inherited human diseases. Mutation, repair.
Self Control Test (2nd test in extra time on Monday morning.)

10th week:
Lecture: (28) Developmental genetics and birth defects. (29) Prenatal diagnosis. Personalized medicine. (30) Genetic counseling and ethical issues.
Practical: Seminar on population genetics.

11th week:
Lecture: Medical genomics lectures 1-3.
Practical: Complementation test. The gene concept.

12th week:
Lecture: Medical genomics lectures 4-6.
Practical: Seminar. General consultation.

13th week:
Lecture: Medical genomics lectures 7-9.
Practical: Seminar. General consultation.
Self Control Test (3rd test in extra time.)

14th week:
Lecture: Medical genomics lectures 10-12.
Practical: Medical genomics seminar 1.

15th week:
Lecture: Medical genomics lectures 13-15.
Practical: Medical genomics seminar 2.

Requirements

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

Percentage (%) Mark
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 your lecture book. Those students who want a better mark have to take the regular end of semester "A" exam. The result of this ESE is binding, it can be better, the same or worse than the offered mark. Students with lower achievement than 50 % should take the regular ESE.

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

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

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

Percentage (%) Mark
0 - 49.99 fail (1)
50.00 - 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, and submitting the homeworks. The bonus percentage is based on the average result of the three mid-semester tests. Absence counts as 0%. Bonuses are calculated only in the year of acquisition.
Further bonus points (1 points each) are given for the timely and correct completion of the following midterm home-works:
Analysis of human karyograms. Problem solving in genetics. Use of databanks through the Internet. Problem solving in population genetics. Maximum number of bonus points is 14.
The submission of home-works is voluntary. Homeworks are not accepted after the submission

deadline.

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: **20**

11th week:
Lecture: 1. Medical genome biology: relevance and history.
2. Application of genome biology for pharmaceutical and biotechnological research.
3. Introduction into bioinformatics DNA sequence comparison, sequence data management and analysis.

12th week:
Lecture: 4. Gene expression pattern changes in disease. The use of DNA microarrays in medical diagnosis.
5. Practical and technical aspects of gene expression analysis.
6. Immuno-proteomics, methods and applications.

13th week:
Lecture: 7. Technologies for testing human genome sequence and proteome variability.
8. Systems biology and medical diagnostics. Biotechnology.
9. Bioinformatics II. Protein sequence comparison, motifs, prediction of 3D structure, multiple sequence alignments.

14th week:
Lecture: 10. Modern genetic maps.
11. Genome databases, gene ontology. Genome analysis, practical examples.
12. Evolutionary genome biology.
Practical: 1. Sequence alignment practical.
2. Browsing databases for human diseases genes.

15th week:
Lecture: 13-14. Genomescan technology, global genetic association and its relevance to multigenic diseases.
15. Nanotechnology and medicine.
Practical: 3. Association of DNA polymorphisms with complex diseases.
4. Using the public gene expression databases.

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. To

encourage the attendance of the lectures we give 1 bonus point for 1 attendance, which is proved by a signed attendance-sheet. Since there are 10 occasions (5 double and 5 single lectures), you may earn 10 bonus points altogether. These are percentage points that will be added to the result of the examination.
Only those students are eligible to sign the attendance-sheet and get bonus points, who registered for the subject Medical genomics electronically.
Those students, who want to receive bonus points have to take at least a one page handwritten lecture note of the lecture in question. The note may be checked by teachers any time.
The bonus points can be used only during the end-of-semester examination period, cannot be transferred to the next school-year.
Students, who manipulate the attendance sheets will be denied signature in this semester.

Second year students may also register for medical genomics, they can even take the examination with their valid signature in their lecture book, even if they did not pass last year. They have to register to both seminar and practical courses.
Students not having a signature in the lecture book and/or 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), pass (2), satisfactory (3), good (4), excellent (5). Repeated examinations are possible according to general university rules.

Lectures will be held at times and locations given for medical genetics lectures, during week 11-15.

Practical: week 14-15, 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: **15**

1st week:
Lecture: I

8th week:
Seminar: Introduction to Medical Sociology.

9th week:
Seminar: Social Inequalities and Health.

10th week:
Seminar: Sociology of Medical Knowledge.

11th week:
Seminar: Quality of Life.

12th week:
Seminar: Social Aspects of Health and Illness.

13th week:
Seminar: Medicalization.

14th week:
Seminar: Social Aspects of Doctor-Patient Relationship.

15th week:
Seminar: End of Course Test

Requirements

Requirements. Making a presentation is prerequisite for the end of course test.

Subject: **MODERN BIOPHYSICAL METHODS IN BIOLOGY AND MEDICINE**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **24**

3rd week:
Lecture: Medical applications of NMR and MRI

4th week:
Lecture: Luminescence spectroscopy. Theoretical background and principles of application of fluorescence spectroscopy to study the structure of proteins, nucleic acids and that of the cell membrane. Fluorescence conjugation of biomolecules, techniques based on fluorescence polarization and fluorescence resonance energy transfer.

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 moderm 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: **RADIOTHERAPY IN THE CLINICAL PRACTICE**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **14**

1st week:
Seminar: Indication, contraindication of radiotherapy neoadjuvant, adjuvant, palliative treatment

2nd week:
Seminar: Equipment in radiotherapy

3rd week:
Seminar: Teletherapy

4th week:
Seminar: Special teletherapy techniques

5th week:
Seminar: Brachytherapy

6th week:
Seminar: Isotope therapy, eye plaque brachytherapy

7th week:
Seminar: The role of localization of tumor spreeding, lymphnode regions and risk organs

Requirements

The goal is to get to know the process and clinical considerations of radiotherapy (indications, contraindications, equipments).

Division of Biomaterials and Prosthetic Dentistry

Subject: **ESTHETIC DENTISTRY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **15**

1st week:
Lecture: Introduction to Esthetics Morphopsychology and Facial Esthetics. Esthetic Smile. Landmarks and Proportions of the Face. Treatment planning. Documentation in Esthetic Dentistry

2nd week:
Lecture: Esthetics and its relationship to Function I. Esthetics and its relationship to Function II. Morphologic Changes During a Lifetime

3rd week:
Lecture: Metal-Ceramic and All-Ceramic Crows and Bridges. Periodontal Esthetic Surgery. Oral and Maxillofacial Esthetic Surgery

4th week:
Lecture: Tooth Color Science, Tooth Color Analysis, Bleaching Methods. All-Ceramic Inlays and Onlays. Ceramic Veneers. Esthetics in Implantology

5th week:
Lecture: Self control
Self Control Test

Requirements

Contact person Dr. Tünde Radics

Deadline of registration for the subject: the end of the second week of the first semester of the Academic Year.
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 tests will be held during the semester, the preannunciation of which is not obligatory for the department. 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

Prerequisites:
Propedeutics and Technology of Total and Partial Removable Dentures

Subject: **HISTORY OF DENTISTRY, PROSTHETIC DENTISTRY COMPULSORY ELECTIVE I.**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **15**

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.

15th week:
Lecture: Self-control test.

Requirements

Requirements:

Lectures: Contact person Dr. Tamas Bistey

Deadline of registration for the subject: the end of the second week of the first semester of the Academic Year.

The required minimum number of attendants is 10.

Conditions of signature in the lecture book:

The final AW5 marks are decided according to the marks given during the semester.

At least 1 written or oral self-control tests will be held during the semester, the pre annunciation of which is not obligatory for the department.

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
Recommended Books:
History of Dentistry, Axthelm-Hoffmann, Walter
Quintessence Publishing Co 1981

Prerequisites: Odontology

Subject: **IMPLANTOLOGY - BASICS OF ORAL IMPLANTOLOGY**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Seminar: **15**

1st week:
Seminar: History of implantology , introduction

2nd week:
Seminar: Anatomy, diagnostic techniques preceding impléantation

3rd week:
Seminar: Biology of osseal healing, biocompatibilty, osseointegration and materilas related to dental implants

4th week:
Seminar: Indications, contraindications and planning of dental implants, time of implantation

5th week:
Seminar: Basics of oral surgery regarding dental implantation

6th week:
Seminar: Complementary surgical techniques, uagmentation, sinus liftin, nerve transposition

7th week:
Seminar: Prosthetics in implantology I.

8th week:
Seminar: Prosthetics in implantology II.

9th week:
Seminar: Basic techniques of prosthetics fixed on dental implants

10th week:
Seminar: Prosthetics fixed on dental implants, maintenance, treatment of cimplications

11th week:
Seminar: Phantom practice I. (Planinng, inserting the dental implant)

12th week:
Seminar: Phantom practice II. (Impression techniques: closed tray)

13th week:
Seminar: Phantom practice III. (Impression techniques: open tray)

14th week:
Seminar: Final consultation

15th week:
Seminar: 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: Performance and achievement. Stress management.

3rd week:
Lecture: Locating, designing a dental office.

4th week:
Lecture: Financing a dental practice. Dental insurance.

5th week:
Lecture: Stock control.

6th week:
Lecture: Equipment and maintenance.

7th week:
Lecture: Staff management. The working team.

8th week:
Lecture: Time management.

9th week:
Lecture: The appointment book.

10th week:
Lecture: Painless paperwork.

11th week:
Lecture: Quality management.

12th week:
Lecture: Summary: How to professionally market your dental practice?

Division of Dental Physiology and Pharmacology

Subject: **MODERN TECHNIQUES ALLOWING THE INVESTIGATION OF PHYSIOLOGICAL PHENOMENA**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **30**

1st week:
Lecture: The lectures are listed at the web site of the Department of Physiology (http://phys.med.unideb.hu)

Requirements

1. Signature of Lecture Book
Lecture attendance may be followed up by the Department. The lecture will not be delivered if 5 or fewer students show up. Nevertheless, the lecture material is going to be asked in the final assessment.
For continuous updates on all education-related 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: **PROBLEM BASED LEARNING IN PHYSIOLOGY**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Practical: **30**

1st week:
Practical: The practices are listed at the web site of the Department of Physiology (http://phys.dote.hu)

Requirements

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 her/his 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 the applicant.

3. Special Rule: the applicant has to organize the chosen project and register at the tutor (NOT via NEPTUN) until the end of second academic week. Applications after the second week are not accepted.

4. Preconditions for the program: mark three (3) or better in Physiology I, successful closing lab 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. The name of the students registered to the program is published on the website of Department of Physiology on the 3rd academic week.

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 are available at the practical lab of the Department or on the Department's homepage (http://phys.med.unideb.hu/files/oktatas/kredit/PMO/PBL_topics.pdf).

9. The deadline for the program is the end of the 11th academic week. Reports should be submitted to the tutor. Missing the deadline automatically results grade 1 (fail).

10. Detailed information for the program can be accessed on the website of the Department (http://phys.med.unideb.hu).

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:** The lectures are listed at the web site of the Department of Physiology	(http://phys.med.unideb.hu)

Requirements

1. Signature of Lecture Book
Lecture attendance may be followed up by the Department. The lecture will not be delivered if 5 or fewer students show up. Nevertheless, the lecture material is going to be asked in the final assessment.
For continuous updates on all education-related 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

Division of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY ELECTIVE I. EXTRACTION PRACTICE**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Practical: **15**

1st week: **Lecture:** Tooth extraction phantom lab **2nd week:** **Lecture:** Tooth extraction phantom lab **3rd week:** **Lecture:** TEST **Self Control Test**	**4th week:** **Lecture:** Tooth extraction phantom lab Complications of tooth extraction and their treatment I. **5th week:** **Lecture:** Tooth extraction phantom lab Complications of tooth extraction and their

treatment II. Oral surgical treatment of patients receiving chemo-and radiation therapy

6th week:
Lecture: TEST Consultation

Self Control Test

Requirements

Number of students should be at least 10!

Time and place will be announced after the registration!

Requirements for signature:

Active participation in seminars. Delay from the seminars is not allowed. Students should take part in the seminar from its beginning to the end. Any make ups are not possible. Absences should be certified in a credible way. Only absences not exceeding 20% of the seminars are accepted.

Assessment:

5AW practical grade, calculated from the results of the 2 mid-term written tests. Students who do not write a test automatically get a fail.

If the average of the 2 written tests is less than 2,(passed) or absences exceed 20 % of the seminars, students won't get credit points

Subject: **SURGICAL CARE OF DEVELOPMENTAL DISORDERS OF THE MAXILLOFACIAL REGION, ORAL SURGERY ELECTIVE II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **15**

1st week:
Seminar: Discussion, registration

2nd week:
Seminar: Development and growth of the craniofacial region

3rd week:
Seminar: Genetics of the orofacial clefts, their classification

4th week:
Seminar: Surgical treatment of patients with cleft lip and palate

5th week:
Seminar: Complex management of patients with cleft lip and palate

6th week:
Seminar: Orthodontic care of patients with cleft lip and palate

7th week:
Seminar: Nonsyndromic craniosynostosis

8th week:
Seminar: Test
Self Control Test

9th week:
Seminar: Dysgnathiák: clinical evaluation and preoperative treatment planning, Orthodontic treatment

10th week:
Seminar: Principles of mandibular orthognatic surgery

11th week:
Seminar: Principles of maxillary orthognatic surgery

12th week:
Seminar: Orthognatic surgery in patients with cleft lip and palate

13th week:
Seminar: Distraction osteogenesis

14th week:
Seminar: Test
Self Control Test

15th week:
Seminar: Final consultation

Requirements

Number of students should be at least 10!

Time and place will be announced after the registration!

Requirements for signature:

Active participation in seminars. Delay from the seminars is not allowed. Students should take part in the seminar from its beginning to the end. Any make ups are not possible. Absences should be certified in a credible way. Only absences not exceeding 20% of the seminars are accepted.

Assessment:

5AW practical grade, calculated from the results of the 2 mid-term written tests. Students who do not write a test automatically get a fail.

If the average of the 2 written tests is less than 2,(passed) or absences exceed 20 % of the seminars, students won't get credit points.

Division of Oral Pathology and Microbiology

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: **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

Division of Pediatric Dentistry and Orthodontics

Subject: **PEDIATRIC DENTISTRY ELECTIVE**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Seminar: **12**

1st week:
Lecture: Praxis management in pediatric dentistry. Organizing a dental screening.

2nd week:
Lecture: Anamnesis, patient charts, dental screening in pediatric dentistry (describing symptoms, diagnostics).

3rd week:
Lecture: How to write a referral letter?

4th week:
Lecture: Common dental materials and instruments used in pediatric dentistry.

5th week:
Lecture: Common mistakes in pediatric dentistry.

6th week:
Lecture: Adolescent problems in pediatric dentistry.

7th week:
Lecture: Problem Based Learning, case analysis.

8th week:
Lecture: Problem Based Learning, case analysis.

9th week:
Lecture: Problem Based Learning, case analysis.

10th week:
Lecture: Problem Based Learning, case analysis.

11th week:
Lecture: Problem Based Learning, case analysis.

12th week:
Lecture: Problem Based Learning, case analysis.

Requirements

Requirements
Seminars: In the building of Faculty of Dentistry, Department of Pediatric Dentistry
Conditions of signing the lecture book:
- Active participation on the seminars
- With acceptable written certificate students may miss 2 hours, there is no possibility to compensate the missed practices
Assessment: (AW5) five grade practical marks
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.
Prerequisites of taking the subject: Pediatric Dentistry I.

Subject: **PEDIATRIC DENTISTRY ELECTIVE I. INTRODUCTION TO PEDIATRIC DENTISTRY**
Year, Semester:
Number of teaching hours:
Seminar: **15**

1st week:
Lecture: Introduction to pediatric dentistry I.

2nd week:
Lecture: Introduction to pediatric dentistry I. II.

3rd week:
Lecture: Patient chart and role of dental screening.

4th week:
Lecture: Oral diagnosis and treatment planning.

5th week:
Lecture: Oral diagnosis and treatment planning II

6th week:
Lecture: Infection control

7th week:
Lecture: Accurate oral status assessment in case of primary, mixed and permanent dentitions

8th week:
Lecture: Fissure sealing

9th week:
Lecture: Fluoride modalities

10th week:
Lecture: Class I preparation in primary teeth

11th week:
Lecture: Class II cavity preparation in primary teeth, matrix placement and wedging

12th week:
Lecture: Pulpotomy in primary tooth

13th week:
Lecture: Crown build up and preparation for SS crowns

14th week:
Lecture: Apexification

15th week:
Lecture: Splinting in case traumatic injuries

Requirements

Seminars: In the building of Faculty of Dentistry, Department of Pediatric Dentistry.

Conditions of signing the lecture book:
- Active participation on the seminars
- With acceptable written certificate students may miss 2 hours, there is no possibility to compensate the missed practices

Assessment: 5 grade (AW5) practical mark will be offered according to the average of the practical grades earned during the semester.

Prerequisites of taking the subject: Preventive dentistry II., Orthodontics I.

Division of Restorative Dentistry

Subject: **CARIOLOGY ELECTIVE I.(FUNDAMENTALS OF CARIOLOGY)**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Seminar: **15**

1st week:
Seminar: Morphology of the teeth. Gnatological aspect of occlusal surfaces

2nd week:
Seminar: Partial buildup of molar tooth with wax

3rd week:
Seminar: Partial buildup 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: Examination of the patients.
Registration of the dental status.

15th 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.

Subject: **CARIOLOGY ELECTIVE II.(DIET AND NUTRITION IN ORAL HEALTH)**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Seminar: **15**

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.

4th week:
Seminar: Nutritions and dietary supplements. II.

5th week:
Seminar: Nutrition implication in chronic heath conditions

6th week:
Seminar: Nutrition in the growth and development of oral structures

7th week:
Seminar: Diet, nutrition and teeth

8th week:
Seminar: Nutrition and the periodontium

9th week:
Seminar: Immune compromising conditions and oral lesions

10th week:
Seminar: Nutrition concerns for the dentally compromised patient: oral surgery, orthodontics

11th week:
Seminar: Nutrition concerns for the dentally compromised patient: dentures, dysphagia, tempomandibular disorders

12th week:
Seminar: Nutrition in pregnancy, infancy, childhood and adulthood. The older patient

13th week:
Seminar: Principles of diet screening, assessment and guidance

14th week:
Seminar: How medications and herbal remedies can affect nutrition, diet and oral health

15th 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.

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 aging. 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

4th week:
Seminar: Optical characteristics of composites

5th week:
Seminar: Wax-up, mock-up, silicone key and it's Importance before the final build up

6th week:
Seminar: Composites with high esthetics. Traditional and modern layering techniques. The importance of finishing and polishing

7th week:
Seminar: Tooth form corrections, diastema closure, veneers associated with problem oriented case presentations

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), 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 III. (Cariology and Endodontics)

Subject: **ENDODONTICS ELECTIVE I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Seminar: **15**

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.

14th week:
Seminar: Endodontic monoblocks II.

15th 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 assesment 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.

Subject: **ENDODONTICS ELECTIVE II. (MICROSCOPE IN DENTAL PRACTICE)**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Seminar: **15**

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.

14th week:
Seminar: Digital photodocumentation and the dental operating microscope. II.

15th 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.

Reading materials:

Rick Schmidt, Martin Boudro: The Dental Microscope (Why and How) http://www.kennewickfamilydental.com/the-dental-microscope.html

CHAPTER 22
TITLES OF THESES

Division of Human Surgery and Operative Techniques

1. Title: Treatment options for perianal abscess
Tutor: Ferenc Győry M.D., Ph.D.

2. Title: Cell-based therapeutic options for burns
3. Title: Forehead reconstructions following skin cancer removal
4. Title: Therapeutic options for dermal substitution in burns and their importance
5. 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 phagocytosis of apoptotic cells in the muscle regeneration following injury
2. Title: Involvement of the impaired clearance of apoptotic cells in the control of insulin sensitivity
3. Title: Molecular mechanisms participating in the engulfment of apoptotic cells
4. Title: Signaling pathways mediating the effect of adenosine in the macrophage chemotaxis
Tutor: Zsuzsa Szondy M.D., Ph.D., D.Sc.

Division of Biomaterials and Prosthetic Dentistry

1. Title: Advanced technologies in fixed prosthodotics
2. Title: Surface morphology and characterization of Ti implants
3. Title: Zirconium oxide ceramics in dentistry
Tutor: Csaba Hegedűs M.D., L.D.S., Ph.D.

4. Title: Cementation of Dental Ceramics
5. Title: Custom made post and core restorations
6. Title: Prefabricated posts and their application in dentistry
Tutor: Tünde Radics D.M.D., Ph.D.

7. Title: CAD/CAM technology in fabricating total removable dentures
8. Title: Impression techniques for removable partial denture cases
9. Title: Prosthetic rehabilitation of oral cancer patients
Tutor: István Lampé D.M.D.

10. Title: Dimensional changes of dental composites.
11. Title: Mechanical characteristic of dental composites
12. Title: Modern resin based esthetic filling materials
Tutor: Katalin Bukovinszky D.M.D.

13. Title: At-home bleaching
14. Title: Basics of fixed prosthodontics
15. Title: Intraoral scanners in orthodontics
16. Title: Tooth whitening in clinical practice.
Tutor: Tamás Bistey D.M.D., Ph.D.

17. Title: Basics of technology of partial removable dentures
18. Title: Basics of technology of total removable dentures
Tutor: Anita Pétercsák D.M.D.

19. Title: Lentiviral gene transfer in dental pulp

stem cells
20. Title: The effect of BMP-7 overexpression on the differentiation of dental pulp stem cells
21. Title: Use of a tetracycline-inducible gene expression for the regulation of osteogenesis
Tutor: Ferenc Tóth M.Sc.

22. Title: Effect of aerogel composites on differentiation of dental stem cells to osteoblast.
23. Title: Investigation of the expression of integrins in cells grown on different material surfaces
24. Title: The effect of modified titanium surfaces on the expression of genes involved in osteoblastic differentiation
Tutor: Farkas Kerényi M.Sc.

25. Title: Combined drug delivery in dentistry
26. Title: Functionalization possibilities of Ti-implants
27. Title: Scaffolds of tissue engineering and regeneration in dentistry
Tutor: József Bakó M.Sc., Ph.D.

28. Title: Application ability of methacryloyloxidecyl dihydrogenphosphate (MDP) monomer in hard tissue section preparation
29. Title: Application of SPR technique to peptide and dental allergen bindings
30. Title: Effect of gold nanoparticles on resin matrix of dental filling materials
Tutor: Melinda Szalóki M.Sc., Ph.D.

31. Title: Conventionally and digitaly registered maxillomandibular relations
32. Title: Diagnostics and threatment possibilites of temporomandibular disorders
33. Title: Surface threatment of composite resins
Tutor: László Póti D.M.D.

34. Title: Dental aspects of autoimmune diseases
35. Title: Dental aspects of primer and secunder immundeficiencies
36. Title: Difficulties in clinical phases of total removable dentures
Tutor: Márta Szegedi D.M.D.

Division of Oral and Maxillofacial Surgery

1. Title: Odontogenic infections of the orbit
2. Title: Perineural spread in squamosus cell carcinomas of the oral cavity
3. Title: Salivary gland diseases
Tutor: Adrienne Szabó M.D., Ph.D.

4. Title: Iatrogenic dental injuries in need of dentoalveolar treatment
5. Title: Local bleeding contol methods in dentoalveolar surgery
6. Title: Possible usage of laser in dentoalveolar surgery
Tutor: Etelka D. Tóth D.M.D.

7. Title: Dhysgmatia
8. Title: Reconstruction
9. Title: Trauma
Tutor: Róbert Boda M.D.

10. Title: Lipomas in maxillofacial region
11. Title: Treatment facilities in chronic bilateral mandibular luxation
12. Title: Treatment modalities in frontal sinus fractures
Tutor: Dóra Horváth M.D.

13. Title: Mandibular distraction osteogenesis
14. Title: Odontogenic keratocyst
15. Title: Treatment modalities of mandibular fractures in childhood
Tutor: Levente Czompa M.D.

16. Title: Dental care in scleroderma- What should we know about scleroderma?
17. Title: Dental management of patients with solid organ transplantation
18. Title: Dental treatment of patients receiving allogeneic peripheral blood stem cell transplantation
Tutor: Enikő Gebri D.M.D.

19. Title: Corticotomy in the maxillofacial surgery
20. Title: MRONJ: prevention and therapy

21. Title: Treatment possibilities of retained canines
Tutor: Levente Lukács D.M.D.

22. Title: Four-handed dentistry
23. Title: Odontophobias, fear and their treatment in dentistry
24. Title: Patients with chromosomal disorders and their dental treatment
Tutor: Boglárka Skopkó D.M.D.

25. Title: Guided bone regeneration in dentoalveolar surgery
26. Title: Importance of systemic diseases in dentistry
27. Title: Management of impacted teeth other than third molars
Tutor: Adrienn Tóth D.M.D.

28. Title: Dental and surgical aspects of treating patients with special needs
29. Title: Embriology, clinical appearance and treatment of non-odontogen cysts in the maxillofacial region
30. Title: Possible treatment options of sinus perforation
Tutor: Orsolya Liska D.M.D.

31. Title: New bone grafting methods in oral surgery
32. Title: Surgical guides in dental implant surgery
33. Title: Tooth autotransplantation – a method to replace a missing one
Tutor: Rudolf Bakos D.M.D.

Division of Pediatric Dentistry and Orthodontics

1. Title: Illicit drug use and oral health
2. Title: Stainless steel crowns in pediatric dentistry
3. Title: Vital pulp therapy in primary molars
Tutor: Judit Nemes D.M.D., Ph.D.

4. Title: Hemifacial Microsomia
5. Title: Invisalign orthodontic system
6. Title: Pierre Robin sequence (PRS)
Tutor: Judit Török D.M.D.

7. Title: Etiological factors of enamel developmental defects of permanent teeth in children
8. Title: Minor oral surgery in childhood
9. Title: Regenerative endodontics
Tutor: Gabriella Kovalecz D.M.D.

10. Title: Functional appliances
11. Title: Orthodontic bonding materials
12. Title: Transversal anomalies and their treatment
Tutor: Géza Vitályos D.M.D.

13. Title: Appliances for distalisation in the orthodontics
14. Title: Fix functional appliances in the orthodontics
Tutor: Viktória Hegedűs D.M.D.

15. Title: Dental aspects of Down syndrome
16. Title: Fluoride treatment in caries prevention
17. Title: Treatment of crown and root fractures of immature permanent maxillary incisor
Tutor: Brigitta Baksa D.M.D.

Division of Periodontology

1. Title: Gingiva recession and root caries in the aging population
2. Title: Microsurgical techniques in regenerative periodontal therapy
3. Title: Periodontal tissue engineering
Tutor: István Varga D.M.D., Ph.D.

4. Title: Dental radiography in pediatric dentistry
5. Title: Geriatric periodontology
6. Title: Radiation protection in dental radiology
Tutor: János Angyal D.M.D., Ph.D.

7. Title: Periodontal splinting
8. Title: The role of prevention in periodontology
9. Title: When should you refer a patient to a periodontist
Tutor: Eszter Szentléleky D.M.D.

Division of Restorative Dentistry

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: Different motions of rotary instruments
5. Title: Endodontic microsurgery
6. Title: Revolutonary sealers in endodontics
Tutor: Alexander Juhász D.M.D.

7. Title: Laser activated irrigation
8. Title: Microscope in dentistry
9. Title: Obstruction of root canal
Tutor: Kinga Bágyi Dr. habil., D.M.D., Ph.D.

10. Title: Bulk fil versus layering technique in direct build-ups
11. Title: Dental erosion
12. Title: Up to date matrix systems
Tutor: Renáta Martos D.M.D.

13. Title: Evaluation of different matrix bands
14. Title: Modern concepts of rubber dam isolation
15. Title: TRIP around the oral cavity
Tutor: Rita Marincsák D.M.D., Ph.D.

16. Title: Comparative assessment of modern rootcanal obturation techniques
17. Title: Irrigation protocols in endodontics

18. Title: Modern pulp sensitivity tests
Tutor: Marianna Skaliczki D.M.D.

19. Title: Etiology of dental erosion-extrinsic factors
20. Title: Photopolymerization lamps, photopolymerization of the composite filling
21. Title: Temporary filling materials in restorative dentistry
Tutor: Bettina Balogh D.M.D.

22. Title: Endodontic treatment in case of special root canal morphology
23. Title: Methods and instruments of root canal filling removal
Tutor: László Nagy M.D.

24. Title: Endodontic consideration in the elderly
Tutor: László Nagy D.M.D.

25. Title: Chlorine dioxide in dentistry
26. Title: Iatrogenic root perforations and treatment possibilities
27. Title: Root canal irrigant agitation techniques -ultrasonic instruments
Tutor: Enikő Tóth 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.

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.
M. M. Ash: Wheeler's Dental Anatomy, Physiology, and Occlusion.
Elsevier Science, 2003. ISBN: 0-7216-9382-2.
Geoffrey C van Beek: Dental Morphology an illustrated guide.
Wright, 2005. ISBN: 0723606668.

Medical Psychology I.:

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:

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.
Gergely, P.: Introduction to Bioinorganic Chemistry for Medical Students.
Medical and Health Science Center, University of Debrecen, 2008.
Ed. Dombrádi, V.: Laboratory Practicals in Medical Chemistry.
Medical and Health Science Center, University of Debrecen, 2009.

Physical foundations of biophysics:

Halliday-Resnick-Walker: Fundamentals of Physics.
.

Biophysics:

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.:

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

Oral Anatomy, Histology and Embryology I.:

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., Romrell, L.J., Kaye, G.I.: Histology. A Text and Atlas.
5th edition. Lippincott Williams & Wilkins, 2006. ISBN: 0-781-75056-3.
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.

Molecular Biology :

Alberts et al.: Molecular Biology of the Cell.
5th edition. Garland Public Inc., 2007.
T. Á. Brown: Genomes.
3rd edition. Garland Public Inc., ISBN: 0-8153-4138-5.

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.

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:

Alberts B et al.: Molecular Biology of The Cell.
5th edition. Garland Sci., 2008.
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, Ph.D.: Hogy s mint? I.
2013.

Medical Genomics:

Campbell, A. M., Heyer, L. J.: Discovering genomics, proteomics and bioinformatics.
Pearson Education Inc. ISBN: 0-8053-4722-4.

Computer Science:

Greg Perry: Microsoft Office.
2007. ISBN: 9789-6396-3737-5.

Latin Language:

Répás László: Latin for Students of Dentistry.
2017.

2nd year

Oral Anatomy, Histology and Embryology II.:

K.L. More: Clinically Oriented Anatomy.
6th edition. Lippincott Williams &Wilkins, 2004. ISBN: 9781-60547-652-0.
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., Romrell, L.J., Kaye, G.I.: Histology. A Text and Atlas.
5th edition. Lippincott Williams & Wilkins, 2006. ISBN: 0-781-75056-3.
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.
Eric W. Baker: Anatomy for Dental Medicine.
Thieme, . ISBN: 978-1626223-238-9.

Biochemistry I.:

Thomas M. Devlin: Textbook of Biochemistry with Clinical Correlations.
6th edition. Wiley-Liss, 2006.
Lubert Stryer: Biochemistry.
7th edition. W.H. Freeman and Company, 2012.

Introduction to Prosthodontics I.: Dental Materials:

W. J. O'Brien: Dental Materials and Their

Selection.
Qiuntessence Publishing Co., 1997. ISBN: 0-86715-297-4.
J.F. McCord, A. A. Grant: A Clinical Guide to Complete Denture Prosthetics.
British Dental Association BDA. ISBN: 9780904588644.
R. Palmer, L. Howe, P. Palmer: A Clinical Guide to Implants in Dentistry.
British Dental Journal,. ISBN: 9780904588927.
R. Wassell, A. Naru, Amar, J. Steele, F. Nohl: Applied Occlusion.
Quintessence Pub Co,. ISBN: 9781850972778.
E. W. Odell: Clinical Problem Solving in Dentistry.
Churchill Livingstone,. ISBN: 9780443067846.
M. O'Sullivan: Fixed Prosthodontics in Dental Practice.
Quintessence. ISBN: 9781850970958.
D. Bartlett, D. Ricketts: Indirect Restorations.
Quintessence. ISBN: 9781850970781.
B. G. N. Smith, L. C. Howe: Planning and Making Crowns and Bridges.
Taylor & Francis. ISBN: 9780415398503.

Dental Physiology I.:

A. Fonyó: Principles of Medical Physiology.
Medicina Publishing House, Hungary, 2002. ISBN: 963-242-726-2.
Physiological Practice, A Laboratory Guide.
2nd (revised) edition.2007.
J. B. West: Best and Taylor's Physiological Basis of Medical Practice.
12th edition. Williams & Wilkins, 1990.
A.C. Guyton, J. E. Hall: Textbook of Medical Physiology.
11th edition. W.B. Saunders Co., 2005. ISBN: 1007-2160-240-1.
W. F. Ganong: Review of Medical Physiology.
18th edition. Prentice-Hall International Inc., 1997.
R. M. Berne, M. N. Levy: Principles of Physiology.
4th edition. V. C. Mosby Co., 2005. ISBN: 1003-2303-195-1.
R. F. Shmidt, G. Thews: Human Physiology.
2nd edition. Springer-Verlag, 1989.
Exercise Book.
revised edition.2000.

Investigation of the embryonic cell-and tissue differentation:

Scott F. Gilbert: Developmental Biology.
6th edition..

Hungarian Language II/1.:

Fodor Marianna - Rozman Katalin: Beszélek magyarul?! I..
2016. ISBN: 978-963-12-6413-5.

Biochemistry II.:

Thomas M. Devlin: Textbook of Biochemistry with Clinical Correlations.
6th edition. Wiley-Liss, 2006.
Lubert Stryer: Biochemistry.
7th edition. W.H. Freeman and Company, 2012.

Introduction to Prosthodontics II.: Introduction to the Fixed Prosthodontics:

Lang. Nikolaus P. nad Gripp, Alfred and Grendelmeier Alex: Wax-Up for functional Occlusion.
Qiuntessence Publishing Co. ISBN: 0-867715-217-6.
Harry C Lundeen: Introduction to occlusal anatomy bound.
L&J Press, 1969.
Shillingburg, Herbert T.;Wilson, Edvin L.; Morrison, Jack T.: Guide to Occlusal Waxing.
Quintessence, 1997.
J.F. McCord, A. A. Grant: A Clinical Guide to Complete Denture Prosthetics.
British Dental Association BDA,. ISBN: 9780904588644.
M. Radnai: Odontology and Gnathology.
Medicina,. ISBN: 9789632264394.
R. Palmer, L. Howe, P. Palmer: A Clinical Guide to Implants in Dentistry.
British Dental Journal,. ISBN: 9780904588927.
R. Wassell, A. Naru, Amar, J. Steele, F. Nohl: Applied Occlusion.
Quintessence Pub Co,. ISBN: 9781850972778.
E. W. Odell: Clinical Problem Solving in Dentistry.
Churchill Livingstone,. ISBN: 9780443067846.
M. O'Sullivan: Fixed Prosthodontics in Dental

Practice.
Quintessence. ISBN: 9781850970958.
D. Bartlett, D. Ricketts: Indirect Restorations.
Quintessence. ISBN: 9781850970781.
B. G. N. Smith, L. C. Howe: Planning and Making Crowns and Bridges.
Taylor & Francis. ISBN: 9780415398503.
Jeffrey P. Okeson: Management of Temporomandibular Disorders and Occlusion, 7**th** Edition.
Elsevier. ISBN: 978-0-323-08220-4.

Dental Physiology II.:

A. Fonyó: Principles of Medical Physiology.
Medicina Publishing House, Hungary, 2002.
ISBN: 963-242-726-2.
J. B. West: Best and Taylor's Physiological Basis of Medical Practice.
12th edition. Williams & Wilkins, 1990.
A.C. Guyton, J. E. Hall: Textbook of Medical Physiology.
11th edition. W.B. Saunders Co., 2005. ISBN: 1007-2160-240-1.
W. F. Ganong: Review of Medical Physiology.
18th edition. Prentice-Hall International Inc., 1997.
R. M. Berne, M. N. Levy: Principles of Physiology.
4th edition. V. C. Mosby Co., 2005. ISBN: 1003-2303-195-1.
R. F. Shmidt, G. Thews: Human Physiology.
2nd edition. Springer-Verlag, 1989.

Latin Medical Terminology I.:

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

Hungarian Language II/2.:

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

Modern biophysical methods in biology and medicine:

Damjanovich, S., Fidy, J., Szöllősi, J.: Medical Biophysics.
1st edition. Medicina, 2009. ISBN: 978 963 226 249 9.

Neurobiology (Neuroanatomy, Neurobiochemistry, Neurophysiology):

K. L. More: Clinically Oriented Anatomy.
4th edition. Lippincott Williams &Wilkins, 2004. ISBN: 0-683-06141-0.
Sobotta: Atlas of Human Anatomy I.-II..
14th edition. Urban & Schwarzenberg. ISBN: 978-0-443-10349-0.
Sadler, T. W.: Langman's Medical Embryology.
12th edition. Lippincott Williams &Wilkins, 2012. ISBN: 978-1-4511-4461-1.
A. Fonyó: Principles of Medical Physiology.
Medicina Publishing House, Hungary, 2002.
ISBN: 963-242-726-2.
Haines, D.E.: Fundamental Neuroscience Haines.
3rd edition. Churchill Livingstone, 2006. ISBN: 0-443-06751-1.
Snell, R.E.: Clinical Neuroanatomy for Medical Students.
5th edition. Lippincott Williams & Wilkins.
ISBN: 0-7817-2831-2.
L. Komáromy: The Dissection of the Brain.
A Topographical and Technical Guide Medicina.
ISBN: 9-632-26050-3.
Ross, M.H., Romrell, L.J., Kaye, G.I.: Histology.
A Text and Atlas.
5th edition. Lippincott Williams & Wilkins, 2006. ISBN: 0-781-75056-3.
Physiology Practice. Exercise Book.
revised edition.2000.
Physiology Practice. A Laboratory Guide.
revised edition.2000.
: Biochemistry and Molecular Biology, Syllabus, Volume III. Chapter IX..
3rd edition.2002.
Purves: Neuroscience.
Fourth Edition. Sinauer Publishing, 2008.
George J Siegel: Basic Neurochemistry.
6th edition.. ISBN: 10: 0-397-51820-X.
: Lecture handouts (including figures).
URL: http://bmbi.med.unideb.hu
Estomish Mtui, G. Gruener, P. Dockery: Fitzgerald's Clinical Neuroanatomy and Neuroscience.
7th edition. Elsevier, . ISBN: 978-0-70-20-5832-5.

3rd year

General Pathology:

Kumar-Abbas-Fausto-Mitchell: Basic Pathology. 8th edition. WB Saunders, 2007. ISBN: 1-4160-2973-7.
Zoltán Nemes: Histopathological Practicals. 2005.
Zoltán Nemes: The Technique of Gross Pathological Description. 1993.
R.A.Cawson: Essentials of Oral Pathology and Oral Medicine. Churchill Livingstone, 1998. ISBN: 0-4430-5348-0.
J. V. Soames and J. C. Southam: Oral Pathology. 3rd. Oxford University Press.

Clinical Biochemistry I.:

W.J. Marshall and S.K. Bangert: Clinical Chemistry. 6th edition. Mosby Elsevier Ltd., 2008. ISBN: 9-78072-343460-3.
Hoffbrand A.V., Pettit J.E.: Essential Haematology. 3rd edition. Blackwell Sciences, 1999. ISBN: 0-632-03083-6.
János Kappelmayer and László Muszbek: Practicals in laboratory medicine. Debrecen, 2010.

Immunology:

Gogolák P., Koncz G.: Short textbook of Basic Immunology.
.
Peter Parham: The Immune System. 3rd Edition. Garland Science, 2009. ISBN: ISBN: 0-8153-4146-6.
Abbas, A. K., Lichtman, A. H., Pillai, S.: Basic Immunology. 4th Edition. Saunders, 2012. ISBN: 1-4557-0707-4.
Fred S. Rosen: Case Studies in immunology. 3rd edition.2001.

Dental Microbiology:

Marsh P., Lewis M., Rogers H., Williams D., Wilson M.: Marsh & Martin's Oral Microbiology. 6th edition. Elsevier, 2016. ISBN: 978-0-7020-6106-6.

Restorative Dentistry Propedeutics I. (Cariology):

Jean-Francois Roulet, Nairn H.F. Wilson, Massimo Fuzzi: Advances in Operative Dentistry. Quintessence, 2001. ISBN: 0-86715-402-0.
D.B. Ferguson: Oral Bioscience. Harcourt, 1999. ISBN: 0-443-05373-1.
James B. Summitt, J. William Robbins, Thomas J. Hilton, Richard S. Schwartz, Jose Dos Santos Jr.: Fundamentals of Operative Dentistry: A Contemporary Approach. Quintesences Publishing Co, Inc, 2006. ISBN: 10: 0-86715-452-7..
Heymann, H.O., Jr. Swift E.J., Ritter V.A: Sturdevant's Art and Science of Operative Dentistry. 6. Elsevier Mosby, 2013. ISBN: ISBN: 978-0-3230-833.

Introduction to Prosthodontics III.: Propedeutics and Technology of Fixed Prosthodontics:

H. T. Shillingburg, S. Hobo, L. D. Whitsett, R. Jacobi, S. E. Brackett: Fundamentals of Fixed Prosthodontics. Qiuntessence Publishing Co. ISBN: 0-86715-201-X.
Rosenstiel S.F., Land M.F., J.Fujimoto: Contemporary Fixed Prosthodontics. Mosby, 2001. ISBN: 0-8151-5559-X.
Zarb-Bolender: Prosthodontic Treatment for Edentulous Patients.. Mosby, 2004. ISBN: 0-323-02296-0.
J.F. McCord, A. A. Grant: A Clinical Guide to Complete Denture Prosthetics. British Dental Association BDA. ISBN: 9780904588644.
R. Palmer, L. Howe, P. Palmer: A Clinical Guide to Implants in Dentistry. British Dental Journal. ISBN: 9780904588927.
R. Wassell, A. Naru, Amar, J. Steele, F. Nohl: Applied Occlusion. Quintessence Pub Co. ISBN: 9781850972778.
E. W. Odell: Clinical Problem Solving in

Dentistry.
Churchill Livingstone. ISBN: 9780443067846.
M. O'Sullivan: Fixed Prosthodontics in Dental Practice.
Quintessence. ISBN: 9781850970958.
D. Bartlett, D. Ricketts: Indirect Restorations.
Quintessence. ISBN: 9781850970781.
B. G. N. Smith, L. C. Howe: Planning and Making Crowns and Bridges.
Taylor & Francis, . ISBN: 9780415398503.

Hungarian Language III/1.:

Kovács, Judit: A fogászati szaknyelv alapjai 1.. 2013.

Cariology elective I.(Fundamentals of Cariology):

James B. Summitt, J. William Robbins, Thomas J. Hilton, Richard S. Schwartz, Jose Dos Santos Jr.: Fundamentals of Operative Dentistry: A Contemporary Approach.
Quintesences Publishing Co, Inc, 2006. ISBN: 10: 0-86715-452-7..
Jean-Francois Roulet, Nairn H.F. Wilson, Massimo Fuzzi: Advances in Operative Dentistry.
Quintessence, 2001. ISBN: 0-86715-402-0.
D.B. Ferguson: Oral Bioscience.
Harcourt, 1999. ISBN: 0-443-05373-1.
Heymann, H.O., Jr. Swift E.J., Ritter V.A: Sturdevant’s Art and Science of Operative Dentistry.
6. Elsevier Mosby, 2013. ISBN: ISBN: 978-0-3230-833.

Oral Biology:

B.G. Jansen van Rensburg: Oral Biology.
Quintessence, 1995. ISBN: 0-86715-271-0.
D.B. Ferguson : Oral Bioscience.
Harcourt, 1999. ISBN: 0-443-05373-1.

Periodontology Propedeutics I.:

J. S. Nield-Gehring: Fundamentals of Periodontal Instrumentation.
6th Edition. Lippincott Williams & Wilkins, 2008. ISBN: 978-0-7817-6992-1.

Medical Anthropology:

Helman, C. G.: Culture, Health and Illness.
CRC Press.(Chapter 1.).
Thomas M. Johnson and Carolyn F. Sargent: Medical Anthropology. A Handbook of Theory and Method.
Greenwood Press, 1990.
Byron J. Good: Medicine, Rationality, and Experience. An Anthropological Perspective.
Cambridge University Press, 1994.

Introduction to Prosthodontics IV.: Odontotechnology I.:

R. M. Basker, J. C. Davenport : Prosthetic Treatment of the Edentulous Patient.
4th edition. Blackwell-Munksgaard, 2002. ISBN: 0-632-05998-2.
Zarb-Bolender: Prosthodontic Treatment for Edentulous Patients.
Mosby, 2004. ISBN: 0-323-02296-0.
Michael I. MacEntee: The Complete Denture, A Clinical Pathway.
Quintessence. ISBN: 0-86715-350-4.
Alan B. Carr, Glen P. McGivney, David T. Brown: McCracken's Removable Partial Prosthodontics.
11 th. Mosby. ISBN: 0-323-02628-1.
J.F. McCord, A. A. Grant: A Clinical Guide to Complete Denture Prosthetics.
British Dental Association BDA. ISBN: 9780904588644.
R. Palmer, L. Howe, P. Palmer: A Clinical Guide to Implants in Dentistry.
British Dental Journal. ISBN: 9780904588927.
R. Wassell, A. Naru, Amar, J. Steele, F. Nohl: Applied Occlusion.
Quintessence Pub Co. ISBN: 9781850972778.
E. W. Odell: Clinical Problem Solving in Dentistry.
Churchill Livingstone. ISBN: 9780443067846.
M. O'Sullivan: Fixed Prosthodontics in Dental Practice.
Quintessence. ISBN: 9781850970958.
D. Bartlett, D. Ricketts: Indirect Restorations.
Quintessence. ISBN: 9781850970781.
B. G. N. Smith, L. C. Howe: Planning and Making Crowns and Bridges.
Taylor & Francis. ISBN: 9780415398503.

Medical Psychology II.:

Csabai, M. and Molnar, P.: Health, Illness and Care. A Textbook of Medical Psychology..
Springer, Budapest, 2000.
Ayer, William A.: Psychology and dentistry: mental health aspects of patient care..
The Haworth Press, Inc., 2007.
Alan Stoudemire: Human Behavior. An Introduction for Medical Students.
J.B. Lippincott Company, Philadelphia, 1994.
Edward P. Sarafino: Health Psychology: Biopsychosocial Interactions.
Wiley, 1990.

Bioethics:

Seedhouse, D.: Ethics: The Heart of Health Care.
John Wiley and Sons, Chichester, 1993.
Raanan Gillon, Ann Lloyd: Principles of Health Care Ethics.
John Wiley and Sons, Chichester, 1995.
Wear, S.: Informed Consent. Patient Autonomy and Physician Beneficence Within' Clinical Medicine.
Kluwer Academic Publishers, 1993.
Bruce D. Weinstein: Dental Ethics.
Lea&Febiger Philadelphia, 1993.
Macklin, R.: Mortal Choices, Ethical Dilemmas in Modern Medicine.
Houghton Mifflin Co., 1998.
Monagle, J.F. Thomasa, D.C.: Medical Ethics. A Guide for Health Professionals Rockville.
Maryland Aspen Publishers, 1988.
Terrence, F. Ackerman, Carson Strong: A Casebook of Medical Ethics.
Oxford University Press, 1989.
Roy W. Perett: Buddhism, euthanasia and the sanctity of life.
Journal of Medical Ethics, 1996.

Medical Sociology:

Barry, A.-M. - Yuill, Ch. (Eds.): Understanding Health. A Sociology Introduction.
SAGE, 2002.
Armstrong, D.: A New History of Identity. A Sociology of Medical Knowledge.
Palgrave, 2002.

Organ and Oral Pathology:

Kumar-Abbas-Fausto-Mitchell: Basic Pathology. 8th edition. WB Saunders, 2007. ISBN: 1-4160-2973-7.
Zoltán Nemes: Histopathological Practicals.
2005.
Zoltán Nemes: The Technique of Gross Pathological Description.
1993.
J. V. Soames and J. C. Southam: Oral Pathology.
3rd. Oxford University Press.
R.A.Cawson: Essentials of Oral Pathology and Oral Medicine.
Churchill Livingstone, 1998. ISBN: 0-4430-5348-0.

Clinical Biochemistry II.:

W.J. Marshall and S.K. Bangert: Clinical Chemistry.
6th edition. Mosby Elsevier Ltd., 2008. ISBN: 9-78072-343460-3.
Hoffbrand A.V., Pettit J.E.: Essential Haematology.
3rd edition. Blackwell Sciences, 1999. ISBN: 0-632-03083-6.
János Kappelmayer and László Muszbek: Practicals in laboratory medicine.
Debrecen, 2010.

Basic Surgical Techniques:

Mikó I., Furka I.: Basic Surgical Techniques, Faculty of Medicine.
3rd enlarged edition. Debrecen University Press, 2011. ISBN: 978-963-318-145-4.
H.E. Grewe: Grewe's Manual of Basic Surgical Skills. An Introduction to Surgical Procedures.
B.C. Decker Inc., 1986. ISBN: 0-941158-84-5.
G.R. McLatchie, D.J. Leaper: Oxford Handbook of Operative Surgery.
Oxford University Press, 1996. ISBN: 0-19-262097-5.

Introduction to Dental Radiology:

S.C.White, M.J.Pharoah: Oral Radiology Principles and Interpretation.
Mosby, 2000. ISBN: 0-8151-9491-9.
Mason R. Bourne S.: A Guide to Dental Radiography.
Oxford University Press, 1988.

Oral Surgery Propedeutics:

Gy. Szabó: Oral and Maxillofacial Surgery.

Alapítvány a Száj- Arc- és Állcsontsebészeti Betegségek Gyógyításáért, 1997.
James R. Hupp: Contemporary oral and maxillofacial surgery.
Mosby, 2014. ISBN: 978-0-323-09177-0.
Stanley F. Malamed: Handbook of Local Anesthesia.
6th. Mosby, 2013. ISBN: 978-0-323-07413-1.

Introduction to Prosthodontics V.: Propedeutics and technology of total and partial removable dentures:

R. M. Basker, J. C. Davenport: Prosthetic Treatment of the Edentulous Patient.
4th edition. Blackwell-Munksgaard, 2002. ISBN: 0-632-05998-2.
Zarb-Bolender: Prosthodontic Treatment for Edentulous Patients.
Mosby, 2004. ISBN: 0-323-02296-0.
Michael I. MacEntee: The Complete Denture, A Clinical Pathway.
Quintessence, . ISBN: 0-86715-350-4.
Alan B. Carr, Glen P. McGivney, David T. Brown: McCracken's Removable Partial Prosthodontics.
11 th. Mosby, . ISBN: 0-323-02628-1.
J.F. McCord, A. A. Grant: A Clinical Guide to Complete Denture Prosthetics.
British Dental Association BDA. ISBN: 9780904588644.
R. Palmer, L. Howe, P. Palmer: A Clinical Guide to Implants in Dentistry.
British Dental Journal, . ISBN: 9780904588927.
R. Wassell, A. Naru, Amar, J. Steele, F. Nohl: Applied Occlusion.
Quintessence Pub Co, . ISBN: 9781850972778.
E. W. Odell: Clinical Problem Solving in Dentistry.
Churchill Livingstone,. ISBN: 9780443067846.
M. O'Sullivan: Fixed Prosthodontics in Dental Practice.
Quintessence,. ISBN: 9781850970958.
D. Bartlett, D. Ricketts: Indirect Restorations.
Quintessence,. ISBN: 9781850970781.
B. G. N. Smith, L. C. Howe: Planning and Making Crowns and Bridges.
Taylor & Francis,. ISBN: 9780415398503.

Hungarian Language III/2.:

Kovács, Judit: A fogászati szaknyelv alapjai 2..
.

Latin Medical Terminology I.:

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

Periodontology Propedeutics II.:

J. S. Nield-Gehring: Fundamentals of Periodontal Instrumentation.
6th Edition. Lippincott Williams & Wilkins, 2008. ISBN: 978-0-7817-6992-1.
: Foundations of Periodontics for the Dental Hygienist.
3th Edition. Lippincott Williams & Wilkins, 2011. ISBN: 978-1-60547-573-8.

Clinical Physiology:

S.J., Ganong, W.F.: Pathophysiology of Disease. An Introduction to Clinical Medicine.
McGraw Hill, 2005. ISBN: 0-0714-4159-X.
David R. Ferry: Basic Electrocardiography in Ten Days.
. ISBN: 0-07-135292-9.
John Hampton: The ECG in practice.
6. Churchill Livingstone, 2013. ISBN: 9780702046438.
László Balogh M.D.: ECG Basics.
URL: http://klinfiz.unideb.hu
John Hampton: The ECG Made Easy.
8. Churchill Livingstone, 2013. ISBN: 9780702046421.

Restorative Dentistry Propedeutics II. (Endodontics):

G. Bergenholtz, P. H. Bindslev, C. Reit : Textbook of Endodontology.
Blackwell-Munksgaard, 2003. ISBN: 8-7161-2185-6.
Beer, R., Baumann, Michael A., Kim, Syngcuk: Endodontology/ Color Atlas of Dental Medicine.
Thieme Publishing Group, 2000. ISBN: 0-13-116461-1.
M.Manoque, S. Patel, R.Walker: The Principles of Endodontics .
2005.
R. Beer, M.A. Baumann, A.M. Kielbasse: Pocket

Atlas of Endodontics.
Thieme, 2006. ISBN: 1-58890-347-8.
Ford's P.: Problem-Based Learning in Endodontology.
Wiley-Blackwell, 2011. ISBN: 978-1-4051-6211-1.

Introduction to Prosthodontics VI.: Odontotechnology II.:

R. M. Basker, J. C. Davenport: Prosthetic Treatment of the Edentulous Patient.
4th edition. Blackwell-Munksgaard, 2002. ISBN: 0-632-05998-2.
Zarb-Bolender: Prosthodontic Treatment for Edentulous Patients.
Mosby, 2004. ISBN: 0-323-02296-0.
Michael I. MacEntee: The Complete Denture, A Clinical Pathway.
Quintessence. ISBN: 0-86715-350-4.
Alan B. Carr, Glen P. McGivney, David T. Brown: McCracken's Removable Partial Prosthodontics.
11 th. Mosby. ISBN: 0-323-02628-1.
J.F. McCord, A. A. Grant: A Clinical Guide to Complete Denture Prosthetics.
British Dental Association BDA. ISBN: 9780904588644.
R. Palmer, L. How, P. Palmer: A Clinical Guide to Implants in Dentistry.
British Dental Journal. ISBN: 9780904588927.
R. Wassell, A. Naru, Amar, J. Steele, F. Nohl: Applied Occlusion.
Quintessence Pub Co. ISBN: 9781850972778.
M. O'Sullivan: Fixed Prosthodontics in Dental Practice.
Quintessence. ISBN: 9781850970958.
E. W. Odell: Clinical Problem Solving in Dentistry.
Churchill Livingstone. ISBN: 9780443067846.
D. Bartlett, D. Ricketts: Indirect Restorations.
Quintessence. ISBN: 9781850970781.
B. G. N. Smith, L. C. Howe: Planning and Making Crowns and Bridges.
Taylor & Francis. ISBN: 9780415398503.

4th year

Restorative Dentistry I. (Cariology):

Jean-Francois Roulet, Nairn H.F. Wilson, Massimo Fuzzi: Advances in Operative Dentistry.
Quintessence, 2001. ISBN: 0-86715-402-0.
D.B. Ferguson: Oral Bioscience.
Harcourt, 1999. ISBN: 0-443-05373-1.
James B. Summitt, J. William Robbins, Thomas J. Hilton, Richard S. Schwartz, Jose Dos Santos Jr.: Fundamentals of Operative Dentistry: A Contemporary Approach.
Quintesences Publishing Co, Inc, 2006. ISBN: 10: 0-86715-452-7..
Palmer CA: Diet and Nutrition in oral health.
Upper Saddle River, 2003. ISBN: 0-13-031384-X.
Mann J, Truswell AS: Essentials of human nutrition.
Oxford University Press, 1998. ISBN: 0-19-262756-2.
Heymann, H.O., Jr. Swift E.J., Ritter V.A: Sturdevant's Art and Science of Operative Dentistry.
6. Elsevier Mosby, 2013. ISBN: ISBN: 978-0-3230-833.

Oral Surgery I.:

R.A.Cawson: Essentials of Oral Pathology and Oral Medicine.
Churchill Livingstone, 1998. ISBN: 0-4430-5348-0.
Gy. Szabó: Oral and Maxillofacial Surgery.
Alapítvány a Száj- Arc- és Állcsontsebészeti Betegségek Gyógyításáért, 1997.
Peterson: Contemporary Oral and Maxillofacial Surgery.
Mosby, 2003.

Orthodontics I.:

Declan T. Millett, Richard Welbury: Orthodontics and Paediatric Dentistry.
Churchill Livingstone, 1999. ISBN: 0-443-06287-0.
W.R. Proffit: Contemporary Orthodontics.
Mosby Year Book, 2000. ISBN: 1-556-64553-8.
Graber, T.M., Vanarsdall, R.L.: Orhodontics, Current Principles and Techniques.
2nd edition. Mosby Year Book, 2000. ISBN: 0-8016-6590-6.
Laura Mitchell: An Introduction to Orthodontics.
Fourth edition. Oxford University Press, 2003. ISBN: 978-0-19-959471-9.

Borbély P: Practical Notes in Orthodontics.
Hansa-Dont Orthodontics Studio Ltd, 2017.
Borbély P: Orthodontic at a glance.
Hansa-Dont Orthodontics Studio Ltd, 2017.

Periodontology I.:

T. G. Wilson, K.S. Kornman: Fundamentals of Periodontics.
2nd edition. Quintessence Books, 2003. ISBN: 0-86715-405-5.
Lindhe J. - 2 Volumes: Clinical Periodontology and Implant Dentistry.
5th edition. Wiley-Blackwell, 2008. ISBN: 978-1-4051-6099-5.
Rateitschak, K. H.: Periodontology.
2nd edition. Thieme, 1989.
Michael G. Newman, Henry Takei, Fermin A. Carranza: Carranza's Clinical Periodontology.
9th.2001. ISBN: 0721683312.

Prosthetic Dentistry I.:

W. J. O'Brien: Dental Materials and Their Selection.
Qiuntessence Publishing Co., 1997. ISBN: 0-86715-297-4.
H. T. Shillingburg, S. Hobo, L. D. Whitsett, R. Jacobi, S. E. Brackett: Fundamentals of Fixed Prosthodontics.
Qiuntessence Publishing Co.. ISBN: 0-86715-201-X.
Rosenstiel S.F., Land M.F., J.Fujimoto: Contemporary Fixed Prosthodontics.
Mosby, 2001. ISBN: 0-8151-5559-X.
R. M. Basker, J. C. Davenport: Prosthetic Treatment of the Edentulous Patient.
4th edition. Blackwell-Munksgaard, 2002. ISBN: 0-632-05998-2.
Zarb-Bolender: Prosthodontic Treatment for Edentulous Patients.
Mosby, 2004. ISBN: 0-323-02296-0.
G.Graber: Color Atlas of Dental Medicine 2: Removable Partial Dentures.
Thieme Medical Publisher, Inc. New York. ISBN: 3-13-711001-7.
J.F. McCord, A. A. Grant: A Clinical Guide to Complete Denture Prosthetics.
British Dental Association BDA. ISBN: 9780904588644.
R. Palmer, L. Howe, P. Palmer: A Clinical Guide to Implants in Dentistry.
British Dental Journal. ISBN: 9780904588927.
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Churchill Livingstone. ISBN: 9780443067846.
R. Wassell, A. Naru, Amar, J. Steele, F. Nohl: Applied Occlusion.
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D. Bartlett, D. Ricketts: Indirect Restorations.
Quintessence. ISBN: 9781850970781.
B. G. N. Smith, L. C. Howe: Planning and Making Crowns and Bridges.
Taylor & Francis. ISBN: 9780415398503.

Dental Pharmacology I.:

Katzung B.G.: Basic and Clinical Pharmacology.
10th edition. McGraw-Hill, 2007.
Yagiela JA, Neidle EA, Dowd FJ. : Pharmacology and Therapeutics for Dentistry.
Mosby, 2004.
Gage T.W., Pickett F.A.: Mosby's Dental Drug Reference.
6th edition. Mosby, 2003.

Otolaryngology:

Hans Behrbohm, Oliver Kaschke, Tadeus Nawka, Anrew Swift: Ear, Nose and Throat Disases with Head and Neck Surgery.
3rd edition.. ISBN: 978-3-13-671203-0.

Dermatology:

Gordon C. Sauer: Manual of skin diseases.
8th edition. J.B. Lippincott Company, Philadelphia, 2000.

Internal Medicine I.:

Scully, C, Cawson, R. A.: Medical Problems in Dentistry.
4th edition. Wright, 1998.
Wray, D., Lowe, GDO, Dagg, JH, Felix, DH, Scully, C.: Textbook of general and oral medicine.
Churchill Livingstone, 1999.

Cardiac interventions:

Nguyen T.N.: Practical Handbook of Advanced Interventional Cardiology.
.

Echocardiography:

Feigenbaum: Echocardiography.
.

Esthetic Dentistry:

: Lecture notes.
.
Josef Schmidseder: Color Atlas of Dental Medicine Aesthetic Dentistry Stuttgart, New York.
2000.
Claude R. Rufenacht: Fundamentals of Esthetics Quintessence Books, Chicago Illinois.
1990.

Preventive Medicine and Public Health:

R.J. Donaldson, L.J. Donaldson: Essential Public Health Medicine.
2nd edition (Revised). Petroc Press, 2003. ISBN: 1 900603 87 X.

Oral Surgery Elective I. Extraction Practice:

Szabó Gy.: Oral and Maxillofacial Surgery.
Semmelweiss Publishing House, Budapest, 2004. ISBN: 963-9214-15-9.
R. A. Cawson: Essentials of Oral Pathology and Oral Medicine.
Churchill Livingstone, 1998. ISBN: 0443053480.
Peterson: Contemporary Oral and Maxillofacial Surgery.
Mosby, 2003.

Endodontics elective I.:

G. Bergenholtz, P. H. Bindslev, C. Reit: Textbook of Endodontology.
Blackwell-Munksgaard, 2003. ISBN: 8-7161-2185-6.
R. Beer, M.A. Baumann, A.M. Kielbasse: Pocket Atlas of Endodontics.
Thieme, 2006. ISBN: 1-58890-347-8.
Beer, R., Baumann, Michael A., Kim, Syngcuk: Endodontology/ Color Atlas of Dental Medicine.
Thieme Publishing Group, 2000. ISBN: 0-13-116461-1.
M.Manoque, S. Patel, R.Walker: The Principles of Endodontics.
2005.
Ford's P.: Problem-Based Learning in Endodontology.
Wiley-Blackwell, 2011. ISBN: 978-1-4051-6211-1.

Surgery:

Doherty: Current Surgical Diagnosis and Treatment.
13th edition. McGraw-Hill-Companies, 2009. ISBN: 0-0716-3515-7.
Clive R. G. Quick: Essential Surgery: Problems, Diagnosis and Management.
5th Edition. Churchill Livingstone, 2013. ISBN: 978-0702046742.

Behavioural Medicine:

Csabai, M. and Molnar, P.: Health, Illness and Care. A Textbook of Medical Psychology..
Springer, Budapest, 2000.
Jane Ogden: Health Psychology.
Open University Press, 1996.
Friedman, H.S., DiMatteo, M.R.: Health Psychology.
Prentice-Hall Inc., 1989.
Synder, J.J.: Health Psychology and Behavioral Medicine.
Prentice-Hall Inc., 1989.

Restorative Dentistry II. (Endodontics):

G. Bergenholtz, P. H. Bindslev, C. Reit: Textbook of Endodontology.
Blackwell-Munksgaard, 2003. ISBN: 8-7161-2185-6.
Beer, R., Baumann, Michael A., Kim, Syngcuk: Endodontology/ Color Atlas of Dental Medicine.
Thieme Publishing Group, 2000. ISBN: 0-13-116461-1.
M.Manoque, S. Patel, R.Walker: The Principles of Endodontics.
2005.
R. Beer, M.A. Baumann, A.M. Kielbasse: Pocket Atlas of Endodontics.
Thieme, 2006. ISBN: 1-58890-347-8.

Ford's P.: Problem-Based Learning in Endodontology.
Wiley-Blackwell, 2011. ISBN: 978-1-4051-6211-1.

Oral Surgery II.:

R.A.Cawson: Essentials of Oral Pathology and Oral Medicine.
Churchill Livingstone, 1998. ISBN: 0-4430-5348-0.
Gy. Szabó: Oral and Maxillofacial Surgery.
Alapítvány a Száj- Arc- és Állcsontsebészeti Betegségek Gyógyításáért, 1997.
Peterson, Ellis, Hupp, Tucker: Contemporary Oral and Maxillofacial Surgery.
Mosby, 2003. ISBN: 0-323-01887-4.

Orthodontics II.:

Declan T. Millett, Richard Welbury: Orthodontics and Paediatric Dentistry.
Churchill Livingstone, 1999. ISBN: 0-443-06287-0.
W.R. Proffit: Contemporary Orthodontics.
Mosby Year Book, 2000. ISBN: 1-556-64553-8.
Laura Mitchell: An Introduction to Orthodontics.
Fourth edition. Oxford University Press, 2003.
ISBN: 978-0-19-959471-9.

Periodontology II.:

T. G. Wilson, K.S. Kornman: Fundamentals of Periodontics.
2nd edition. Quintessence Books, 2003. ISBN: 0-86715-405-5.
Lindhe J. - 2 Volumes: Clinical Periodontology and Implant Dentistry.
5th edition. Wiley-Blackwell, 2008. ISBN: 978-1-4051-6099-5.
Rateitschak, K. H.: Periodontology.
2nd edition. Thieme, 1989.
Michael G. Newman, Henry Takei, Fermin A. Carranza: Carranza's Clinical Periodontology.
9th.2001. ISBN: 0721683312.

Prosthetic Dentistry II.:

W. J. O'Brien: Dental Materials and Their Selection.
Qiuntessence Publishing Co., 1997. ISBN: 0-86715-297-4.
H. T. Shillingburg, S. Hobo, L. D. Whitsett, R. Jacobi, S. E. Brackett: Fundamentals of Fixed Prosthodontics.
Qiuntessence Publishing Co. ISBN: 0-86715-201-X.
Rosenstiel S.F., Land M.F., J.Fujimoto: Contemporary Fixed Prosthodontics.
Mosby, 2001. ISBN: 0-8151-5559-X.
R. M. Basker, J. C. Davenport: Prosthetic Treatment of the Edentulous Patient.
4th edition. Blackwell-Munksgaard, 2002. ISBN: 0-632-05998-2.
Zarb-Bolender: Prosthodontic Treatment for Edentulous Patients.
Mosby, 2004. ISBN: 0-323-02296-0.
G.Graber: Color Atlas of Dental Medicine 2: Removable Partial Dentures.
Thieme Medical Publisher, Inc. New York. ISBN: 3-13-711001-7.
Alan B. Carr, Glen P. McGivney, David T. Brown: McCracken's Removable Partial Prosthodontics.
11 th. Mosby. ISBN: 0-323-02628-1.
R. Palmer, L. Howe, P. Palmer: A Clinical Guide to Implants in Dentistry.
British Dental Journal. ISBN: 9780904588927.
E. W. Odell: Clinical Problem Solving in Dentistry.
Churchill Livingstone. ISBN: 9780443067846.
J.F. McCord, A. A. Grant: A Clinical Guide to Complete Denture Prosthetics.
British Dental Association BDA. ISBN: 9780904588644.
R. Wassell, A. Naru, Amar, J. Steele, F. Nohl: Applied Occlusion.
Quintessence Pub Co. ISBN: 9781850972778.
M. O'Sullivan: Fixed Prosthodontics in Dental Practice.
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D. Bartlett, D. Ricketts: Indirect Restorations.
Quintessence. ISBN: 9781850970781.
B. G. N. Smith, L. C. Howe: Planning and Making Crowns and Bridges.
Taylor & Francis. ISBN: 9780415398503.

Emergency Medicine:

Michael Clancy, Colin Robertson, Colin Graham, Jonathan Wyatt, Robin Illingworth: Oxford Handbook of Emergency Medicine.
4. Oxford, 2012. ISBN: 978 0 19 958956 2.

Internal Medicine II.:

Scully, C, Cawson, R. A.: Medical Problems in Dentistry.
4th edition. Wright, 1998.
Wray, D., Lowe, GDO, Dagg, JH, Felix, DH, Scully, C.: Textbook of general and oral medicine.
Churchill Livingstone, 1999.

Cariology elective II.(Diet and nutrition in oral health):

James B. Summitt, J. William Robbins, Thomas J. Hilton, Richard S. Schwartz, Jose Dos Santos Jr.: Fundamentals of Operative Dentistry: A Contemporary Approach.
Quintesences Publishing Co, Inc, 2006. ISBN: 10: 0-86715-452-7..
Jean-Francois Roulet, Nairn H.F. Wilson, Massimo Fuzzi: Advances in Operative Dentistry.
Quintessence, 2001. ISBN: 0-86715-402-0.
D.B. Ferguson: Oral Bioscience.
Harcourt, 1999. ISBN: 0-443-05373-1.
Palmer CA: Diet and Nutrition in oral health.
Upper Saddle River, 2003. ISBN: 0-13-031384-X.
Mann J, Truswell AS: Essentials of human nutrition.
Oxford University Press, 1998. ISBN: 0-19-262756-2.
Heymann, H.O., Jr. Swift E.J., Ritter V.A: Sturdevant's Art and Science of Operative Dentistry.
6. Elsevier Mosby, 2013. ISBN: ISBN: 978-0-3230-833.

Radiotherapy in the clinical practice:

K.S. Clifford Chao, Carlos A. Perez, Luther W. Brady: Radiation oncology Management Decisions.
Lippincott-Raven, 1999. ISBN: 0-397-58468-7.
C.A.Perez, L.W.Brady, E.C.Halperin, R.K.Schmidt-Ullrich: Principles and Practice of Radiation Oncology.
4th edition. Lippincott Williams & Wilkins. ISBN: 0-7817-3525-4.

5th year

Restorative Dentistry III. (Cariology and Endodontics):

G. Bergenholtz, P. H. Bindslev, C. Reit: Textbook of Endodontology.
Blackwell-Munksgaard, 2003. ISBN: 8-7161-2185-6.
Beer, R., Baumann, Michael A., Kim, Syngcuk: Endodontology/ Color Atlas of Dental Medicine.
Thieme Publishing Group, 2000. ISBN: 0-13-116461-1.
M.Manoque, S. Patel, R.Walker : The Principles of Endodontics.
2005.
R. Beer, M.A. Baumann, A.M. Kielbasse: Pocket Atlas of Endodontics.
Thieme, 2006. ISBN: 1-58890-347-8.
James B. Summitt, J. William Robbins, Thomas J. Hilton, Richard S. Schwartz, Jose Dos Santos Jr.: Fundamentals of Operative Dentistry: A Contemporary Approach.
Quintesences Publishing Co, Inc, 2006. ISBN: 10: 0-86715-452-7..
Jean-Francois Roulet, Nairn H.F. Wilson, Massimo Fuzzi: Advances in Operative Dentistry.
Quintessence, 2001. ISBN: 0-86715-402-0.
D.B. Ferguson: Oral Bioscience.
Harcourt, 1999. ISBN: 0-443-05373-1.
Heymann, H.O., Jr. Swift E.J., Ritter V.A: Sturdevant's Art and Science of Operative Dentistry.
6. Elsevier Mosby, 2013. ISBN: ISBN: 978-0-3230-833.
Ford's P.: Problem-Based Learning in Endodontology.
Wiley-Blackwell, 2011. ISBN: 978-1-4051-6211-1.

Pediatric Dentistry I.:

R.R. Welbury, M.S. Duggal, M-T Hosey: Pediatric Dentistry.
4th edition. Oxford University Press, 2012. ISBN: 0-19 8565836.
A. Cameron, R. Widmer: Handbook of Pediatric Dentistry.
4th. Mosby Elsevier, 2013. ISBN: 978 0 7234 3452 8.

Oral Medicine:

Laskaris, George: Pocket Atlas of Oral Diseases.
Thieme Medical Publishers, 1998. ISBN: 3-131-07471-x.
W.R. Tyldesley: A Colour Atlas of Oro-Facial Diseases.
Wolfe Publishing Ltd, 1991.

Oral Surgery III.:

R.A.Cawson: Essentials of Oral Pathology and Oral Medicine.
Churchill Livingstone, 1998. ISBN: 0-4430-5348-0.
Gy. Szabó: Oral and Maxillofacial Surgery.
Alapítvány a Száj- Arc- és Állcsontsebészeti Betegségek Gyógyításáért, 1997.
Peterson, Ellis, Hupp, Tucker: Contemporary Oral and Maxillofacial Surgery.
Mosby, 2003. ISBN: 0-323-01887-4.
P.W. Booth, S.A. Schendel, J.E. Hausamen: Maxillofacial Surgery.
Churchill Livingstone, 1999. ISBN: 0-4430-5853-9.

Neurology:

Mumenthaler: Neurology.
2004.
Neurology.
URL: www.neuropat.dote.hu/ideg/minimum.htm

Pediatrics:

Richard E. Berman & Robert M.: Nelson Essentials of Pediatrics.
7th edition. Elsevier, 2015.

Prosthetic Dentistry III.:

W. J. O'Brien: Dental Materials and Their Selection.
Qiuntessence Publishing Co., 1997. ISBN: 0-86715-297-4.
H. T. Shillingburg, S. Hobo, L. D. Whitsett, R. Jacobi, S. E. Brackett: Fundamentals of Fixed Prosthodontics.
Qiuntessence Publishing Co., ISBN: 0-86715-201-X.
Rosenstiel S.F., Land M.F., J.Fujimoto: Contemporary Fixed Prosthodontics.
Mosby, 2001. ISBN: 0-8151-5559-X.
A.H.Geering, M.Kundert, C.C.Kelsey: Color Atlas of Dental Medicine: Complete Denture and Overdenture Prosthetics.
Thieme Medical Publishers, 1993. ISBN: 3-13-781601-7.
Zarb-Bolender: Prosthodontic Treatment for Edentulous Patients.
Mosby, 2004. ISBN: 0-323-02296-0.
G.Graber: Color Atlas of Dental Medicine 2: Removable Partial Dentures.
Thieme Medical Publisher, Inc. New York.
ISBN: 3-13-711001-7.
R. Palmer, L. Howe, P. Palmer: A Clinical Guide to Implants in Dentistry.
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Quintessence. ISBN: 9781850970781.
B. G. N. Smith, L. C. Howe: Planning and Making Crowns and Bridges.
Taylor & Francis. ISBN: 9780415398503.

Cardiac interventions:

Nguyen T.N.: Practical Handbook of Advanced Interventional Cardiology.
.

Echocardiography:

Feigenbaum: Echocardiography.
.

Endodontics elective II. (Microscope in dental practice):

Rick Schmidt, Martin Boudro: The Dental Microscope (Why andHow).
.

Restorative Dentistry IV. (Cariology and Endodontics):

Jean-Francois Roulet, Nairn H.F. Wilson, Massimo Fuzzi: Advances in Operative Dentistry.
Quintessence, 2001. ISBN: 0-86715-402-0.
D.B. Ferguson: Oral Bioscience.
Harcourt, 1999. ISBN: 0-443-05373-1.
R. Beer, M.A. Baumann, A.M. Kielbasse: Pocket Atlas of Endodontics.
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M.Manoque, S. Patel, R.Walker: The Principles of Endodontics.
2005.
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Blackwell-Munksgaard, 2003. ISBN: 8-7161-2185-6.
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Heymann, H.O., Jr. Swift E.J., Ritter V.A: Sturdevant’s Art and Science of Operative Dentistry.
6. Elsevier Mosby, 2013. ISBN: ISBN: 978-0-3230-833.
Beer, R., Baumann, Michael A., Kim, Syngcuk: Endodontology/ Color Atlas of Dental Medicine.
Thieme Publishing Group, 2000. ISBN: 0-13-116461-1.

Oral Surgery IV.:

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Churchill Livingstone, 1998. ISBN: 0-4430-5348-0.
Gy. Szabó: Oral and Maxillofacial Surgery.
Alapítvány a Száj- Arc- és Állcsontsebészeti Betegségek Gyógyításáért, 1997.
Peterson, Ellis, Hupp, Tucker: Contemporary Oral and Maxillofacial Surgery.
Mosby, 2003. ISBN: 0-323-01887-4.
P.W. Booth, S.A. Schendel, J.E. Hausamen : Maxillofacial Surgery.
Churchill Livingstone, 1999. ISBN: 0-4430-5853-9.

Pediatric Dentistry II.:

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4th edition. Oxford University Press, 2012. ISBN: 0-19 8565836.
A. Cameron, R. Widmer: Handbook of Pediatric Dentistry.
4th. Mosby Elsevier, 2013. ISBN: 978 0 7234 3452 8.

Prosthetic Dentistry IV.:

Alan B. Carr, Glen P. McGivney, David T. Brown: McCracken's Removable Partial Prosthodontics.
11 th. Mosby. ISBN: 0-323-02628-1.
G.Graber: Color Atlas of Dental Medicine 2: Removable Partial Dentures.
Thieme Medical Publisher, Inc. New York. ISBN: 3-13-711001-7.
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E. W. Odell: Clinical Problem Solving in Dentistry.
Churchill Livingstone. ISBN: 9780443067846.
J.F. McCord, A. A. Grant: A Clinical Guide to Complete Denture Prosthetics.
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R. Wassell, A. Naru, Amar, J. Steele, F. Nohl: Applied Occlusion.
Quintessence Pub Co. ISBN: 9781850972778.
M. O'Sullivan: Fixed Prosthodontics in Dental Practice.
Quintessence. ISBN: 9781850970958.
D. Bartlett, D. Ricketts: Indirect Restorations.
Quintessence. ISBN: 9781850970781.
B. G. N. Smith, L. C. Howe: Planning and Making Crowns and Bridges.
Taylor & Francis. ISBN: 9780415398503.

Cariology elective III. (Esthetics in restorative dentistry):

Jordy Manauta, Anna Salat: Layers: An Atlas of

Composite Resin Stratification (Hardcover). 2012. ISBN: 9788874921737.
Pilling János: Medical Communication. Medicina Könyvkiadó, 2011. ISBN: 9789632263359.

Periodontology III.:

T. G. Wilson, K.S. Kornman: Fundamentals of Periodontics.
2nd edition. Quintessence Books, 2003. ISBN: 0-86715-405-5.
Lindhe J. - 2 Volumes: Clinical Periodontology and Implant Dentistry.
5th edition. Wiley-Blackwell, 2008. ISBN: 978-1-4051-6099-5.
Rateitschak, K. H.: Periodontology.
2nd edition. Thieme, 1989.