BULLETIN

UNIVERSITY OF DEBRECEN

ACADEMIC YEAR 2018/2019

FACULTY OF DENTISTRY

Coordinating Center for International Education

Tartalomjegyzék

CHAPTER 1
WELCOME FROM THE DEAN

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

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

Best wishes: the Dean

CHAPTER 2
INTRODUCTION

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

among them the disabled ones. These developments assure the highest quality of education, research and treatment. The Faculty has established collaborative links with a number of universities located in Finland, England, Taiwan, Turkey, Sweden, Romania, and Ukraine.

CHAPTER 3
ORGANIZATION STRUCTURE OF THE UNIVERSITY OF DEBRECEN

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

Vice-Rector for General Affairs	Ákos Pintér M.Sc., PhD., D.Sc.
Address	4032 Debrecen, Egyetem tér 1.
Phone	+36-52-512-900/23417
E-mail	apinter@science.unideb.hu

Vice-Rector for Scientific Affairs	László Csernoch M.Sc., Ph.D., D.Sc.
Address	4032 Debrecen, Egyetem tér 1.
Phone	+36-52-411-600/54575
E-mail	csernoch.laszlo@med.unideb.hu

Vice-Rector for Educational Affairs	Elek Bartha Ph.D., D.Sc.
Address	4032 Debrecen, Egyetem tér 1.
Phone	+36-52-512-900/22248
E-mail	bartha.elek@unideb.hu

Vice-Rector for Health Industry Innovation and Training	József Tőzsér M.Sc., PhD., D.Sc.
Address	4032 Debrecen, Egyetem tér 1.
Phone	+36-52-412-900/65314
E-mail	tozser@med.unideb.hu

COORDINATING CENTER FOR INTERNATIONAL EDUCATION	
Director	Attila Jenei M.Sc., Ph.D.
Address	4032 Debrecen, Nagyerdei krt. 94.

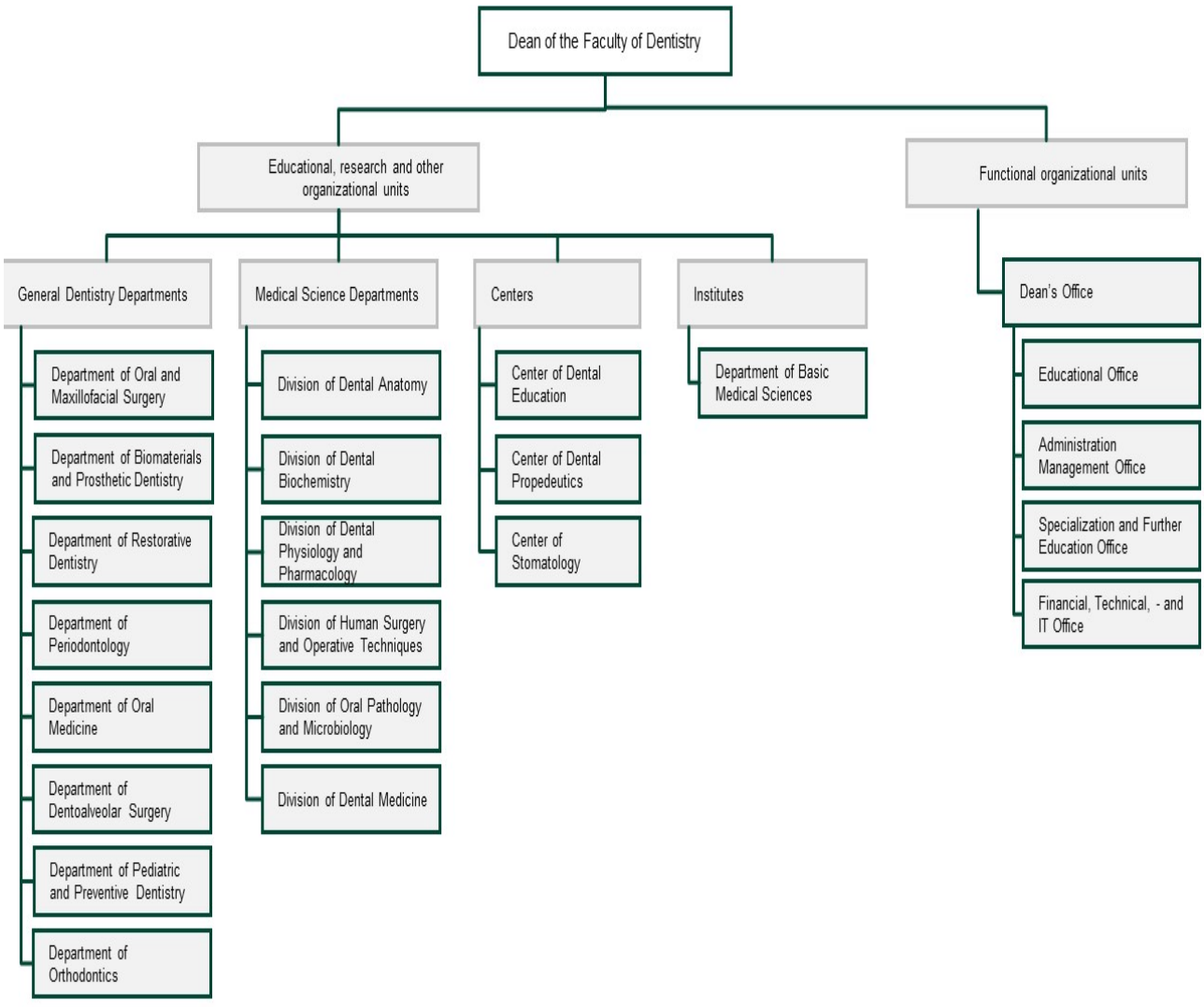
Phone	+36-52-258-058
Fax	+36-52-414-013
E-mail	info@edu.unideb.hu

FACULTY OF DENTISTRY

Dean	Kinga Bágyi D.M.D., Ph.D.
Address	4032 Debrecen, Nagyerdei krt. 98.
Phone/Fax	+36-52-255-208
E-mail	bagyi.kinga@dental.unideb.hu

Vice-Dean for Educational Affairs	Norbert Szentandrássy M.D., Ph.D.
Address	4032 Debrecen, Nagyerdei krt. 98.
Phone/Fax	+36-52-255-208
E-mail	szentandrassy.norbert@med.unideb.hu

Vice-Dean for General Affairs	István Varga D.M.D., Ph.D.
Address	4032 Debrecen, Nagyerdei krt. 98.
Phone/Fax	+36-52-255-208
E-mail	varga.istvan@dental.unideb.hu


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

CHAPTER 4
FACULTY OF DENTISTRY - GENERAL DENTISTRY AND MEDICAL SCIENCE DEPARTMENTS

DEPARTMENT OF BIOMATERIALS AND PROSTHETIC DENTISTRY

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-430
Web: http://dental.unideb.hu/

Full Professor, Head of Department		Csaba Hegedűs M.Sc., Ph.D.
Associate Professor	Ms.	Tünde Radics D.M.D., Ph.D.
Assistant Professor		Tamás Bistey D.M.D., Ph.D.
	Ms.	Melinda Szalóki M.Sc., Ph.D.
Assistant Lecturer		József Bakó M.Sc., Ph.D.
	Ms.	Edit Hrubi D.M.D.
	Ms.	Rita Mohácsi D.M.D.
	Ms.	Anita Pétercsák D.M.D.
		László Póti D.M.D.
	Ms.	Márta Szegedi D.M.D.
		Ferenc Tóth M.Sc.
Clinical Specialist	Ms.	Katalin Bukovinszky D.M.D.
Resident	Ms.	Gerda Dani D.M.D.
	Ms.	Marianna Dóró D.M.D.
	Ms.	Tímea Kulcsár D.M.D.
		Péter Suta D.M.D.
		Márton Suta D.M.D.
	Ms.	Kitti Török D.M.D.
Chemist	Ms.	Tünde Rente M.Sc.
Molecular Biologist	Ms.	Ágnes Bartháné Szabó M.Sc.
Academic Advisor		István Lampé D.M.D.

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-411-717/55290

Associate Professor, Head of Department	Ms.	Adrienne Szabó M.D., Ph.D.
Assistant Lecturer		Róbert Boda M.D.
	Ms.	Dóra Horváth M.D.

Clinical Assistant		Levente Czompa M.D.
Candidate Clinical Assistant	Ms.	Petronella Révész M.D.
Resident		Árpád Kunka M.D.
		Géza Majoros M.D.

DEPARTMENT OF ORTHODONTICS
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-414-717/56249

Assistant Professor, Head of Department		Péter Borbély D.M.D.
Assistant Lecturer	Ms.	Viktória Hegedűs D.M.D.
Dentist	Ms.	Judit Török D.M.D.
		Géza Vitályos D.M.D.
Resident	Ms.	Éva Berecz D.M.D.
	Ms.	Leila Hamid D.M.D.
	Ms.	Judit Hevesi D.M.D.

DEPARTMENT OF PERIODONTOLOGY
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-411-717/55228

Associate Professor, Head of Department		István Varga D.M.D., Ph.D.
Assistant Professor		János Angyal D.M.D., Ph.D.
Assistant Lecturer	Ms.	Katinka Hernádi D.M.D., Ph.D.
Dentist	Ms.	Eszter Szentléleky D.M.D.
Resident	Ms.	Zsófia Hadházi D.M.D.
	Ms.	Barbara Hollósi D.M.D.
		Nándor Kalas D.M.D.
		Fábián Tar D.M.D.

DEPARTMENT OF RESTORATIVE DENTISTRY
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-725
E-mail: toth.janosne@dental.unideb.hu

Full Professor, Head of Department	Ms.	Ildikó Márton M.D., L.D.S., Ph.D., D.Sc.
Associate Professor	Ms.	Kinga Bágyi Dr. habil., D.M.D., Ph.D.
		Barna Kelentey D.M.D., Ph.D., C.Sc.
Assistant Professor	Ms.	Rita Marincsák D.M.D., Ph.D.
Assistant Lecturer	Ms.	Bettina Balogh D.M.D.
	Ms.	Ágnes Jenei D.M.D.
		László Nagy D.M.D.

	Ms.	Marianna Skaliczki D.M.D.
	Ms.	Enikő Tóth D.M.D.
Clinical Specialist		Alexander Juhász D.M.D.
	Ms.	Renáta Martos D.M.D.
Dentist	Ms.	Gerda Dani D.M.D.
	Ms.	Kitti Sipos D.M.D.
		Péter Suta D.M.D.
Resident	Ms.	Zsuzsa Antal D.M.D.
	Ms.	Lilla Molnár D.M.D.
		Márton Suta D.M.D.

DEPARTMENT OF ORAL MEDICINE
Nagyerdei krt. 98., Debrecen, 4028

Associate Professor, Head of Department	Ms.	Ildikó Tar Ph.D.

DEPARTMENT OF PEDIATRIC AND PREVENTIVE DENTISTRY
Nagyerdei krt. 98., Debrecen, 4028

Associate Professor, Head of Department	Ms.	Judit Nemes D.M.D., Ph.D.
Assistant Professor	Ms.	Gabriella Kovalecz D.M.D.
Assistant Lecturer	Ms.	Brigitta Baksa D.M.D.
	Ms.	Nóra Rácz D.M.D.
Resident	Ms.	Adél Dakos D.M.D.
	Ms.	Aliz Lipták M.D.

DEPARTMENT OF DENTOALVEOLAR SURGERY
Nagyerdei krt. 98., Debrecen , 4028

Assistant Lecturer, Head of Department	Ms.	Etelka D. Tóth D.M.D.
Assistant Lecturer	Ms.	Enikő Gebri D.M.D.
		Levente Lukács D.M.D.
	Ms.	Boglárka Skopkó D.M.D.
Dentist	Ms.	Orsolya Liska D.M.D.
	Ms.	Márta Szepesi D.M.D.
	Ms.	Adrienn Tóth D.M.D.

Resident	Gergő Mizsei D.M.D.

DEPARTMENT OF BASIC MEDICAL SCIENCES
Nagyerdei krt. 98, Debrecen, 4028

Full Professor, Head of Department	Prof Attila Jenei M.Sc., Ph.D.

Division of Human Surgery and Operative Techniques
Nagyerdei krt. 98., Debrecen, 4032

Associate Professor, Head of Division	István Juhász M.D., Ph.D., C.Sc.

Division of Dental Medicine
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-172
E-mail: itornai@med.unideb.hu

Associate Professor, Head of Division	István Tornai M.D., Ph.D. habil.
Associate Professor	Szabolcs Felszeghy Ph.D., D.D.S.

Division of Dental Anatomy
Nagyerdei krt. 98. , Debrecen, 4032

Full Professor, Head of Division	Ms. Klára Matesz M.D.,Ph.D.,D.Sc.

Division of Dental Biochemistry
Nagyerdei krt. 98., Debrecen, 4032

Full Professor, Head of Division	Ms. Zsuzsa Szondy M.D., Ph.D., D.Sc.
Assistant Professor	Ms. Edina Bakondi M.Sc., Ph.D.
	Péter Hajdu M.Sc., Ph.D.
	Endre Kókai M.Sc., Ph.D.
Assistant Lecturer	Ms. Krisztina Lenténé Köröskényi M.Sc., Ph.D.
	Ms. Ágnes Tóth M.D., Ph.D.

Division of Dental Physiology and Pharmacology
Nagyerdei krt. 98., Debrecen, 4032

Full Professor, Head of Division	Péter Nánási M.D., Ph.D., D.Sc.
Assistant Professor	Norbert Szentandrássy M.D., Ph.D.

Division of Oral Pathology and Microbiology
Nagyerdei krt. 98., Debrecen, 4032

Associate Professor, Head of Division	Balázs Dezső M.D., D.Sc.

CHAPTER 5
ADMINISTRATIVE UNITS

REGISTRAR'S OFFICE

Nagyerdei krt. 94., Debrecen, 4032, Tel: +36-52-258-020
E-mail: eduoffice@med.unideb.hu; deaokto@med.unideb.hu

Head of Registrar's Office		Pál Pap M.Sc., Ph.D.
Secretary	Ms.	Réka Mosolygó M.A.
Neptun Coordinator		Ádám Richárd Jasák B.A.
English Program Officer	Ms.	Bernadett Illó M.A.
	Ms.	Éva Ludánszki
	Ms.	Judit Ráczné Kenesei B.Sc.
	Ms.	Réka Rónai M.Sc.
Hungarian Program Officer	Ms.	Marianna Baloghné Holhós M.A.
	Ms.	Zsuzsa Barta B.A.
		Tamás Buka M.A.
	Ms.	Beáta Csűry-Bagaméri M.A.
	Ms.	Judit Derzsi M.A.
	Ms.	Nóra Faragó M.Sc.
	Ms.	Anikó Karcza B.Sc.
	Ms.	Ágnes Ojtozi M.A.
	Ms.	Anna Mária Pásztori B.Sc.

COORDINATING CENTER FOR INTERNATIONAL EDUCATION

Nagyerdei krt. 94., Debrecen, 4032, Tel: +36-52-258-058
E-mail: info@edu.unideb.hu, Web: www.edu.unideb.hu

Director	Prof	Attila Jenei M.Sc., Ph.D.
Program Coordinator	Prof	Ferenc Erdődi M.Sc., Ph.D., D.Sc.
BMC Coordinator	Ms.	Beáta Lontay M.Sc., Ph.D.
Manager Assistant	Ms.	Márta Hajdu
Agent&Marketing Coordinator		Tamás Zabán M.Sc.
Financial Coordinator	Ms.	Rita Kovács J.D.
Agent Coordinator		József Harmati J.D.
Ranking and Marketing Coordinator	Ms.	Zsófia Münnich M.Sc.
English Program Coordinators	Ms.	Dóra Benkő

	(Admission, Visa Issues, BMC, US Loans)
	Ms. Regina Berei (Tuition fee, Financial certificates, Refunds)
	Ms. Marianna Gyuris (Admission, Visa issues, USMLE, MCCEE, Stipendium Hungaricum Scholarship, Wyckoff Heights)
	Ms. Ildikó Lakatos M.A. (Admission, Visa Issues)
	Ms. Krisztina Németh M.Sc. (Bulletin)
	Ms. Enikő Sallai M.Sc. (Tuition fee, Health Insurance)
	Ms. Mária Tóth M.Sc. (Stipendium Hungaricum Scholarship)
IT Project Coordinator	Imre Szűcs B.Sc.

CHAPTER 6
BASIC MEDICINE COURSE

BASIC MEDICINE COURSE - INTRODUCTION TO BIOLOGY

Nagyerdei krt. 98., Debrecen, 4032
Web: www.bmc.unideb.hu

BMC Coordinator	Ms.	Beáta Lontay M.Sc., Ph.D.
Course Coordinator	Ms.	Klára Matesz M.D.,Ph.D.,D.Sc.
Study Advisor		András Penyige M.Sc., Ph.D. (BMC I 1st semester; BMC II)
		Norbert Szentandrássy M.D., Ph.D. (BMC I 2nd semester; BMC II)
Lecturer		János Almássy M.Sc., Ph.D.
	Ms.	Zsófia Antal M.D., Ph.D.
	Ms.	Szilvia Benkő M.Sc., Ph.D.
		András Birinyi M.Sc., Ph.D.
	Ms.	Zsuzsanna Birkó M.Sc., Ph.D.
		Sándor Biró M.Sc., Ph.D., D.Sc.
		Gergely Buglyó M.D., Ph.D.
	Ms.	Gabriella Czifra M.Sc., Ph.D.
	Ms.	Beatrix Dienes M.Sc., Ph.D.
		János Fodor M.Sc., Ph.D.
		Botond Gaál M.Sc., Ph.D.
	Ms.	Krisztina Holló M.Sc., Ph.D.
		Balázs Horváth M.D.,Ph.D.
	Ms.	Judit Keserű M.Sc., Ph.D.
		András Mádi M.Sc., Ph.D.
	Ms.	Klára Matesz M.D.,Ph.D.,D.Sc.
		Csaba Matta M.Sc., Ph.D.
	Ms.	Johanna Mihály M.Sc., Ph.D.
		Tamás Oláh M.Sc., Ph.D.
		Attila Oláh M.Sc., Ph.D.
	Ms.	Melinda Paholcsek M.Sc., Ph.D.
		Balázs Pál M.D.,Ph.D.
	Ms.	Éva Rácz M.Sc., Ph.D.
	Ms.	Anitta Kinga Sárvári M.Sc.

	Ms. Melinda Szilágyi-Bónizs M.Sc., Ph.D.
	Ms. Krisztina Szirák M.Sc., Ph.D.
	Attila Szöllősi M.D., Ph.D.
	István Balázs Tóth M.Sc., Ph.D.
	Ms. Angelika Varga M.Sc., Ph.D.
	Ervin Wolf M.Sc., Ph.D.
	Ms. Róza Zákány M.D., Ph.D.

BASIC MEDICINE COURSE - INTRODUCTION TO BIOPHYSICS

Nagyerdei krt. 98., Debrecen, 4032
Web: www.bmc.unideb.hu

BMC Coordinator	Ms. Beáta Lontay M.Sc., Ph.D.
Course Coordinator	János Szöllősi M.Sc., Ph.D., D.Sc., M.H.A.Sc.
Study Advisor	Attila Jenei M.Sc., Ph.D. (BMC II)
	Zoltán Varga M.Sc., Ph.D. (BMC I)
Lecturer	Zsolt Bacsó M.D., Ph.D.
	Péter Hajdu M.Sc., Ph.D.
	Tamás Kovács M.D.
	Zoltán Krasznai M.Sc., Ph.D.
	László Mátyus M.D., Ph.D., D.Sc.
	Ms. Enikő Nizsalóczki M.Sc.
	György Panyi M.D., Ph.D., D.Sc.
	Pál Pap M.Sc., Ph.D.
	Ferenc Papp M.Sc., Ph.D.
	G. Tibor Szántó M.Sc., Ph.D.
	János Szöllősi M.Sc., Ph.D., D.Sc., M.H.A.Sc.
	Ms. Ágnes Tóth M.Sc., Ph.D.
	Zoltán Varga M.Sc., Ph.D.

BASIC MEDICINE COURSE - INTRODUCTION TO MEDICAL CHEMISTRY

Nagyerdei krt. 98., Debrecen, 4032
Web: www.bmc.unideb.hu

BMC Coordinator	Ms.	Beáta Lontay M.Sc., Ph.D.
Course Coordinator	Ms.	Csilla Csortos M.Sc., Ph.D., D.Sc.
Study Advisor		Endre Kókai M.Sc., Ph.D. (BMC I)
	Ms.	Krisztina Tar M.Sc., Ph.D. (BMC II)
Lecturer	Ms.	Éva Bakó M.Sc., Ph.D.
	Ms.	Edina Bakondi M.Sc., Ph.D.
		Péter Bay M.Sc., Ph.D., D.Sc.
		Bálint Bécsi M.Sc., Ph.D.
	Ms.	Anita Boratkó M.Sc., Ph.D.
	Ms.	Csilla Csortos M.Sc., Ph.D., D.Sc.
		Tibor Docsa M.Sc., Ph.D.
		Viktor Dombrádi M.Sc., Ph.D., D.Sc.
		Ferenc Erdődi M.Sc., Ph.D., D.Sc.
	Ms.	Ilona Farkas M.Sc., Ph.D.
		Csaba Hegedűs M.Sc., Ph.D.
	Ms.	Andrea Kiss M.Sc., Ph.D.
	Ms.	Katalin Kovács M.Sc., Ph.D.
	Ms.	Edit Mikó M.Sc., Ph.D.
	Ms.	Magdolna Szántó D.Pharm., Ph.D.
		László Virág M.D., Ph.D., D.Sc.

CHAPTER 7
FACULTY OF MEDICINE - DEPARTMENTS OF BASIC SCIENCES

DEPARTMENT OF ANATOMY, HISTOLOGY AND EMBRYOLOGY

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

Associate Professor, Head of the Department		Péter Szücs M.D., Ph.D.
Full Professor, Head of Oral Anatomy Division	Ms.	Klára Matesz M.D.,Ph.D.,D.Sc.
Full Professor		Miklós Antal M.D., Ph.D., D.Sc.
Professor Emeritus		István Földes M.D., Ph.D., D.Sc.
		László Módis M.D., Ph.D., D.Sc.
Associate Professor		András Birinyi M.Sc., Ph.D.
		Zoltán Kisvárday M.Sc., Ph.D., D.Sc.
		Ervin Wolf M.Sc., Ph.D.
	Ms.	Róza Zákány M.D., Ph.D.
Assistant Professor	Ms.	Krisztina Holló M.Sc., Ph.D.
		Tamás Juhász M.Sc., Ph.D.
		Csaba Matta M.Sc., Ph.D.
		Zoltán Mészár M.Sc., Ph.D.
	Ms.	Éva Rácz M.Sc., Ph.D.
Course Director		Tamás Juhász M.Sc., Ph.D. (Macroscopic Anatomy)
		Zoltán Kisvárday M.Sc., Ph.D., D.Sc. (Neurobiology)
		Ervin Wolf M.Sc., Ph.D. (Histology and Embryology)
Academic Advisor for 1st year medical and dental students	Ms.	Ildikó Wéber M.Sc., Ph.D.
Academic Advisor for 1st year pharmacy students	Ms.	Ildikó Papp M.Sc., Ph.D.
Academic Advisor for 2nd year medical and dental students	Ms.	Ildikó Wéber M.Sc., Ph.D.

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

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

Full Professor, Head of Department		József Tőzsér M.Sc., Ph.D., D.Sc.
Head of Dental Biochemistry Division	Ms.	Zsuzsa Szondy M.D., Ph.D., D.Sc.
Full Professor		László Fésüs M.D., Ph.D., D.Sc., M.H.A.Sc.
	Ms.	Mónika Fuxreiter M.Sc., Ph.D., D.Sc.
		László Nagy M.D., Ph.D., M.H.A.Sc.
Associate Professor		Zoltán Balajthy M.Sc., Ph.D.
		Endre Barta M.Sc., Ph.D.
	Ms.	Beáta Scholtz M.Sc., Ph.D.
		István Szatmári M.Sc., Ph.D.
Senior Research Fellow		András Mádi M.Sc., Ph.D.
Assistant Professor		László Bálint Bálint M.D., Ph.D.
		Róbert Király M.Sc., Ph.D.
	Ms.	Krisztina Lenténé Köröskényi M.Sc., Ph.D. (Department of Dental Biochemistry)
		János Mótyán M.Sc., Ph.D.
		Zsolt Sarang M.Sc., Ph.D.
		Lóránt Székvölgyi M.Sc., Ph.D.
		Lajos Széles M.Sc., Ph.D.
	Ms.	Szilvia Tőkés M.Sc., Ph.D.
Research Fellow	Ms.	Beáta Bartáné Tóth M.Sc., Ph.D.
		Frank Batista M.Sc., Ph.D.
	Ms.	Éva Csősz M.Sc., Ph.D.
		Máté Demény M.D.,Ph.D.
		Márton Miskei M.Sc., Ph.D.
		Dénes Nagy M.Sc., Ph.D.
		Szilárd Póliska M.Sc., Ph.D.
		András Szabó M.Sc., Ph.D.
Assistant Lecturer		Endre Károly Kristóf M.D.
		Mohamed Faisal Mahdi M.D., Ph.D.
	Ms.	Vanda Toldi M.Sc.
	Ms.	Fruzsina Zsólyomi M.Sc.
Academic Advisor	Ms.	Szilvia Tőkés M.Sc., Ph.D. (E-mail: tokes@med.unideb.hu, Ext.:64439)

DEPARTMENT OF BIOPHYSICS AND CELL BIOLOGY

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

Full Professor, Head of Department	György Panyi M.D., Ph.D., D.Sc.
Full Professor	Attila Jenei M.Sc., Ph.D.
Associate Professor	Zsolt Bacsó M.D., Ph.D.
Assistant Professor	Zsolt Fazekas M.Sc., Ph.D.
	Péter Hajdu M.Sc., Ph.D.
Visiting Lecturer	László Bene M.Sc., Ph.D.
	József Kormos
	Zoltán Krasznai M.Sc., Ph.D.
Academic Advisor	Zsolt Fazekas M.Sc., Ph.D.

Division of Biophysics

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

Full Professor, Head of Division	Péter Nagy M.D., Ph.D., D.Sc.
Full Professor	János Szöllősi M.Sc., Ph.D., D.Sc., M.H.A.Sc.
Associate Professor	Zoltán Varga M.Sc., Ph.D.
Senior Research Fellow	György Vámosi M.Sc., Ph.D.
Assistant Lecturer	Ferenc Papp M.Sc., Ph.D.

Division of Cell Biology

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

Full Professor, Head of Division	György Vereb M.D., Ph.D., D.Sc.
Full Professor	Gábor Szabó M.D., Ph.D., D.Sc.
Assistant Professor	Ms. Katalin Goda M.Sc., Ph.D.
Assistant Lecturer	Árpád Szöőr M.D., Ph.D.

Division of Biomathematics
Egyetem tér 1., Debrecen, 4032, Tel: +36 52 258 603
E-mail: biophysedu@med.unideb.hu, Web: http://biophys.med.unideb.hu

Full Professor, Head of Division	László Mátyus M.D., Ph.D., D.Sc.
Senior Research Fellow	Ms. Andrea Dóczy-Bodnár M.Sc., Ph.D.
Assistant Lecturer	G. Tibor Szántó M.Sc., Ph.D.
Engineer	István Csomós M.Sc.
	Ms. Enikő Nizsalóczki M.Sc.

DEPARTMENT OF FORENSIC MEDICINE
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-865
E-mail: herczeg.l.t@gmail.com

Associate Professor, Head of Department	László Herczeg M.D., Ph.D.
Assistant Lecturer	Ms. Beáta Ágnes Borsay M.D.
	Péter Gergely M.D.
	Kálmán Rácz M.D.
	Csaba Turzó M.D.

DEPARTMENT OF HUMAN GENETICS
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-416-531
E-mail: nagy.balint@med.unideb.hu, Web: https://humangenetics.unideb.hu/

Full Professor, Head of Department	Bálint Nagy M.Sc., Ph.D. habil., D.Sc.
BMC Coordinator	András Penyige M.Sc., Ph.D.
Full Professor	Sándor Biró M.Sc., Ph.D., D.Sc.
	László Takács M.D., Ph.D., D.Sc., M.H.A.Sc.
Professor Emeritus	György Barabás M.Sc., Ph.D., D.Sc.
Associate Professor	András Penyige M.Sc., Ph.D.
Assistant Professor	Ms. Zsuzsanna Birkó M.Sc., Ph.D.
	Ms. Judit Keserű M.Sc., Ph.D.
Assistant Lecturer	Gergely Buglyó M.D., Ph.D.

	Ms.	Melinda Paholcsek M.Sc., Ph.D.
	Ms.	Beáta Soltész M.Sc.
	Ms.	Melinda Szilágyi-Bónizs M.Sc., Ph.D.
	Ms.	Krisztina Szirák M.Sc., Ph.D.
Academic Advisor of Molecular Biology MSc	Ms.	Krisztina Szirák M.Sc., Ph.D.
Academic Advisor for 1st year medical and dental students		Sándor Biró Ph.D., D.Sc.
Academic Advisor for 1st year pharmacy students	Ms.	Judit Keserű M.Sc., Ph.D.

DEPARTMENT OF IMMUNOLOGY

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

Associate Professor, Head of Department		Attila Bácsi M.Sc., Ph.D.
Full Professor		Tamás Bíró M.D., Ph.D., D.Sc.
	Ms.	Éva Rajnavölgyi M.Sc., Ph.D., D.Sc.
Associate Professor		Árpád Lányi M.Sc., Ph.D.
Assistant Professor	Ms.	Johanna Mihály M.Sc., Ph.D.
		Attila Szöllősi M.D., Ph.D.
Research Fellow		Péter Gogolák M.Sc., Ph.D.
	Ms.	Ágnes Gyetvai M.Sc., Ph.D.
		György Hajas M.Sc., Ph.D.
		Gábor Koncz M.Sc., Ph.D.
	Ms.	Kitti Pázmándi M.Sc., Ph.D.
Assistant Lecturer	Ms.	Tünde Fekete M.Sc., Ph.D.
	Ms.	Aliz Varga M.Sc., Ph.D.
Academic Advisor		Gábor Koncz M.Sc., Ph.D.

DEPARTMENT OF LABORATORY MEDICINE

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-340-006
E-mail: info@lmi..hu, Web: www.labmed.hu

Full Professor, Head of Department	János Kappelmayer M.D., Ph.D., D.Sc.
Associate Professor, Head of Division of Clinical Genetics	István Balogh M.Sc., Ph.D.

Associate Professor		Péter Antal-Szalmás M.D., Ph.D.
	Ms.	Zsuzsa Hevessy M.D., Ph.D.
		Harjit Pal Bhattoa M.D., Ph.D.
Senior Research Fellow	Ms.	Edit Gyimesi M.Sc., Ph.D.
	Ms.	Anna Oláh M.Sc., Ph.D.
Assistant Professor		Sándor Baráth M.Sc., Ph.D.
	Ms.	Adrienne Kerényi M.D., Ph.D.
		Béla Nagy Jr. M.D., Ph.D.
	Ms.	Anikó Ujfalusi M.D., Ph.D.
Research Fellow	Ms.	Beáta Bessenyei M.Sc., Ph.D.
	Ms.	Beáta Tóth M.Sc., Ph.D.
	Ms.	Erika Zilahi M.Sc., Ph.D.
Assistant Lecturer		Gergely Ivády M.D.
	Ms.	Katalin Koczok M.D.
		Zoltán Mezei M.D., Ph.D.
		Gábor Nagy M.D.
	Ms.	Eszter Szánthó M.D.
Academic Advisor	Ms.	Adrienne Kerényi M.D., Ph.D.

Division of Clinical Genetics

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36 52 340 006
E-mail: bessenyei.beata@med.unideb.hu, Web: www.kbmpi.hu, www.klinikaigenetika.hu

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

Division of Clinical Laboratory Science

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-431-956
E-mail: ekatona@med.unideb.hu, Web: crc.med.unideb.hu

Associate Professor, Head of Division	Ms.	Zsuzsanna Bereczky M.D., Dr. habil., Ph.D.
Professor Emeritus		László Muszbek M.D., Ph.D., D.Sc., M.H.A.Sc.
Associate Professor	Ms.	Éva Katona
Senior Research Fellow		Amir Houshang Shemirani M.D., Ph.D.
Assistant Professor	Ms.	Zsuzsa Bagoly M.D., Ph.D.
Research Fellow	Ms.	Zsuzsanna Orosz M.D., Ph.D.

Assistant Lecturer	Ms.	Krisztina Pénzes-Daku M.Sc., Ph.D.
Academic Advisor	Ms.	Éva Katona

DEPARTMENT OF MEDICAL CHEMISTRY

Egyetem tér 1., Debrecen, 4032, Tel: +39-52-412-345
E-mail: medchem@med.unideb.hu, Web: chemistry.med.unideb.hu

Full Professor, Head of Department		László Virág M.D., Ph.D., D.Sc.
Full Professor	Ms.	Csilla Csortos M.Sc., Ph.D., D.Sc.
		Viktor Dombrádi M.Sc., Ph.D., D.Sc.
		Ferenc Erdődi M.Sc., Ph.D., D.Sc.
Professor Emeritus		Pál Gergely M.Sc., Ph.D., D.Sc., M.H.A.Sc.
Associate Professor		Péter Bay M.Sc., Ph.D., D.Sc.
	Ms.	Ilona Farkas M.Sc., Ph.D.
	Ms.	Beáta Lontay M.Sc., Ph.D.
	Ms.	Karen Uray M.Sc., Ph.D.
Assistant Professor	Ms.	Éva Bakó M.Sc., Ph.D.
	Ms.	Edina Bakondi M.Sc., Ph.D.
	Ms.	Anita Boratkó M.Sc., Ph.D.
		Tibor Docsa M.Sc., Ph.D.
		Csaba Hegedűs M.Sc., Ph.D.
	Ms.	Andrea Kiss M.Sc., Ph.D.
		Endre Kókai M.Sc., Ph.D.
	Ms.	Krisztina Tar M.Sc., Ph.D.
Academic Advisor	Ms.	Éva Bakó M.Sc., Ph.D.

DEPARTMENT OF MEDICAL MICROBIOLOGY

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-425
E-mail: mikro@med.unideb.hu, Web: elearning.med.unideb.hu

Full Professor, Head of Department		József Kónya D.Sc.
Professor Emeritus		Lajos Gergely M.D., Ph.D. habil.
Associate Professor		László Majoros M.D., Ph.D.
	Ms.	Judit Szabó M.D., Ph.D.
	Ms.	Krisztina Szarka M.Sc., Ph.D.
		György Veress M.Sc., Ph.D.

Assistant Professor	Ms.	Eszter Csoma M.Sc., Ph.D.
		Gábor Kardos M.D., Ph.D.
	Ms.	Anita Szalmás M.Sc., Ph.D.
Assistant Lecturer	Ms.	Zsuzsanna Dombrádi M.Sc., Ph.D.
	Ms.	Eszter Gyöngyösi M.Sc., Ph.D.
		Renátó Kovács M.Sc., Ph.D.
	Ms.	Brigitta László M.Sc., Ph.D.
Academic Advisor of Faculty of Medicine		György Veress M.Sc., Ph.D.
Academic Advisor of Faculty of Dentistry		György Veress M.Sc., Ph.D.
Academic Advisor of Faculty of Pharmacy		László Majoros M.D., Ph.D.

DEPARTMENT OF PATHOLOGY
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-245
Web: pathol.med.unideb.hu

Full Professor, Head of Department		Gábor Méhes M.D., D.Sc.
Full Professor, Head of Division of Oral Pathology		Balázs Dezső M.D., D.Sc.
Full Professor		Péter Molnár M.D., D.Sc.
Professor Emeritus		Zoltán Nemes M.D., D.Sc.
Assistant Lecturer		Lukács Baráth M.D.
		László Bidiga M.D.
		Tamás Csonka M.D.
		Csaba Molnár M.D.
	Ms.	Brigitta Orlik M.D.
		Sándor Csaba Szász M.D.
		László Tóth M.D., Ph.D. habil.
Academic Advisor		Csaba Molnár M.D.

DEPARTMENT OF PHARMACOLOGY AND PHARMACOTHERAPY
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-009
Web: http://pharmacology.med.unideb.hu

Full Professor, Head of Department		Zoltán Szilvássy M.D., Ph.D., D.Sc.
Professor Emeritus	Ms.	Judith Gergely D.Pharm., Ph.D., D.Sc.
Associate Professor	Ms.	Ilona Benkő M.D., Ph.D.

		Rudolf Gesztelyi M.D., Ph.D.
		Béla Juhász D.Pharm., Dr. habil., Ph.D.
		Róbert Pórszász M.D., Dr. habil., MBA, Ph.D.
		József Szentmiklósi M.D., Ph.D.
Senior Research Fellow		József Németh M.Sc., Ph.D.
Assistant Professor	Ms.	Rita Kiss M.D., Ph.D.
		Attila Megyeri M.D., Ph.D.
Research Fellow	Ms.	Zsuzsanna Gál M.Sc., Ph.D.
Assistant Lecturer	Ms.	Ágnes Cseppentő M.D.
	Ms.	Diána Kovács M.Sc., Ph.D.
		Balázs Varga D.Pharm., Ph.D.
Administration officer	Ms.	Andrea Szalai B.Sc., M.Sc.
	Ms.	Judit Vári
Academic Advisor		Róbert Pórszász M.D., Dr. habil., MBA, Ph.D.

DEPARTMENT OF PHYSIOLOGY

Nagyerdei krt. 98., Debrecen, 4012, Tel: +36-52-255-575
Web: http://phys.med.unideb.hu

Full Professor, Head of Department		László Csernoch M.Sc., Ph.D., D.Sc.
Full Professor, Head of Sport Physiology Division		János Magyar M.D.,Ph.D.,D.Sc.
Full Professor, Head of Dental Physiology and Pharmacology Division		Péter Nánási M.D., Ph.D., D.Sc.
Professor Emeritus		László Kovács M.D.,Ph.D.,D.Sc.,M.H.A.Sc.
Associate Professor		Tamás Bányász M.D., Ph.D.
		Balázs Pál M.D.,Ph.D.
Senior Research Fellow		Péter Szentesi M.Sc., Ph.D.
Assistant Professor		János Almássy M.Sc., Ph.D.
	Ms.	Szilvia Benkő M.Sc., Ph.D.
		Balázs Horváth M.D.,Ph.D.
		Norbert Szentandrássy M.D., Ph.D.
		István Balázs Tóth M.Sc., Ph.D.
Research Fellow	Ms.	Gabriella Czifra M.Sc., Ph.D.
	Ms.	Beatrix Dienes M.Sc., Ph.D.

		János Fodor M.Sc., Ph.D.
		Attila Oláh M.D.
	Ms.	Mónika Szentandrássyné Gönczi M.Sc., Ph.D.
	Ms.	Mónika Sztretye M.Sc., Ph.D.
Assistant Lecturer	Ms.	Ágnes Jenes M.D., Ph.D.
Research Advisor		István Jóna M.Sc., Ph.D., D.Sc.

CHAPTER 8
FACULTY OF MEDICINE - CLINICAL DEPARTMENTS

DEPARTMENT OF ANESTHESIOLOGY AND INTENSIVE CARE

Nagyerdei krt. 98, Debrecen, 4032, Tel: +36-52-255-347
Web: http://aitt.med.unideb.hu/

Full Professor, Head of Department		Béla Fülesdi M.D., Ph.D., D.Sc.
Associate Professor	Ms.	Judit Hallay M.D., Ph.D.
	Ms.	Csilla Molnár M.D., Ph.D.
Assistant Professor		György Koszta M.D., Ph.D.
		Zsolt Oláh M.D., Ph.D.
		Péter Siró M.D., Ph.D.
		Béla Tankó M.D., Ph.D.
		Tamás Végh M.D., Ph.D.
Senior Resident	Ms.	Dóra Cservenyák M.D.
	Ms.	Eszter Farkas M.D.
		Endre Hajdu M.D.
	Ms.	Zsuzsa Jakab M.D.
	Ms.	Enikő Jánvári M.D.
		György Nagy M.D.
	Ms.	Réka Nemes M.D.
	Ms.	Enikő Papp M.D.
	Ms.	Eszter Varga M.D.
Assistant Lecturer		Ákos Fábián M.D., Ph.D.
	Ms.	Judit Gyulaházi M.D.
	Ms.	Eszter Mihály M.D.
		Péter Sárkány M.D.
Academic Advisor		Ákos Fábián M.D., Ph.D.

DEPARTMENT OF CARDIOLOGY

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

Chairman	Zoltán Csanádi M.D., Ph.D., D.Sc.

Division of Cardiac Surgery
Móricz Zs. krt. 22., Debrecen, 4032, Tel: +36-52-255-306

Associate Professor, Head of Division		Tamás Szerafin M.D., Ph.D.
Professor Emeritus		Árpád Péterffy M.D., D.Sc.
Assistant Lecturer		Péter Csizmadia M.D.
		Tamás Debreceni M.D.
	Ms.	Andrea Molnár M.D., Ph.D.

Division of Cardiology
Móricz Zs. krt. 22., Debrecen, 4032, Tel: +36-52-255-928
E-mail: kardiologia@med.unideb.hu, Web: http://en.debkard.hu

Full Professor, Head of Department		Zoltán Csanádi M.D., Ph.D., D.Sc.
Full Professor		István Édes M.D., Ph.D., D.Sc.
Associate Professor	Ms.	Judit Barta M.D., Ph.D.
		Attila Borbély M.D., Ph.D.
		Zsolt Kőszegi M.D., Ph.D.
Assistant Professor	Ms.	Annamária Bódi M.D., Ph.D.
		Marcell Clemens M.D., Ph.D.
		Dániel Czuriga M.D., Ph.D.
	Ms.	Andrea Daragó M.D., Ph.D.
		Tibor Fülöp M.D., Ph.D.
		László Fülöp M.D., Ph.D.
		Szabolcs Gergely M.D., Ph.D.
		Attila Kertész M.D., Ph.D.
		Rudolf Kolozsvári M.D., Ph.D.
		Tibor Szűk M.D., Ph.D.
		Gusztáv Vajda M.D.
Assistant Lecturer	Ms.	Nóra Erdei M.D., Ph.D.
	Ms.	Zita Hertelendi M.D., Ph.D.
	Ms.	Nóra Homoródi M.D.
		Csaba Jenei M.D.
		László Nagy M.D.
	Ms.	Ildikó Rácz M.D., Ph.D.
		Sándor Sipka M.D., Ph.D.
		Gábor Szabó M.D.

Division of Clinical Physiology
Móricz Zs. krt. 22., Debrecen, 4032, Tel: +36-52-255-978
E-mail: klinfiz@med.unideb.hu, Web: http://klinfiz.unideb.hu

Full Professor, Head of Division		Zoltán Papp M.D., Ph.D., D.Sc.
Full Professor		Attila Tóth M.Sc., Ph.D., D.Sc.
Assistant Professor		Miklós Fagyas M.D., Ph.D.
Assistant Lecturer	Ms.	Viktória Csató M.Sc., Ph.D.
Academic Advisor		Miklós Fagyas M.D., Ph.D.

DEPARTMENT OF MEDICAL IMAGING
Nagyerdei krt. 98, Debrecen, 4032, Tel: +36-52-255-510

Full Professor, Head of Department		Ervin Berényi M.D., Ph.D.
Research Fellow	Ms.	Mónika Béresová M.Sc.

Division of Nuclear Medicine and Translational Imaging
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-510
E-mail: nmiroda@med.unideb.hu, Web: http://petunia.atomki.hu/Learning

Head of Department		Ervin Berényi M.D., Ph.D.
Professor Emeritus		László Galuska M.D., D.Sc.
		Lajos Trón M.Sc., Ph.D., D.Sc.
Associate Professor	Ms.	Ildikó Garai M.D., Ph.D.
		György Trencsényi M.Sc., Ph.D.
		József Varga M.Sc., Ph.D.
Academic Advisor		József Varga M.Sc., Ph.D.

Division of Radiology and Imaging Science
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-136
E-mail: gallasz.szilvia@med.unideb.hu, Web: radiologia.unideb.com

Full Professor, Head of Department		Ervin Berényi M.D., Ph.D.
Professor Emeritus		Mózes Péter M.D., Ph.D.
Professor		József Kollár M.D., Ph.D., C.Sc.
College Associate Professor	Ms.	Réka Révészné Tóth M.Sc., Ph.D.
Assistant Professor	Ms.	Erika Balogh M.D.

	Ms. Ivett Belán M.D.
	Ms. Klára Benkő M.D.
	Béla Clemens M.D.
	Gábor Endes M.D.
	Ms. Tímea Gajda M.D.
	László Jámbor M.D.
	Botond Karácsonyi M.D.
	Ms. Lilla Ladányi M.D.
	Gábor Lakatos M.D.
	Ms. Judit Maráz M.D.
	Ms. Nóra Mátyás M.D.
	Tamás Miskolczi M.D.
	Ms. Judit Nagy M.D.
	Ms. Edit Nagy M.D.
	Ms. Tímea Nyisztor-Csáki M.D.
	Ms. Mónika Pajor M.D.
	Ms. Zsuzsanna Pákozdy M.D.
	Ms. Éva Pásztor M.D.
	Ms. Eszter Szilágyi M.D.
	Ms. Judit Tóth M.D.
	Ms. Nóra Vrancsik M.D.
Senior Lecturer	Ms. Judit Décsy M.D.
	Ms. Judit Tóth M.D.
Assistant Lecturer	Szabolcs Hetényi M.D.
	István Lázár M.Sc., Ph.D.
Academic Advisor	Ms. Éva Pásztor M.D.

DEPARTMENT OF CLINICAL ONCOLOGY
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-585
Web: http://oncology.med.unideb.hu

Head of Department	Ms. Andrea Szegedi M.D., Ph.D., D.Sc.
Senior Research Scientist	Iván Uray M.D., Ph.D.

Division of Clinical Oncology
Nagyerdei krt. 98, Debrecen, 4032, Tel: +36-52-255-840

Assistant Professor	Ms.	Csilla András M.D., Ph.D.
	Ms.	Éva Szekanecz M.D., Ph.D.
Chief Physician		Péter Árkosy M.D., Ph.D.
Clinical Specialist	Ms.	Anita Árokszállási M.D.
	Ms.	Ingrid Balogh M.D.
	Ms.	Edit Béres M.D.
		Balázs Juhász M.D.
	Ms.	Mónika Mailáth M.D.
	Ms.	Enikő Varga M.D.
Academic Advisor	Ms.	Csilla András M.D., Ph.D.

Division of Radiotherapy
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-585

Assistant Professor	Ms.	Andrea Furka M.D., Ph.D.
Clinical Specialist	Ms.	Mária Besenyői M.D.
	Ms.	Emese Csiki M.D.
		Ádám Dér M.D.
	Ms.	Erzsébet Kollák M.D.
		Árpád Kovács Dr. habil.
	Ms.	Adrienn Opauszki M.D.
	Ms.	Erika Szántó M.D.
	Ms.	Hilda Urbancsek M.D.
Academic Advisor	Ms.	Andrea Furka M.D., Ph.D.

DEPARTMENT OF DERMATOLOGY
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-204
E-mail: dermatologia@med.unideb.hu, Web: www.dermatologia.med.unideb.hu

Full Professor, Head of Department	Ms.	Éva Remenyik M.D., Ph.D., D.Sc.
Full Professor, Head of Division of Dermatological Allergology	Ms.	Andrea Szegedi M.D., Ph.D., D.Sc.
Full Professor, Head of Division of Human Surgery and Op. Techniques		István Juhász M.D., Ph.D., C.Sc.
Professor Emerita	Ms.	Irén Horkay M.D., Ph.D., D.Sc.

Professor Emeritus		János Hunyadi M.D., Ph.D., D.Sc.
Associate Professor	Ms.	Gabriella Emri M.D., Ph.D.
	Ms.	Éva Szabó M.D., Ph.D.
		Dániel Törőcsik M.D., Ph.D.
Assistant Professor		Krisztián Gáspár M.D., Ph.D.
	Ms.	Borbála Kiss M.D.,Ph.D.
Assistant Lecturer	Ms.	Edina Bodnár M.D.
	Ms.	Emese Gellén M.D.
	Ms.	Emese Herédi M.D.
Academic Advisor of Faculty of Medicine	Ms.	Éva Szabó M.D., Ph.D.
Academic Advisor of Faculty of Dentistry		István Juhász M.D., Ph.D., C.Sc.

DEPARTMENT OF EMERGENCY MEDICINE

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-411-717/50190
E-mail: ujvarosy.dora@gmail.com

Associate Professor, Head of Department		Zoltán Szabó M.D., Ph.D.
Assistant Professor		Zoltán Vincze M.D., Ph.D.
Assistant Lecturer		Tamás Ötvös M.D.
	Ms.	Dóra Ujvárosy M.D.
Education Officer, Contact Person		Imre Juhász M.D.
		Tamás Ötvös M.D.
Academic Advisor		Péter Kovács M.D., D.Sc.
		István Lőrincz M.D., Ph.D.

DEPARTMENT OF INTERNAL MEDICINE

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-525
E-mail: titkarsag@belklinika.com, Web: elearning.med.unideb.hu

Full Professor, Head of Department	József Balla M.D., Ph.D., D.Sc.
Education Officer, Contact Person	Péter Fülöp M.D., Ph.D. habil. (Building "A")
	Zoltán Griger M.D., Ph.D. (Building "C")
	László Váróczy M.D., Ph.D. habil. (Building "B")

Division of Angiology
Móricz Zs. krt. 22., Debrecen, 4032, Tel: +3652255480

Full Professor		Pál Soltész M.D., Ph.D., D.Sc.
Assistant Professor	Ms.	Katalin Veres M.D., Ph.D.
Chief Physician	Ms.	Edit Szomják M.D.

Division of Clinical Immunology
Nagyerdei krt. 98, Debrecen, 4012, Tel: 06-52-255-218

Full Professor, Head of Division	Ms.	Margit Zeher M.D., Ph.D., D.Sc.
Full Professor	Ms.	Edit Bodolay M.D., Ph.D., D.Sc.
	Ms.	Katalin Dankó M.D.,Ph.D.,D.Sc.
Associate Professor		János Gaál Dr. habil., Ph.D.
Assistant Professor		Zoltán Griger M.D., Ph.D.
	Ms.	Antónia Szántó M.D., Ph.D. habil.
	Ms.	Tünde Tarr M.D., Ph.D. habil.
	Ms.	Éva Zöld M.D., Ph.D.
Assistant Lecturer	Ms.	Ildikó Fanny Horváth M.D., Ph.D.
	Ms.	Gyöngyike Emese Majai M.D., Ph.D.
Educational Advisor		Zoltán Griger M.D., Ph.D.
	Ms.	Tünde Tarr M.D., Ph.D. habil.

Division of Endocrinology
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-600

Full Professor, Head of Division	Endre Nagy M.D., Ph.D., D.Sc.
Professor Emeritus	András Leövey M.D., Ph.D., D.Sc.
Associate Professor	Miklós Bodor M.D.,Ph.D.

Division of Gastroenterology
Nagyerdei krt. 98., Debrecen, 4012, Tel: +36-52-255-601
E-mail: altorjay@med.unideb.hu

Full Professor, Head of Division	István Altorjay M.D., Ph.D., D.Sc.

Associate Professor		Károly Palatka M.D., Ph.D. habil.
	Ms.	Mária Papp M.D., M.Sc., Ph.D. habil.
		István Tornai M.D., Ph.D. habil.
Assistant Professor		Tamás Bubán M.D.
		Tamás Tornai M.D., Ph.D.
	Ms.	Zsuzsa Vitális M.D., Ph.D.
Assistant Lecturer		Sándor Kacska M.D.

Division of Geriatry
Nagyerdei krt. 98, Debrecen, 4012, Tel: 06-52-255-218

Full Professor		Gyula Bakó M.D., Ph.D., D.Sc.
Associate Professor		Zoltán Csiki M.D., Ph.D.
Clinical Specialist	Ms.	Adrienn Szabó M.D.

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

Full Professor, Head of Division		Árpád Illés M.D., Ph.D., D.Sc.
Professor Emeritus		Zoltán Boda M.D.,Ph.D.,D.Sc.
		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.
		György Pfliegler M.D., Ph.D. habil.
		László Váróczy M.D., Ph.D. habil.
Assistant Professor		Péter Batár M.D., Ph.D.
	Ms.	Boglárka Brúgós M.D., Ph.D.
		Gyula Reményi M.D., Ph.D.
	Ms.	Ágota Schlammadinger M.D., Ph.D.
	Ms.	Zsófia Simon M.D.,Ph.D.
Research Fellow	Ms.	Marianna Szarvas
Assistant Lecturer		Ádám Jóna M.D., Ph.D.
		Ferenc Magyari M.D.
	Ms.	Edit Páyer M.D.
		Róbert Szász M.D.
Academic Advisor		László Váróczy M.D., Ph.D. habil.

Division of Metabolism
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-600
E-mail: titkarsag@belklinika.com, Web: elearning.med.unideb.hu

Full Professor, Head of Division		György Paragh M.D., Ph.D., D.Sc.
Full Professor		Dénes Páll M.D., Ph.D., D.Sc.
Associate Professor		Zoltán Balogh M.D., Ph.D. habil.
		Péter Fülöp M.D., Ph.D. habil.
	Ms.	Mariann Harangi M.D., Ph.D. habil.
		Miklós Káplár M.D., Ph.D. habil.
	Ms.	Éva Katona
Senior Research Fellow	Ms.	Ildikó Dánielné Seres M.Sc., Ph.D.
	Ms.	Viktória Jeney M.Sc., Ph.D.
		Zsolt Karányi M.Sc.
Assistant Professor	Ms.	Henrietta Dér M.D., Ph.D.
		György Kerekes M.D., Ph.D.
		Szabolcs Lengyel M.D., Ph.D.
		Sándor Somodi M.D., Ph.D.
		Ferenc Sztanek M.D., Ph.D.
Research Fellow	Ms.	Hajnalka Lőrincz M.Sc., Ph.D.
	Ms.	Anita Szentpéteri M.Sc.
Assistant Lecturer		Tamás Köbling M.D., Ph.D.

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

Full Professor, Head of Division of Nephrology		József Balla M.D., Ph.D., D.Sc.
Associate Professor		István Kárpáti M.D., Ph.D.
		János Mátyus M.D., Ph.D.
		László Ujhelyi M.D., Ph.D.
Clinical Assistant		Gergely Becs M.D.
		Thomas Ben M.D., Ph.D.
	Ms.	Zita Váradi M.D.
Candidate Clinical Assistant		Dávid Hutkai M.D.
Senior Consultant	Ms.	Csilla Trinn M.D.

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

Associate Professor		György Pfliegler M.D., Ph.D. habil.
Assistant Professor	Ms.	Boglárka Brúgós M.D., Ph.D.
Invited Lecturer	Ms.	Erzsébet Kovács M.D.

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

Full Professor, Head of Division		Zoltán Szekanecz M.D., Ph.D., D.Sc.
Full Professor	Ms.	Gabriella Szűcs M.D., Ph.D.
Associate Professor		Sándor Szántó M.D.,Ph.D.
Assistant Professor	Ms.	Szilvia Szamosi M.D.,Ph.D.
Assistant Lecturer	Ms.	Nóra Bodnár M.D.
	Ms.	Edit Végh M.D.

DEPARTMENT OF NEUROLOGY
Móricz Zs. str. 22., Debrecen, 4032, Tel: +36-52-255-255
E-mail: neuro@med.unideb.hu, Web: neurology.med.unideb.hu; neurology.dote.hu

Head of Department		László Oláh M.D., Ph.D., D.Sc.
Full Professor		László Csiba M.D., Ph.D., D.Sc., M.H.A.Sc.
		István Fekete M.D., Ph.D.
Professor Emeritus		Ferenc Mechler M.D., Ph.D., D.Sc.
Associate Professor	Ms.	Tünde Csépány M.D., Ph.D.
Assistant Professor	Ms.	Judit Boczán M.D., Ph.D.
	Ms.	Klára Edit Fekete M.D., Ph.D.
		Norbert Kozák M.D., Ph.D.
Assistant Lecturer	Ms.	Krisztina Csapó M.D., Ph.D.
	Ms.	Katalin Réka Czuriga-Kovács M.D., Ph.D.
	Ms.	Edina Pappné Kovács M.D.
	Ms.	Katalin Judit Szabó M.D., Ph.D.

DEPARTMENT OF NEUROSURGERY

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

Full Professor, Head of Department	László Bognár M.D., Ph.D. habil.
Associate Professor	Álmos Klekner M.D., Ph.D. habil.
	László Novák M.D., Ph.D. habil.
	Sándor Szabó M.D., Ph.D.
Academic Advisor	László Novák M.D., Ph.D. habil.

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

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

Full Professor, Head of Department	Róbert Póka M.D., Dr. habil., Ph.D.
Professor Emeritus	Antal Borsos M.D., Ph.D., D.Sc.
	Zoltán Hernádi M.D., Ph.D., D.Sc.
	László Lampé M.D., Ph.D., D.Sc.
	Zoltán Tóth M.D., Ph.D., D.Sc.
Associate Professor	Attila Jakab M.D., Ph.D. habil.
	Tamás Szilveszter Kovács M.D., Ph.D.
	Ms. Olga Török M.D., Ph.D. habil.
Assistant Professor	László Birinyi M.D., Ph.D.
	Tamás Deli M.D., Ph.D.
	Alpár Gábor Juhász M.D., Ph.D.
	Zoárd Krasznai M.D., Ph.D.
	Rudolf Lampé M.D., Ph.D.
	Csaba Móré M.D., Ph.D.
	Tamás Sápy M.D., Ph.D.
	Péter Török M.D., Ph.D.
	Ms. Szilvia Vad M.D., Ph.D.
Assistant Lecturer	István Argay M.D.
	Péter Daragó M.D.
	Balázs Erdődi M.D.
	Bence Kozma M.D.
	János Lukács M.D.
	László Orosz M.D.
Psychologist	Ms. Zsuzsa Török M.A., Ph.D.

Academic Advisor (IV. Year)	Tamás Szilveszter Kovács M.D., Ph.D.
Academic Advisor (VI. year)	Balázs Erdődi M.D.

Division of Gynecological Oncology
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-417-144

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

DEPARTMENT OF OPHTHALMOLOGY
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-456

Full Professor, Head of Department		András Berta M.D., Ph.D., D.Sc.
Full Professor		László Módis M.D., Ph.D., D.Sc.
Associate Professor	Ms.	Adrienne Csutak M.D., Ph.D.
	Ms.	Judit Damjanovich M.D., Ph.D.
		Ádám Kemény-Beke M.D., Ph.D.
	Ms.	Valéria Nagy M.D., Ph.D.
	Ms.	Lili Takács M.D., Ph.D.
Assistant Professor	Ms.	Mariann Fodor M.D., Ph.D.
	Ms.	Beáta Kettesy M.D., Ph.D.
		Bence Lajos Kolozsvári M.D., Ph.D.
Assistant Lecturer	Ms.	Zita Steiber M.D., Ph.D.
	Ms.	Éva Surányi M.D.
	Ms.	Eszter Szalai M.D., Ph.D.
	Ms.	Bernadett Ujhelyi M.D.,Ph.D.
Academic Advisor	Ms.	Éva Surányi M.D.

DEPARTMENT OF ORTHOPEDIC SURGERY
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-815
E-mail: kissl@med.unideb.hu, Web: www.ortopedia.dote.hu

Full Professor, Head of Department	Zoltán Csernátony M.D., Ph.D., D.Sc.
Professor Emeritus	János Rigó M.D., Ph.D.
	Kálmán Szepesi M.D., Ph.D., D.Sc.

Assistant Professor		Zoltán Jónás M.D.
		János Szabó M.D., Ph.D.
Assistant Lecturer		Tamás Bazsó M.D.
		Gyula Győrfi M.D.
		Zsolt Hunya M.D.
		Zoltán Karácsonyi M.D.
		László Kiss M.D.
		Henrik Rybaltovszki M.D.
	Ms.	Csenge Szeverényi M.D.
Clinical Assistant		István Soltész M.D.

DEPARTMENT OF OTORHINOLARYNGOLOGY AND HEAD AND NECK SURGERY

Nagyerdei krt. 98. sz., Debrecen, 4032, Tel: +36-52-255-805
E-mail: orl.office@med.unideb.hu

Head of Department, Associate Professor		Balázs Bendegúz Lőrincz M.D., Ph.D. habil.
Full Professor		István Sziklai M.D., Ph.D., D.Sc.
Associate Professor		István Jókay M.D., Ph.D.
	Ms.	Judit Szilvássy M.D., Ph.D. habil.
		László Tóth M.D., Ph.D. habil.
Assistant Professor		Tamás Batta M.D., Ph.D.
		Attila Szűcs M.D., Ph.D.
Assistant Lecturer		Szilárd Rezes M.D., Ph.D.
Academic Advisor		Tamás Batta M.D., Ph.D.

DEPARTMENT OF PEDIATRICS

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

Full Professor, Head of Department		Gábor Veres M.D., Ph.D., D.Sc.
Full Professor, Head of Division of Pediatric Haematology and Oncology		Csongor Kiss M.D., Ph.D., D.Sc.
Full Professor		György Balla M.D., Ph.D., D.Sc., M.H.A.Sc.
	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.
		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.
Emeritus	Ms.	Éva Oláh M.D., Ph.D., D.Sc.
Senior Lecturer	Ms.	Andrea Nagy M.D.
Assistant Lecturer	Ms.	Erika Bálega M.D.
	Ms.	Andrea Berkes M.D., Ph.D.
	Ms.	Ágnes Papp M.D.
		István Pataki M.D.
		László Sasi Szabó M.D.
Academic Advisor		Gábor Mogyorósy M.D., Ph.D.
		Tamás Szabó M.D., Ph.D. (for Medicine Program students - 5th and 6th year)

DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-942
E-mail: orfmt@med.unideb.hu, Web: http://rehabilitacio.med.unideb.hu

Head of Department, Associate Professor		Zoltán Jenei M.D., Ph.D.
Associate Professor	Ms.	Zsuzsanna Vekerdy-Nagy M.D., Ph.D. habil. (retired)
Assistant Professor	Ms.	Rita Szepesi M.D., Ph.D.

DEPARTMENT OF PSYCHIATRY

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

Associate Professor	Ms.	Anikó Égerházi M.D., Ph.D.
		Ede Frecska M.D., M.A., Ph.D.
Assistant Professor		Roland Berecz M.D., Ph.D.

	Ms.	Theodóra Glaub M.D.
Assistant Lecturer		Gábor Andrássy M.D.
	Ms.	Edina Cserép M.D.
		Attila Kovács M.D.
		Csaba Móré E. M.D., Ph.D.
Academic Advisor	Ms.	Réka Stébel

DEPARTMENT OF PULMONOLOGY
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-222

Full Professor, Head of Department	Ms.	Mária Szilasi M.D., Ph.D.
Assistant Professor		Imre Varga M.D., Ph.D.
Assistant Lecturer	Ms.	Andrea Fodor M.D.
		Tamás Kardos M.D.
	Ms.	Angéla Mikáczó M.D.
	Ms.	Anna Sárközi M.D.
		Attila Vaskó M.D.
Responsible for Educational Matters	Ms.	Andrea Fodor M.D.

DEPARTMENT OF SURGERY
Móricz Zs. krt. 22, Debrecen, 4032, Tel: +36-52-411-717/55316
Web: http://www.sebeszet.deoec.hu

Full Professor, Chairman	László Damjanovich M.D., Ph.D., D.Sc.
Head of Division of Gastroenterology - Oncology	László Damjanovich M.D., Ph.D., D.Sc.
Head of Division of Organ Transplantation	Balázs Nemes M.D., Ph.D.
Professor Emeritus	György Balázs M.D., Ph.D., D.Sc.
	Géza Lukács M.D., Ph.D., D.Sc.
	Péter Sápy M.D., Ph.D., D.Sc.
Consultant Surgeon	Zsolt Kanyári M.D.
Associate Professor	Zsolt Szentkereszty M.D., Ph.D.
	Miklós Tanyi M.D.,Ph.D.
Assistant Professor	Roland Fedor M.D., Ph.D.
	Ferenc Győry M.D.
	Csaba Kósa M.D.
	László Orosz M.D.

Assistant Lecturer	Tamás Dinya M.D.
	Attila Enyedi M.D.
	János Pósán M.D.
	Gergely Zádori M.D., Ph.D.
Academic Advisor	Tamás Dinya M.D.

Division of Operative Techniques and Surgical Research
Móricz Zs. krt. 22., Debrecen, 4032, Tel: +36-52-416-915
Web: www.surg.res.dote.hu

Full Professor, Head of Division		Norbert Németh M.D., MBA, Ph.D., D.Sc.
Professor Emeritus		István Furka M.D.,Ph.D.,D.Sc.
	Ms.	Irén Mikó M.D., Ph.D.
Assistant Professor		Ádám Deák D.V.M., Ph.D.
	Ms.	Katalin Pető M.D.,Ph.D.
Assistant Lecturer	Ms.	Viktória Somogyi M.Sc., Ph.D.
	Ms.	Erzsébet Ványolos M.Sc., Ph.D.
Assistant Research Fellow	Ms.	Mária Kun M.Sc., Ph.D.
		Tamás Lesznyák M.D., D.Pharm.
Postgraduate Lecturer	Ms.	Enikő Tóth M.D.
PhD Student	Ms.	Barbara Baráth M.Sc.
		Souleiman Ghanem M.D.
		Balázs Szabó M.D.
		Bence Tánczos M.Sc.
		Gábor Varga M.D.
External Tutor	Ms.	Erzsébet Ildikó Takács M.D., Ph.D.
Academic Advisor of Faculty of Medicine	Ms.	Katalin Pető M.D.,Ph.D.
Academic Advisor of Faculty of Dentistry		Ádám Deák D.V.M., Ph.D.
Academic Advisor of Faculty of Pharmacy		Tamás Lesznyák M.D., D.Pharm.
Academic Advisor of Elective Courses		István Furka M.D.,Ph.D.,D.Sc.
	Ms.	Irén Mikó M.D., Ph.D.

DEPARTMENT OF UROLOGY
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-256
E-mail: drabikgy@hotmail.com, Web: http://urologia.med.unideb.hu

Associate Professor, Head of Department	Tibor Flaskó M.D., Ph.D.

Professor Emeritus	Csaba Tóth M.D.,Ph.D.,D.Sc.
Associate Professor	Attila Varga M.D., Ph.D.
Assistant Professor	Mátyás Benyó M.D., Ph.D.
	Csaba Berczi M.D., Ph.D.
	Antal Farkas M.D., Ph.D.
Assistant Lecturer	Gyula Drabik M.D.
Responsible for Educational Matters	Gyula Drabik M.D.

CHAPTER 9
OTHER DEPARTMENTS

DEPARTMENT OF PREVENTIVE MEDICINE, FACULTY OF PUBLIC HEALTH

Kassai út 26/b, Debrecen, 4028, Tel: +36-52-512-765

Associate Professor, Head of the Department		János Sándor M.D., Ph.D.
Associate Professor, Head of Public Health, Medicine Division		István Kárpáti M.D., Ph.D.
Associate Professor, Head of Occupational Health Division		Balázs Ádám M.D., M.Sc., Ph.D.
Full Professor	Ms.	Róza Ádány M.D., Ph.D., D.Sc.
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	Ms.	Helga Bárdos M.D., M.Sc., Ph.D.
		Sándor Szűcs M.Sc., Ph.D.
Assistant Professor	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., Ph.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.
		Sándor Szűcs M.Sc., Ph.D.

INSTITUTE OF BEHAVIOURAL SCIENCES, FACULTY OF PUBLIC HEALTH

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-594
Web: nk.unideb.hu

Full Professor, Head of Department	Ms.	Karolina Kósa M.D., M.Sc., Ph.D.
Associate Professor, Head of Division of Clinical And Health Psychology	Ms.	Ildikó Kuritárné Szabó M.A., Ph.D.
Associate Professor, Head of Division of		Attila Bánfalvi M.A., Ph.D., C.Sc.

Humanities For Health Care		
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.	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)

INSTITUTE OF SPORT SCIENCE OF UNIVERSITY OF DEBRECEN
Móricz Zs. krt. 22., Debrecen, 4032, Tel: +36-52-411-600/54436
E-mail: sport@med.unideb.hu

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

DEPARTMENT OF FOREIGN LANGUAGES
Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-258-030
E-mail: ilekt@med.unideb.hu, Web: ilekt.med.unideb.hu

Head of Department	Ms.	Judit Lampéné Zsíros M.A., Ph.D.

Teacher	Ms.	Anna Balóné Jóna M.A.
	Ms.	Marianna Fodor M.A.
	Ms.	Ildikó Gerő M.A.
	Ms.	Judit Kovács, M.A.
	Ms.	Mónika Krasznai M.A.
	Ms.	Zsuzsa Lívia Mezei M.A.
		László Répás M.A.
	Ms.	Katalin Rozman M.A.
		Ben Schutz M.A.
Academic Advisor	Ms.	Katalin Rozman M.A.

KENÉZY LIFE SCIENCES LIBRARY, UNIVERSITY OF DEBRECEN
Egyetem tér 1., Debrecen, 4032, Tel: +36-52-518-610
E-mail: kenezy@lib.unideb.hu, Web: http://kenezy.lib.unideb.hu

Director-general	Ms.	Gyöngyi Karácsony M.Sc.
Collection Development	Ms.	Éva Fórián M.Sc.
	Ms.	Georgina Molnár M.Sc.
Head of Circulation	Ms.	Katalin Kéri Tornyi B.Sc.
Head of Reference	Ms.	Margit Polónyi M.Sc.
Circulation	Ms.	Dorina Balázsi B.Sc.
		Miklós Grégász M.Sc.
	Ms.	Erika Kiss B.Sc.
		Tibor Varga M.Sc.
	Ms.	Krisztina Zakor M.Sc.
Reference	Ms.	Marianna Papp Czappán M.Sc.
	Ms.	Gyöngyvér Pataki M.A.
Copy Shop	Ms.	Ibolya Égerházi Németi
Interlibrary Loan	Ms.	Krisztina Papp Jakucs M.Sc.
Journals	Ms.	Éva Adrienn Varga M.Sc.
Reference Librarian, Publications		Balázs Bor B.Sc.
	Ms.	Kornélia Kulcsár M.Sc.
	Ms.	Anett Tar-Apáti B.Sc.
Reference Librarian, Web	Ms.	Melinda Korpás Szűcs M.Sc.
	Ms.	Boglárka Legeza B.Sc.
Stack Attendant		Ferenc Bacskai

Csaba Horváth
Máté Orosz

CHAPTER 10
UNIVERSITY CALENDAR

UNIVERSITY CALENDAR FOR DENTISTRY PROGRAM 2018/2019 ACADEMIC YEAR

CRASH COURSE OF HUNGARIAN LANGUAGE: August 27 – September 7, 2018
OPENING CEREMONY: September 9, 2018

1st SEMESTER

Year	Course	Examination Period
Basic Medicine Course	September 10 – December 14, 2018 (14 weeks)	December 17, 2018 – February 1, 2019 (7 weeks)
1st year Dentistry 2nd year Dentistry 3rd year Dentistry 4th year Dentistry 5th year Dentistry	September 10 – December 14, 2018 (14 weeks)	December 17, 2018 – February 1, 2019 (7 weeks)

2nd SEMESTER

Year	Course	Spring Break	Examination Period
Basic Medicine Course	February 11 – April 19, 2019 April 29 – May 24, 2019 (14 weeks)	April 22 – 26, 2019 (1 week)	May 27 -June 21, 2019 (4 weeks)
Basic Medicine Course II.	January 7 – April 19, 2019 April 29 – June 21, 2019 (23 weeks)	April 22 – 26, 2019 (1 week)	June 24 – July 12, 2019 (3 weeks)
1st year Dentistry 2nd year Dentistry 3rd year Dentistry 4th year Dentistry	February 11 – April 19, 2019 April 29 – May 24, 2019 (14 weeks)	April 22 – 26, 2019 (1 week)	May 27 – July 12, 2019 (7 weeks)
5th year Dentistry	February 11 – April 19, 2019 April 29 – May 3, 2019 (11 weeks)	April 22 – 26, 2019 (1 week)	May 6 – June 14, 2019 (6 weeks)

SUMMER PRACTICE

Year	Date in 2019
2nd year Dentistry	July 15 – August 9, 2019 or August 12 – September 6, 2019 (4 weeks)
3rd year Dentistry	July 15 – 26, 2019 or July 29 – August 9, 2019 (2 weeks)
4th year Dentistry	July 15 – August 9, 2019 or August 12 – September 6, 2019 (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 peaces.
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:	**General and dental preclinical modules:**
Biophysics	Basic dentistry modules
Biostatistics	Odontology

Medical Chemistry

Oral Anatomy, Histology, Embryology I- II.

Molecular biology

Cell Biology

First Aid and Reanimation

Biochemistry I-II.

Dental Physiology I-II.

Neurobiology

Psychology

General Pathology, Organ and Oral Pathology

Clinical Biochemistry I-II.

Immunology

Surgery

Basic Surgical Techniques

Bioethics

Dental Microbiology

Preventive Dentistry I.

Introduction to prosthodontics I-VI.

Restorative Dentistry Propedeutics (Cariology, Endodontics)

Oral Biology

Introduction to Dental Radiology

Oral Surgery Propedeutics

Dosimetry, Radiation Health Effects

Periodontology propedeutics

Pediatric Dentistry Propedeutics

General medical modules

Internal medicine I-II

Dermatology

Otolaryngology

Dental Pharmacology I-II.

Clinical dentistry modules

Pediatric Dentistry I-IV

Periodontology I-III.

Prosthetic Dentistry I-IV.

Oral Surgery I-IV

Preventive Medicine	Restorative Dentistry I-IV.
	Orthodontics I-II.
Emergency Medicine	Oral Medicine
Pediatrics	Pediatric Dentistry Propedeutics
Neurology	Preventive Dentistry II.
Forensic Medicine	

DEGREE REQUIREMENTS

1. Completion of the Physical Education courses as prescribed by the Curriculum.
2. Completion of the summer practices.
3. Final comprehensive exam of General Pathology, Organ and Oral Pathology and one of the 2 special Pathology required elective courses for dental students.
4. Successful thesis 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
Organ and Oral Pathology.	Emergency Medicine
Dental Pharmacology II.	Otolaryngology
Internal Medicine II.	Medical Hungarian II.

CHAPTER 12
ACADEMIC PROGRAM FOR THE BASIC MEDICINE COURSE

ACADEMIC PROGRAM FOR THE BASIC MEDICINE COURSE

Basic Medicine Course (BMC, Premedical Studies)

Duration of studies: 1 year (2 semesters)

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

Class Behavior

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

Requirements

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

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

The knowledge of students will be tested 4 times during each semester using a written test system by **Self Control Tests (SCT).** The first semester is ended with an **End of Semester Examination** (ESE) covering the topics of all lectures and seminars of the first semester. Three dates will be set for the ESE during the winter examination period. Unsuccessful students may repeat the ESE twice (B and C chances). Non-repeater students who fail even the 3rd ESE (C

chance) may continue their study in the second semester however they lose their chance to be exempted from the final examination and to receive bonus points. Exam exemption and bonus point policy is used to improve the students' performance on SCTs. 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 (%)
51.00-53.99	1
54.00-56.99	2
57.00-59.99	3
60.00-62.99	4
63-64.99	5

Students who could not meet the above described conditions for exemption during the two semesters must sit for the FE from the whole material of the first and second semesters. The

participation shall be preceded by ID confirmation (i.e. student's card, passport or driving license) before all forms of tests.

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

Percentage (%)	**Mark**
0 - 54.99:	fail (1)
55.00 – 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: **56**

Seminar: **28**

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

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

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

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

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

6th week:

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

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

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

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

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

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

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

13th week:
Lecture:
Gene mutation and molecular medicine 3.
Gene mutation and molecular medicine 4.
Regulation of gene expression 1. (Prokaryotic reg.)
Regulation of gene expression 2. (Eukaryotic reg.)

14th week:
Lecture:
Regulation of gene expression 3.(Eukaryotic reg.)
Regulation of gene expression 4.(Eukaryotic reg.)
The mechanism of evolution 1.
The mechanism of evolution 2.

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

Subject: **INTRODUCTION TO BIOLOGY II.**

Year, Semester: Basic Medicine Course, 2nd

Number of teaching hours:

Lecture: **42**

Seminar: **28**

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

2nd week:
Lecture:
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.
Natural Defenses against Disease 1.

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

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

7th week:
Lecture:
Gas exchange in Animals.
Human respiration.
Salt and Water Balance and Nitrogen Excretion 1.

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

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

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

11th week:
Lecture:
Neurons and Nervous system 4.
Neurons and Nervous system 5.
Sensory systems 1.

12th week:
Lecture:
Sensory systems 2.
Effectors: making Animals move 1.
Effectors: making Animals move 2.

13th week:
Lecture:
Effectors: making Animals move 3.
Animal reproduction and Animal Development 1.
Animal reproduction and Animal Development 2.

14th week:
Lecture:
Animal reproduction and Animal Development 3.

The human Reproduction System and Sexual Behavior.

Contact person: Dr. Norbert Szentandrássy, Department of Physiology

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

Subject: **INTRODUCTION TO PHYSICS I.**

Year, Semester: Basic Medicine Course, 1st

Number of teaching hours:

Lecture: **56**

Seminar: **28**

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

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

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

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

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

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

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

8th week:
Lecture:
Rotational kinetic energy. Angular momentum.
States of matter. Deformation of solids. The Youngs's, shear and bulk modulus. Density and pressure. Variation of pressure with depth. Pressure measurements.

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

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

11th week:
Lecture:
Specific heat. Calorimetry. Latent heat and phase e seminar and preparation for the ESE.

change.
The first law of thermodynamics. The second law of thermodynamics. Entropy. Refrigerators and heat pumps.

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

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

14th week:
Lecture:
Interactiv

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Year, Semester: Basic Medicine Course, 1st

Number of teaching hours:

Lecture: **56**

Seminar: **28**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Year, Semester: Basic Medicine Course, 2nd

Number of teaching hours:

Lecture: **56**

Seminar: **28**

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

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

3rd week:
Lecture:
Test #5
Covalent bonding in organic compounds.
Classification of organic compounds

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

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

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

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

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

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

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

11th week:
Lecture:
Summary of organic chemistry 2

Test #7

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

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

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

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

Subject: **HUNGARIAN LANGUAGE FOR BMC STUDENTS**

Year, Semester: Basic Medicine Course 2nd
Number of teaching hours:
Practical: **36**

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

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

3rd **week:**
Practical: 3. lecke

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

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

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

7th **week:**
Practical: 8. lecke

8th **week:**
Practical: 9. lecke

9th **week:**
Practical: 10. lecke

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

11th **week:**
Practical: 13. lecke

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

Requirements

Attendance
Attending language classes is compulsory. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions. If they miss 6 occasions, (no matter why) the final signature will be refused and the student must repeat the

course.
Absentees can make up the missed classes in the same week with their own teacher in case they bring a certificate from the doctor to the class. The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time the attendance is refused.

Testing, evaluation
In each Hungarian language course, students must sit for 2 written language tests and an oral exam. Students must appear at the lecture hall at least 15 minutes before the exam. If students are late, they are not allowed to write the test.
A further minimum requirement is the knowledge of 200 words per semester divided into 10 word quizzes. There are five word quizzes before and another five after the midterm test. If 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.**
Oral exam topics and vocabulary minimum lists are also available on the website.
Reading materials: Gerő Ildikó-Kovács Judit: Színesen magyarul. 2017

CHAPTER 13
ACADEMIC PROGRAM FOR THE SHORT BASIC MEDICINE COURSE

ACADEMIC PROGRAM FOR THE INTENSIVE BASIC MEDICINE COURSE

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

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

Class Behavior

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

Requirements

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

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

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

Exemption from FE is offered for students who achieve excellent academic performance during their studies under the following circumstances:
- the average score of the five best SCTs (out of 6) is at least 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 the average of the best 6 SCTs	Bonus points (%)
51.00-53.99	1
54.00-56.99	2
57.00-59.99	3
60.00-62.99	4
63-64.99	5

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

Percentage (%)	Mark
0 - 54.99:	fail (1)
55.00 - 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: **92**
Seminar: **92**

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

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

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

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

5th **week:**

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

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

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

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

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

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

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

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

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

14th **week:**
Lecture: Physiology, Homeostasis and Temperature Regulation
Blood, a fluid tissue 1-2. Circulatory systems.

15th **week:**
Lecture: The human circulatory system 1-3.
Immunology: gene expression and natural defenses 1.

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

17th **week:**
Lecture: Energy balance, vitamins and minerals.
Gas exchange in Animals.
Human Respiration.
Salt and Water Balance Nitrogen Excretion 1.

18th **week:**
Lecture: Salt and Water Balance Nitrogen Excretion 2.
Hormones 1-3.

19th **week:**
Lecture: Hormones 4.
Neurons and Nervous system 1.
Self Control Test
Neurons and Nervous system 2.

20th **week:**
Lecture: Neurons and Nervous system 3-5.
Sensory systems 1.

21st **week:**
Lecture: Sensory systems 2.
Effectors: How animals get things done 1-3.

22nd **week:**
Lecture: Animal reproduction and Animal Development 1-2.

The human reproduction system1-2.

Lecture: Self Control Test

23rd **week:**

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

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

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

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

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

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

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

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

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

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

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

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

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

Simple harmonic motion. Motion of a pendulum.

12th **week:**
Lecture 23-24: Waves. Frequency, amplitude and wavelength. Interference of waves. Reflection of waves. Sound. Energy and intensity of sound waves. Shock waves, standing waves, standing waves. Doppler effect. The ear and the principles of hearing.

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

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

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

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

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

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

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

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

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

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

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

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

Year, Semester: Intensive Basic Medicine Course
Number of teaching hours:
Lecture: **56**
Seminar: **28**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CHAPTER 14
ACADEMIC PROGRAM FOR CREDIT SYSTEM

ACADEMIC PROGRAM FOR CREDIT SYSTEM

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

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

The general principles of the credit system are the following:

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

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

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

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

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

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

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

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

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

9. In the case of two-semester subjects, when students have to pass a final exam, they get higher credits in the semester of the final examination since preparation for a final examinatio 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 Lecture	FOBIF09D1	26	26		ESE*	3	None
1	Biophysics Practical	FOBIF10D1			16	AW5	2	None
1	Biostatistics	FOBST04D1		28		ESE	2	None
1	Hungarian Crash Course	FOG261008			36	AW5	0	None
1	Hungarian Language I/1.	FOHUN01D1-K1			24	AW5	2	Hungarian Crash Course
1	Medical Chemistry Lecture	FOKEM09D1	39	56		ESE*	6	None
1	Medical Chemistry Practical	FOKEM10D1			39	AW5	3	None
1	Medical Psychology I.	FOPSZ04D1	20			AW5	2	None
1	Odontology	FOODO02D1	14		28	ESE	4	None

Compulsory courses for the 1. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Cell Biology Lecture	FOSEJ09D2	28	28		ESE*	4	None
2	Cell Biology Practical	FOSEJ10D2			20	AW5	2	None
2	First aid and reanimation	FOELS06D2	5		14	AW5	1	None
2	Hungarian Language I/2.	FOHUN02D2-K1			28	AW5	2	Hungarian Language I/1.
2	Molecular Biology Lecture	FOMBI09D2	42	14		ESE*	4	None
2	Molecular Biology Practical	FOMBI10D2			10	AW5	2	None
2	Oral Anatomy, Histology and Embryology I. Lecture	FOANA15D2	28	28		ESE*	4	None
2	Oral Anatomy, Histology and Embryology I. Practical	FOANA16D2			28	AW5	3	None
2	Preventive Dentistry I.	FOPRE02D2		14		AW5	2	Odontology

Compulsory courses for the 2. year

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

Compulsory courses for the 2. year

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

Compulsory courses for the 3. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Clinical Biochemistry I.	FOKBK07D5	8		6	AW5	1	Dental Physiology II.
1	Dental Microbiology	FOMIK06D5	30		30	ESE*	4	Cell Biology Lecture, Oral Anatomy, Histology and Embryology II. Lecture
1	Dosimetry, Radiation Health Effects	FODOZ02D6		24		ESE	2	Biophysics Lecture
1	General Pathology	FOPAT11D5	33		45	ESE	4	Oral Anatomy, Histology and Embryology II. Lecture, Neurobiology Lecture
1	Hungarian Language III/1.	FOHUN05D5			28	AW5	2	Hungarian language II/2.
1	Immunology	FOIMM06D5		28		ESE	2	Biochemistry II., Cell Biology Lecture, Dental Physiology II.
1	Introduction to Prosthodontics III.: Propedeutics and Technology of Total and partial removable dentures	FOFP034F52	14		37	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		37	ESE	2	Introduction to Prosthodontics I.: Dental Materials, Introduction to Prosthodontics II.: Introduction to the Fixed Prosthodontics
1	Oral Biology	FOORA02D5	14	14		ESE	2	Odontology, Dental Physiology II., Oral Anatomy, Histology and Embryology II. Lecture
1	Periodontology Propedeutics I.	FOPAR10D5	2		8	AW5	1	Odontology, Dental Physiology II.
1	Restorative Dentistry Propedeutics I. (Cariology)	FOCAR02D5	14		42	AW5	4	Odontology, Dental Physiology II., Oral Anatomy, Histology and Embryology II. Lecture

Compulsory courses for the 3. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	3rd year Summer Practice for Dentistry Students	FO_NYGY_3RD YEAR			60	SIGN	0	has to be completed before the 4th year
2	Basic Surgical Techniques	FOMUT05D6	5	7	6	AW5	1	Oral Anatomy, Histology and Embryology II. Lecture, Dental Physiology II.
2	Bioethics	FOETI04D6	6	9		AW5	1	None
2	Clinical Biochemistry II.	FOKBK08D6	11		6	ESE*	1	Clinical Biochemistry I.
2	Hungarian Language III/2.	FOHUN06D6			28	FE	2	Hungarian Language III/1.
2	Introduction to Dental Radiology	FORAD04D6	18	23		ESE	3	Biophysics Lecture, General Pathology, Oral Biology
2	Introduction to Prosthodontics V.: Propedeutics and technology of Fixed Prosthodontics	FOFP035D51	14		37	ESE	2	Introduction to Prosthodontics III.: Propedeutics and Technology of total and partial removable denture, Introduction to Prosthodontics IV.: Odontotechnology I.
2	Introduction to Prosthodontics VI.: Odontotechnology II.	FOFPO41D6	10		37	ESE	2	Introd. to Prosthodontics III.: Prop. and Techn. of total and partial removable dentures, Intro. to Prosthodontics IV:: Odontotechnology I
2	Medical Psychology II.	FOPSZ10D6	20		10	ESE	2	
2	Oral Surgery Propedeutics	FOSZS02D6	14		28	ESE	2	Oral Anatomy, Histology and Embryology II. Lecture, Biochemistry II., Odontology
2	Organ and Oral Pathology	FOPAT12D6	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	14		42	ESE	4	Restorative Dentistry Propedeutics I. (Cariology), Oral Biology

Compulsory courses for the 4. year

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

1	Restorative Dentistry I. (Cariology)	FOKON02D7	14		10	ESE	1	Rest. Dent. Prop. II. (Endodontics), Intro. to Prosthodontics V.: Prop. and Techn. of Fixed Prosthodontics together with Prosthetic Dentistry I.
1	Surgery	FOSEB06D5	14			ESE	1	Oral Surgery Propedeutics

Compulsory courses for the 4. year

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

Compulsory courses for the 5. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Complex Dentistry III.	FOKOMP11D9	5		280	ESE	12	Complex Dentistry II.
1	Forensic Medicine	FOIGA06D9		14	14	ESE	1	Organ and Oral Pathology
1	Neurology	FONEU06D9	10		10	ESE	1	Organ and Oral Pathology, Neurobiology Lecture, Internal Medicine II.
1	Oral Medicine	FOOME02D99	14		10	ESE	1	Organ and Oral Pathology, Dental Pharmacology II.
1	Oral Surgery III.	FOSZS18D9	14		10	ESE	1	Oral Surgery II.
1	Pediatric Dentistry I.	FOGYF06D99	14		15	AW5	2	Orthodontics II., Pediatric Dentistry Propedeutics
1	Pediatrics	FOGYE06D9	14		14	ESE	2	Organ and Oral Pathology, Dental Pharmacology II., Internal Medicine II.
1	Prosthetic Dentistry III.	FOFPO18D9	14		10	ESE	1	Prosthetic Dentistry II., Digital Dentistry
1	Psychiatry	FOELM08D9	5		5	ESE	1	Medical Psychology II., Neurobiology Lecture
1	Restorative Dentistry III. (Cariology and Endodontics)	FOKON06D9	14		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			20	AW5	2	None
1	Library System	FOKON46D1			10	AW5	1	None

Required elective courses for the 1. year

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

Required elective courses for the 2. year

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

Required elective courses for the 2. year

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

Required elective courses for the 3. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Cariology elective I. (Fundamentals of Cariology)	FOCAR43D5		14		AW5	1	Odontology, Introduction to Prosthodontics I.: Dental Materials, Introduction to Prosthodontics II.: Intoduction to the Fixed Prosthodontics
1	Medical Anthropology	FOANT44D6		15		ESE	1	Medical Psychology I.

Required elective courses for the 3. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	4-hand Treatment	FO4KEZD6		10		AW5	1	Restorative Dentistry Propedeutics (Cariology), Introduction to Prosthodontics V.: Propedeutics and Technology of Total and Partial Removable Dentures
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	8	7		AW5	2	None
2	Oralpathologic cases demonstration	FOORP42D6	20			AW5	2	General Pathology

Required elective courses for the 4. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Behavioural Medicine	FOMAG43D7	10			AW5	1	Medical Psychology I-II.
1	Endodontics elective I.	FOENDE42D8		14		AW5	1	Restorative Dentistry Propedeutics II (End.).,Preventive Dentistry I.
1	Esthetic Dentistry	FOEPO42D6	14			AW5	1	Introduction to Prosthodontics V.: Propedeutics and technology of total and partial removable dentures
1	Oral Surgery Elective I. Extraction Practice	FOSZS42D7			14	AW5	1	Oral Surgery Propedeutics, 3rd year summer practice, Oral Surgery I. parallel registration or previous fulfillment
1	Radiotherapy in the clinical practice	FOSUG42D7	14			AW5	2	Biophysics Lecture, Introduction to Dental Radiology
1	Thesis consultation I.	FODIP45D7		75		AW5	5	None

Required elective courses for the 4. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Cariology elective II. (Diet and nutrition in oral health)	FOCAR44D7		14		AW5	1	Restorative Dentistry I. (Cariology)
2	Implantology - Basics of Oral Implantology	FOIMP42D10		14		AW5	1	Oral Surgery I., Prosthetic Dentistry I.
2	Surgical care of developmental disorders of the maxillofacial region, Oral Surgery elective II.	FOSSE42D8-K1	14			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		14		AW5	1	Restorative Dentistry II. (End.)
1	Thesis consultation III.	FODIP47D9		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
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 Biomaterials and Prosthetic Dentistry	Advanced Dental Materials	FOADM01D10	1	1	14	AW5	Complex Dentistry II.	
Department of Biomaterials and Prosthetic Dentistry	Molecular Biological Research Methods in Dentistry	FOMBRD04	1	2	14	AW5	Molecular Biology	
Department of Biomaterials and Prosthetic Dentistry	Tissue Engineering and Regeneration in Dentistry	FOSZOVTERV02	1	2	14	AW5	Complex III. practice	József Bakó M.Sc., Ph.D.
Department of Biomaterials and Prosthetic Dentistry	Stem cells and their applicability in dentistry	FOOSS02	1	2	15	AW5	Cell Biology	
Department of Biomaterials and Prosthetic Dentistry	Dental implant system	FOIMPS02D8	1	2	12	AW5	Implantology	
Department of 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.
Department of 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.
Department of Anatomy, Histology and Embryology	Investigation of the embryonic cell-and tissue differentiation	AOG1011003	2	1	26	AW5	Oral Anatomy, Histology, Embryology I., Cell Biology, Molecular Biology, Biophysics	Róza Zákány M.D., Ph.D.
Department of Anatomy, Histology and Embryology	Computer Human Anatomy (CHA) and Clinical oriented anatomy of Head and Neck	AOG1010204	1	2	16	AW5	None	András Stelescu M.D.
Department of Basic Medical Sciences	Selected Topics in Cell Biology	FOG157403-K1	2	2	24	AW5	Cell Biology	
Department of Biochemistry and Molecular Biology	Biochemistry of Apoptosis	AOG167406	1	-	20	AW5	Biochemistry II.	Zsuzsa Szondy M.D., Ph.D., D.Sc.

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
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	FOPLSURG 01	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.	AOG26108A 1-K1	2	1	30	AW5	Completion of 3rd year Medical Hungarian Final exam	Judit Lampéné Zsíros M.A., Ph.D.
Department of Foreign Languages	Hungarian Language Elective - Medical II.	AOG26108A 2-K1	2	2	30	AW5	Hungarian Language Elective Medical I.	László Répás M.A.
Department of Foreign Languages	Latin Medical Terminology I.	AOG261100 2	1	2	30	AW5	Latin language	László Répás M.A.
Department of Foreign Languages	Elective Hungarian for Dentistry Students	FOHUNELE CT01	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 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	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
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	Pathology II.	Péter Molnár M.D., D.Sc.
Department of Pulmonology	Asthma bronchiale	AOG587707	1	1	8	AW5	Pathology II.	László Brugós M.D., Ph.D.
Department of Pulmonology	Lung cancer	AOG587607	1	1	10	AW5	Pathology II.	Andrea Fodor M.D.
Division of Cardiology	Echocardiography	AOG317307	1	1	18	AW5	Internal Medicine I., Clinical Physiology	Ida Hegedűs M.D., Ph.D.
Division of Clinical Laboratory Science	Platelet Function and Platelet Function Disorders	AOG632006	1	2	12	AW5	Clinical Biochemistry	Zsuzsanna Bereczky M.D., Dr. habil., Ph.D.
Division of Rheumatology	Rheumatology: Research and Clinical	AOG149108	1	2	10	AW5	Internal Medicine II. (Immunology and Rheumatology)	Zoltán Szekanecz M.D., Ph.D., D.Sc.
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-Awarness Group	AOG359005-K10	2	2	30	AW5	None	Péter Molnár M.D., D.Sc.
Institute of Behavioural Sciences, Faculty of Public Health	Evolution and Medicine	AOG359101-K8	1	1	26	AW5	None	László Nemes 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	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.
Institute of Behavioural Sciences, Faculty of Public Health	Yoga and Meditation II.	AOG3510401-K1	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	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

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

Aim of practice: to practice basic dental treatments according to the patient's needs.

- Anamnestic data

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

CHAPTER 16
ACADEMIC PROGRAM FOR THE 1ST YEAR

Department of Basic Medical Sciences

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Requirements

Department: Department of Biophysics and Cell Biology, Biophysics Division
Semester recommended for taking the subject: 1st year, 1st semester
Semester for the regular course: 1st
Prerequisites of the course: no prerequisites
Teaching staff: Prof. Dr. Péter Nagy and members of the Department
Educational advisor: Dr. Zsolt Fazekas (e-mail: biophysedu@med.unideb.hu)

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

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

Structure of the course
- Introduction to natural sciences (e.g. basic principles of atomic and nuclear physics)
- Medical physics (e.g. physical principles of diagnostic and therapeutic procedures)
- Molecular biophysics (e.g. diffusion, membrane biophysics)
- Organ biophysics (e.g. vision, hearing, circulation)

Compulsory reading
- Medical Biophysics (Editors: S. Damjanovich, J. Fidy, J. Szöllősi, Medicina, Budapest, 2009, ISBN: 978-963-226-127-0)
- Educational material published on the web page of the Department.

Web page of the Department: http://biophys.med.unideb.hu/en

Exam: Written exam during the exam period after the 1st semester.

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

4. Conditions for signing the lecture book
* 7 or fewer absences from seminars;

5. 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 is obligatory. The type of the questions will be similar to those on the final exam (FE). The SCTs will include five minimum requirement questions as well 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 II 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 – 0p
35-49.99 – 5p
50-54.99 – 6p
55-60.99 – 7p
61-65.99 – 8p
66-72.99 – 9p
73-78.99 – 10p
79 and above – 11p
85 and above – see point iii below

iii) if X_{ave} is at least 85, the student is eligible for a grade-offering oral exam conducted at the end of the semester, where – based on his/her performance – grades 4 or 5 can be offered. Topics of the oral exam only include the lectures that were not included in the two SCTs (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.

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

The FE consists of 2 parts:

Part I: Minimum requirement questions. It consists of a written quiz of 20 minimum requirement questions. One must pass this part to have the written test (part II.) evaluated. Minimum requirement questions and the answers thereto are provided on the website of the Department. 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 5. 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 II. of the FE).
Part II: Written exam. It consists of essays, fill-in-the-missing-phrase type questions, relation analysis and various simple test and multiple-choice questions etc. Part II will only be evaluated if part I is passed. The total bonus 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 II of the FE. Additional exemptions are in point 5. 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- 59.99
pass (2)	60 - 69.99
satisfactory (3)	70 - 79.99

good (4) 80 - 89.99
excellent (5) 90 -

Rules for C-chance exams:
C-chance exams are conducted by a committee. Exemptions regarding Part I of the FE gained in the given semester apply to the C-chance as well. The evaluation process of the C-chance exam differs from the regular procedure (A- and B-chance) in the following aspects:
- Part II is evaluated even if Part I is failed.
- If either Part I or Part II is failed, an oral exam is conducted.
- If the student passes all two parts of the FE (either based on exemptions or the C-chance written results), the grade will be determined by the result of part II.
Dates, sites and detailed instructions for SCTs and the FE will be announced on the notice board of the Department of Biophysics and Cell Biology and on the educational web site.

7. Rules for the usage of calculators during self-control tests and the final examination
In order to ensure a fair evaluation, to avoid disturbances in the testing room, and to protect the security of the test material the following types of calculators are NOT permitted:
- calculators with built-in computer algebra systems (capable of simplifying algebraic expressions)
- pocket organizers, handheld or laptop computers
- any device capable of storing text. Calculators with a typewriter keypad (so-called QWERTY devices), electronic writing pads and pen-input devices are not allowed either. Calculators with letters on the keys (e.g. for entering hexadecimal numbers or variable names) are permitted as long as the keys are not arranged in QWERTY format.
- Calculators or other devices capable of communicating with other devices
- Calculators built into wireless phones
- Calculators with paper tape or models that make noise
In general, students may use any four-function, scientific or graphing calculator except as specified above. However, we reserve the right to prohibit the usage of ANY type of calculator, computer and data storage and retrieval device during some tests if no calculations or only very simple calculations are necessary. Sharing calculators during tests is not allowed, and the test proctor will not provide a calculator.

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

9. Information for Exam Course students
Points 1-5 and 8 are irrelevant.
Rules regarding the exams (point 6-7) apply to the exam course completely.
Point 7 applies.
SCT and seminar bonus points and the exemption from taking part I 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 I 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.

The successful completion of the Practical part is prerequisite for obtaining signature for the Theoretical (Lecture) part.

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

3rd **week:**
Practical: 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.

4th **week:**
Practical: 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.

5th **week:**
Practical: 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.

6th **week:**
Practical: 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.

7th **week:**
Practical: 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.

8th **week:**
Practical: 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.

9th **week:**
Practical: 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.

10th **week:**
Practical: 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.

13th **week:**
Practical: Spare lab.

14th **week:**
Practical: Practical exam

Requirements

Department: Department of Biophysics and Cell Biology, Biophysics Division
Semester recommended for taking the subject: 1st year, 1st semester
Semester for the regular course: 1st
Prerequisites of the course: No prerequisites
Teaching staff: Prof. Dr. Péter Nagy and members of the Department
Educational advisor: Dr. Zsolt Fazekas (e-mail: biophysedu@med.unideb.hu)

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

2. Structure of the course
- Mathematical introduction
- Completion of labs

3. Compulsory reading
- material posted on the web site of the department

4. Recommended reading
- Medical Biophysics (Editors: S. Damjanovich, J. Fidy, J. Szöllősi, Medicina, Budapest, 2009, ISBN: 978-963-226-127-0)
- Biophysics laboratory manual

5. Educational web site
biophys.med.unideb.hu

6. Evaluation
Grades on a five-point scale.

7. Requirements
1. Attendance to labs and recording all results in a separate logbook are compulsory. Students may attend the practicals according to their group assignment only. The lab begins with a written quiz. At least 2.5 of 5 points must be earned in this test in order to be eligible for doing the lab. The written quiz is composed of true/false, multiple choice and simple calculation problems. Students earning less than 2.5 points need to repeat the lab.
2. Evaluation: At the end of each lab the teacher grades the performance of the student on a scale

between 0-5 (lab grade, LG). Getting 0 means that the lab is not accepted and it has to be repeated. Details of how to write lab logbooks and of the evaluation system can be found on the web page of the department. At the end of the semester students will be graded on a five-point scale based on the score of the written quizzes and the lab grades.
3. Making up missed labs: Maximum two missed labs can be completed during the week assigned to spare practicals. Students must register for the make-up labs. Only one occasion will be available for making up a certain lab. A given lab can be repeated/made up only once.
4. Rules regarding repeaters will be posted on the web page of the department.

Further information is available on the web page of the Department of Biophysics and Cell Biology (biophys.med.unideb.hu). The above information is subject to change if unforeseen circumstances arise. These changes will be posted on the web site.

In case student could not obtain AW5 grade, the Department will provide one exam chance for practical part in the active semester. The practical grade cannot be improved during the exam period.

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

2nd **week:**
Lecture: 2. Counting techniques (permutations and combination), Set theory, definition and properties of probability, conditional probability, Bayes's theorem
3. Descriptive statistics, ordered array, frequency distribution, cumulative frequency distribution, histogram mean, median, mode, range, variance
Seminar: Matematikai alapok, Counting techniques (permutations and combination)

3rd **week:**
Lecture: 4. Probability distributions (discrete, continous), Binomial and Poisson distributions
Seminar: Set theory, definition and properties of probability, conditional probability, Bayes's theorem

4th **week:**
Lecture: 5. Normal distribution, standard normal distribution, problems for normal and standard normal distributions
Seminar: Descriptive statistics, ordered array, frequency distribution, cumulative frequency distribution, histogram mean, median, mode, range, variance

5th **week:**
Lecture: 6. Sampling, sampling distributions (special focus on SEM and the central limit theorem).
Seminar: Probability distributions (discrete, continous), Binomial and Poisson distributions

6th **week:**
Lecture: 7. Hypothesis testing, type I and type II errors
Seminar: Normal distribution, standard normal distribution, problems for normal and standard normal distributions

7th **week:**
Lecture: 8. Statistical tests (z, t and F tests)
Seminar: Sampling, sampling distributions

(special focus on SEM and the central limit theorem).

8th **week:**
Lecture: 9. Clinical implications of conditional probability (sensitivity, specificity, positive and negative predictive values). Analysis of discrete random variables.
Seminar: Hypothesis testing, type I and type II errors

9th **week:**
Lecture: 10. Summary
Seminar: Statistical tests (z, t and F tests)

10th **week:**
Seminar: Clinical implications of conditional probability (sensitivity, specificity, positive and negative predictive values). Analysis of discrete random variables.

Requirements

Aim of the course	The aim of the subject is to give an introduction to biostatistical methods, which can be used in different braches of medicine to solve biostatistical problems and to evaluate experimental results. In addition to providing a solid 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 transfered 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: 1. Ismétlés. Már beszélek egy kicsit magyarul

2nd **week:**
Practical: 2. Már beszélek egy kicsit magyarul

3rd **week:**
Practical: 2. Magyarórám lesz

4th **week:**
Practical: 3. Debrecenben lakom

5th **week:**
Practical: 3. Debrecenben lakom

6th **week:**
Practical: 4. Már ezt is tudom! Midterm test

7th **week:**
Practical: 5. Magyarórán

8th **week:**
Practical: 6. Honnan jön,és hová megy?

9th **week:**
Practical: 6. Honnan jön, és hová megy?

10th **week:**
Practical: 7. Utazás

11th **week:**
Practical: 7. Utazás

12th **week:** **Practical:** 8. Már ezt is tudom! End term test.	Oral exam

Requirements

Requirements of the course:

Attendance

Attending language classes is compulsory. If a student is late it is considered as an bsence. Students can miss only 10 percent of the classes that is maximum 2 occasions. If they miss 6 occasions, (no matter why) the final signature will be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week with their own teacher in case they bring a certificate from the doctor to the class. The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time the attendance is refused.

Testing, evaluation

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

A further minimum requirement is the knowledge of 200 words per semester divided into 10 word quizzes. There are five word quizzes before and another five after the midterm test. If students fail or miss any word quizzes they cannot start their written test and have to take a vocabulary exam that includes all 100 words before the midterm and end term tests. A word quiz can be postponed by a week and students can take it only with their own teacher. Students can get bonus points (5-5%) by taking two extra quizzes containing 20 sentences each, before the midterm and end term tests. The sentences are taken from the units of the coursebook.

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

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

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

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

Coursebook: See the website of the Department of Foreign Languages: **ilekt.med.unideb,hu.**

Audio files to the course book, oral exam topics and vocabulary minimum lists are also available on the website.

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

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

2nd **week:**
Lecture: Intermolecular forces. Changes of state. Kinetic-molecular theory of gases and liquids. Solutions and colloids.
Seminar: Lectures of the week.

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

4th **week:**
Lecture: Thermochemistry and thermodynamics.
Chemical kinetics.
Seminar: Lectures of the week.

5th **week:**
Lecture: Electrochemistry. Thermodynamics of redox reactions.
Introduction to organic chemistry. Stereochemistry.
Seminar: Lectures of the week.

6th **week:**
Lecture: Saturated and unsaturated hydrocarbons.
Aromatic hydrocarbons.
Seminar: Lectures of the week.

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

8th **week:**
Lecture: Nitrogen containing compounds. Carboxylic acids and carboxylic acid derivatives.
Seminar: Lectures of the week.

9th **week:**
Lecture: Amino acids and peptides.
Proteins (Structure and classification)
Seminar: Lectures of the week.

10th **week:**
Lecture: Proteins (function and regulation). Carbohydrates.
Seminar: Lectures of the week.

11th **week:**
Lecture: Glycolysis and tricarboxylic acid cycle. Regulation of basic metabolic pathways.
Lipids.
Seminar: Lectures of the week.

12th **week:**
Lecture: Nucleotides and nucleic acids. Nucleic acid – protein interactions.
Seminar: Lectures of the week.

13th **week:**
Lecture: Coordination chemistry. Function and transport of alkaline and alkaline earth metal cations. Transition metals: iron, copper, zinc.
Seminar: Lectures of the week.

14th **week:**
Seminar: Biological functions of the nonmetallic elements: oxygen, selenium, halogens.
Information on the final exam in Medical Chemistry. Research opportunities in the Department.

Requirements

The program consists of lectures, seminars. Attendance at the lectures is essential for successful completion of the course. Attendance at seminars is recorded, students should attend at least 80% of seminars.
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.

The successful completion of the Practical part is prerequisite for obtaining signature for the Theoretical (Lecture) part.

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

1st **week:** **Practical:** Laboratory safety instructions. Fire-regulations. Chemical calculations. Concentration of solutions. Laboratory	techniques: laboratory equipments,volumetric apparatus. Filtration. Preparations of solutions.

2nd **week:**
Practical: Quantitative analysis. Acid-base titrations: strong acid-strong base, weak acid-strong base titrations. Introducing and using titrators.
Chemical analysis of drinking-water. Preparation of ion free water. Ion exchange chromatography.

3rd **week:**
Practical: Quantitative analysis. Acid-base titrations: strong acid-strong base, weak acid-strong base titrations. Introducing and using titrators.
Chemical analysis of drinking-water. Preparation of ion free water. Ion exchange chromatography.

4th **week:**
Practical: Paper chromatography: separation of food dyes and separation of metalions.
Gel filtration. Desalting of egg-white solution.
Spectrophotometry. Photometric determination of inorganic phosphate. Determination of acid labile phosphate in organic compounds.

5th **week:**
Practical: Paper chromatography: separation of food dyes and separation of metalions.
Gel filtration. Desalting of egg-white solution.
Spectrophotometry. Photometric determination of inorganic phosphate. Determination of acid labile phosphate in organic compounds.

6th **week:**
Practical: Elektrometry. Electrometric pH measurement. Potentiometric titrations.
Determination of buffering capacity.
Reactions kinetics.
Kinetic study of the saponification reaction of ethylacetate. Kinetic analysis of the oxidation of iodide ion using theLandolt-method.

7th **week:**
Practical: Elektrometry. Electrometric pH measurement. Potentiometric titrations.
Determination of buffering capacity.
Reactions kinetics.
Kinetic study of the saponification reaction of ethylacetate. Kinetic analysis of the oxidation of iodide ion using theLandolt-method.

8th **week:**
Practical: Redox titrations. Iodometric titrations. Titrations with potassium bromate.
SDS-polyacrylamide gel electrophoresisof proteins.
Quantitative protein analysis: Biuret assay. Bradford assay. Assay of glucose.

9th **week:**
Practical: Redox titrations. Iodometric titrations. Titrations with potassium bromate.
SDS-polyacrylamide gel electrophoresisof proteins.
Quantitative protein analysis: Biuret assay. Bradford assay. Assay of glucose.

10th **week:**
Practical: Qualitative analysis of mono- and disaccharides. Polarimetry. Polarimetric analysis of carbohydrates.
Enzyme kinetics. Assay of glycogen phosphorylase activity.

11th **week:**
Practical: Qualitative analysis of mono- and disaccharides. Polarimetry. Polarimetric analysis of carbohydrates.
Enzyme kinetics. Assay of glycogen phosphorylase activity.

12th **week:**
Practical: Dentistry Practical exam

Requirements

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

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

Evaluation is based on the results of three practical control tests written during the practical classes on the 5th, 9th and 11th week, besides the manual work. If the mark is fail (1), student should take the practical examination on the 12th week. If the practical examination is not successful, (s)he cannot get the signature from the subject and cannot register for the final examination for Medical Chemistry.

In case student could not obtain AW5 grade, the Department will provide one exam chance for practical part in the active semester. The practical grade cannot be improved during the exam period.

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.)

Department of Restorative Dentistry

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

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 and mandibular incisors
Practical: Modelling of upper central and lateral permanent incisors from plasticine

7th **week:**
Lecture: The maxillary and mandibular premolars
Practical: Modelling of lower and upper canines from plasticine

8th **week:**
Lecture: The permanent maxillary molars
Practical: Modelling of upper 1st premolar plasticine

9th **week:**
Lecture: The permanent mandibular molars
Practical: ÍCarving of lower 1st premolar from chalk

10th **week:**
Lecture: The deciduous teeth
Practical: Carving of lower 1st premolar from chalk

11th **week:**
Lecture: The enamel
Practical: Modelling of lower permanent 1stmolar from plasticine

12th **week:**
Lecture: The dentin
Practical: Written test

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

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

Requirements

Requirements for signing the lecture book:
The practices start and finish in accordance with the timetable, arriving late is not allowed.
Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
Missed classes cannot be more than 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 LECTURE**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **28**
Seminar: **28**

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

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

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

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

5th **week:**
Lecture: 9. Cytoskeleton I: microtubules
10. Cytoskeleton II: intermedier filaments, actin cytoskeleton

Seminar: Material related to lectures 7-8.

6th **week:**
Lecture: 11. Calcium homeostasis
12. Osmo-, volume and pH regulation
Seminar: Material related to lectures 9-10.

7th **week:**
Lecture: 13. Cell-cell and cell-matrix contacts
14. Cellular energetics, mitochondrion
Seminar: Material related to lectures 11-12.

8th **week:**
Lecture: 15. Nucleus, Chromtatin
16. Mitosis, meiosis
Seminar: Material related to lectures 13-14.

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

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

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

12th **week:**
Lecture: 23. The changing cell
24. Oncogenes, tumor cells
Seminar: Material related to lectures 21-22.

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

14th **week:**
Lecture: 27. Interaction of cells with viruses and bacteria.
28. Cell motility
Seminar: Material related to lectures 25-26.

Requirements

Department: Department of Biophysics and Cell Biology, Cell Biology Division

Recommended semester: 1st year 2nd semester.
Semester for the regular course: 1st.
Prerequisites of the course: No prerequisites.
Teaching staff: Prof. Dr. György Vereb and the members of the Department
Education coordinator: Dr. Zsolt Fazekas (e-mail: cellbioedu@med.unideb.hu)

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

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

Material to be studied:
Compulsory sources: 4th ed. of Essential Cell Biology (Alberts et al.,Garland Publ Inc. 2014. ISBN: 978-0-8153-4454-4). Chapters 1 and 11 through 20 are studied in depth during the course. Chapters 2 through 10 contain explanations for basic molecular concepts. There is additional core material that is available only in the lectures.

Cell biology Lab Notes: the currently required, up-to-date version is available at the course home page.

Recommended: The in depth full-text version of the course material can be found in:
Alberts et al.: Essential Cell Biology, 4th edition, Garland Publ. Inc., 2014, ISBN 978-0-8153-4455-1; Lodish et al.: MOLECULAR CELL BIOLOGY, 7th edition, W. H. Freeman, 2013, ISBN-13: 978-1-4292-3413-9; Alberts et al.: MOLECULAR BIOLOGY OF THE CELL; 6th edition, Garland Publ. Inc., 2015, ISBN 978-0-8153-4453-7;
The 4th editions of these are also available online:
http://www.ncbi.nlm.nih.gov/books/NBK21475/
http://www.ncbi.nlm.nih.gov/books/NBK21054/

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

Course home page: http:// biophys.med.unideb.hu/

Signature: Signing for the course can be denied if the student has missed more than 2 seminars.

Type of exam: Final exam

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

Requirements:

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

2. Seminars: Seminars serve to discuss the lecture material. Use them well, study the material before the seminar and arrive with your questions. Maximum two absences are permitted. Students must attend the seminars with their assigned study group. Students may sign up for one short interactive presentation during the semester. The teacher will choose the topic/questions on the spot and the presenter is required to pick the appropriate lecture slides and use them explain the topic. This requires the in depth knowledge of all the topics presented at the lectures and studying the

relevant textbook chapters. The presentations are graded on a scale of 0-5. This grade counts toward the bonus points earned during the semester.

3. Labs: Labs are done under a separate subject code.

4. Self-control Tests (SCT-s):
There will be at least two SCT-s. The dates and topics (covering roughly the whole material) for SCT-s are announced in the beginning of the semester. Test and essay questions are scored on a 0-100% scale, averaged for the SCTs (=SCT_{ave}) and this average is used to offer exemptions and bonus points towards the final grade (see 5.2 and 5.4.1.). Similarly to the final exam, basic questions (on minimally required knowledge, part A) and in depth questions (part B) constitute the SCT. As opposed to the final exam, both A and B parts are evaluated in SCTs and contribute to the SCT score regardless of their value.
Writing the SCTs is not compulsory; SCTs cannot be made up for, even in the case of a justified absence. Missed SCTs contribute a score of 0 towards SCT_{ave}.

5. Final Exam (written):

5.1. Parts of the Final Exam. The exam is a written test of two parts (A and B).
Part A of the written test is a so-called minimum level test. It consists of a set of 10 true-or-false questions about basic cell biology knowledge (1 point each) and 5 questions asking for a brief description of basic terms (molecules, concepts). These terms are listed among the key-words published on the subject's website. The answers are scored on a 0-2 scale in increments of 0.5 points. The student has to score 16 or above out of the total 20 points in part A to pass. Below 16 points the grade of the exam is a fail (1) and part B is not marked (except C and last chance exams, see 5.5.). For writing Part A, 20 minutes are allocated. A successful passing of Part A (or exemption from writing Part A, see 5.4.2) is valid for B and C exams throughout the exam period, but not beyond.
Part B is a 90 minute complex written exam, including short essays (~20-25% of the total score), fill-in, short answer, multiple choice, relation analysis, sketch-recognition as well as simple choice and yes-or-no questions.

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

1. % result of Part B expressed as points	100 points maximum

If score on Part B is greater or equal to 50%, the following bonus points are added to the score of Part B:

2. Presentation grade	5 points maximum
3. Average % results of SCTs (SCT_{ave})	
3 points for reaching 30%	
and +1 point for each additional 10% reached	10points maximum
Total:	115 points maximum

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

5.3. Assigning grades to exam scores

Part A below 16 points: fail (1)

Exam score (see 5.2.):
below 60 points: fail (1)
60-69 points: pass (2)
70-79 points: satisfactory (3)
80-89 points: good (4)
reaching, and above 90 points: excellent (5)

5.4. Exemptions

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

1. SCT_{ave} % expressed as points 100 points maximum
2. Presentation grade5 points maximum
Total:105 points maximum

Grades are offered as listed under ”**5.3. Assigning grades to exam scores**”. (Part ‘A’ is considered to be passed in this case.)

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

5.5. “C” chance and last chance exams

At ”C” and last chance exams if the score on Part A is 16 or above, and the exam score is 60 or above, grades are assigned as usual (see 5.3.). However, if Part A is failed, Part B will nevertheless be marked. A failed written exam is followed by an oral exam and the final grade is determined from comprehensive evaluation of the written and oral parts.

6. Rules for repeating the course

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

6.2. Repeaters can apply for a Cell Biology exam course in the third semester if they have received a signature in the previous semester. The above items 1.-4. and 6.1. are irrelevant to the exam course and consequently no bonuses can be earned during the exam course. Otherwise the final exam proceeds as detailed under 5.

The successful completion of the Practical part is prerequisite for obtaining signature for the Theoretical (Lecture) part.

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

2nd **week:**
Practical: Preparation for labs

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

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

5th **week:**
Practical: Membrane transport: multidrog resistance

6th **week:**
Practical: Membrane transport: multidrog resistance

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

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

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

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

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

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

13th **week:**
Practical: Remedial lab

14th **week:**
Practical: Remedial lab

Requirements

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

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

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

Course home page: http:// biophys.med.unideb.hu/

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

Type of exam: Practical grade

Requirements:
Completing all labs, and writing up the results and their interpretation in a lab log book on the spot is required. Only handwritten, bound lab log books are acceptable. The compulsory preparation for the lab includes writing the aims of the lab and the methods of implementation into the lab logbook before the lab. During the lab the log written must document what the student has actually done, the results obtained (including graphs and color drawings), and their interpretation. The lab tutor will sign the log upon completion of the lab and acceptance of the lab performance and log (=lab signature, LS). All labs must be accepted by a valid LS in order to receive the end of term signature.
Labs can only be performed by students who arrive well prepared. This is checked by a ~10 min written quiz at the beginning of the lab, graded by the lab teachers on a scale of 0-5 (=Quiz Grade, QG). A grade of 0 results automatically in dismissal from the lab, and the student must do the lab, after adequate preparation, in the spare week. There is no possibility to make up for more than one missed lab. Grades >=1 are averaged (QG_{ave}) and contribute to the final grade.
Maximum one practice can be missed, and it must be made up for in the spare week. Besides a QG=0, only medical or official excuses are accepted, after presenting the appropriate documents to the Educational Advisor.

In case student could not obtain AW5 grade, the Department will provide one exam chance for practical part in the active semester. The practical grade cannot be improved during the exam period.

Subject: **FIRST AID AND REANIMATION**
Year, Semester: 1st year/2nd semester
Number of teaching hours:
Lecture: **5**
Practical: **14**

1st **week:** **Lecture:** The concept of first aid, first aid levels. Time Factor. The role of the scene. The usage of paramedics, rules of calling ambulance. ABCDE approach.	2nd **week:** **Lecture:** Concept and recognition of unconsciousness. Symptoms of airway obstruction. Airway management. Recovery position.

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

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

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

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

7th **week:**
Practical: Practicing ventilation without equipment.

8th **week:**
Practical: Practicing chest compression.

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

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

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

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

13th **week:**
Practical:
Test

Self Control Test

Requirements

Condition of signing the Lecture book:

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

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

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

2nd **week:**
Practical: 2. Napirend

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

4th **week:**
Practical: 3. Melyika jobb?

5th **week:**
Practical: 4. A testem

6th **week:**
Practical: 5. Beteg vagyok

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

8th **week:**
Practical: 7. A család

9th **week:**
Practical: 7. A család

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

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

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

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

14th **week:**
Practical: Oral exam

Requirements

Requirements of the course:

Attendance

Attending language classes is compulsory. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions. If they miss 6 occasions, (no matter why) the final signature will be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week. with their own teacher in case they bring a certificate from the doctor to the class. The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time the attendance is refused.

Testing, evaluation

In each Hungarian language course, students must sit for 2 written language tests, an oral and a listening exam. Students must appear at the lecture hall at least 15 minutes before the exam. If students are late, they are not allowed to write the test.
A further minimum requirement is the knowledge of 200 words per semester divided into 10 word

quizzes. There are five word quizzes before and another five after the midterm test. If students fail or miss any word quizzes they cannot start their written test and have to take a vocabulary exam that includes all 100 words before the midterm and end term tests. A word quiz can be postponed by a week and students can take it only with their own teacher. Students can get bonus points (5-5%) by taking two extra quizzes containing 20 sentences each, before the midterm and end term tests. The sentences are taken from the units of the coursebook.

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

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

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

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

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

Department of Pediatric and Preventive Dentistry

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

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

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

3rd **week:**
Seminar: 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: 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 calculated 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 as a ‚B' chance.

Calculation of the 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

Division of Dental Anatomy

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

1st **week:**
Lecture: General introduction. Epithelial tissue: covering and lining epithelia.
Seminar: Histology: Introduction to histological

methods. The microscope and the resolution. Using the virtual microscope: Case Center and Panoramic Viewer. The evaluation and interpretation of histological sections. Always keep in mind: What you can see in the microscope is a thin (almost 2-dimensional) section of a 3-dimensional object. 1. Small intestine (HE)

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

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

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

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

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

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

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

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

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

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

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

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

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

Requirements

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

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

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

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

End semester examination:

The final examination consists of oral (anatomy - in the dissecting room) and written (histology, embryology - MOODLE) parts. The exams cover the topics of the lectures, seminars and practicals of both “Oral Anatomy, Histology and Embryology – I” course of the semester and include the relevant material from official textbooks. The first exam is an “A” chance exam.
Oral part
Anatomy (three topics – three marks):
a1. upper and lower limb
a2. skull
If the student has a 4 (good) or 5 (excellent) mark from the “Oral Anatomy, Histology and Embryology – I. Practical” course (earned a “Practical Bonus”) the examiner will only ask one of the topics. The examiner decides which topic to leave out from the exam.
Written part
Embryology (one mark): e1
Histology (two marks):
h1: microtechnic, epithelial tissue, connective tissue
h2: adipose tissue, cartilage, bone, bone formation muscle tissue, blood vessels, red bone marrow, blood and development of its formed elements.
The obtained points of the written parts will be converted into marks similarly to the evaluation of the mid semester examinations (see above). The average marks from the oral and two written parts will be calculated as follows:
anatomy = (a1+a2)/2OR anatomy = (a1+5)/2 in case of a “Practical Bonus”
histology = (h1+h2)/2
embryology = e1.
The final ESE mark is calculated as the average of the anatomy, histology and embryology parts (rounded up from x.5 to the nearest integer)
ESE mark = (anatomy + histology + embryology)/3
Improvement
Improvement of the mark is possible during the regular examination period by repeating all of the

oral and written parts of the exam and the ESE mark in this case will be calculated from the new marks. The previous ESE mark will be discarded.
Registration and postponement: Through the NEPTUN system.

The successful completion of the Practical part is prerequisite for obtaining signature for the Theoretical (Lecture) part.

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

1st **week:**
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. Osteology: types of bones. Contours and markings of bones. Bones and joints of the upper limb I. 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.

2nd **week:**
Practical: Anatomy: Bones and joints of the upper limb II. 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!).

3rd **week:**
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!

4th **week:**
Practical: Anatomy: Bones and joints of the lower limb I. Similarly to the upper limb, make drawings on the major bones of the lower limb (femur, tibia, fibula). Bones of the pelvis (hip bone, sacrum). Structure and biomechanics of the pelvis. Bones and compartments of the foot. Structure and function of the hip joint, knee joint, ankle joints.

5th **week:**
Practical: Anatomy: Muscles, vessels and nerves of the lower limb I. 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!).

6th **week:**
Practical: Anatomy: Muscles, vessels and nerves of the lower limb: part two. Hiatus subinguinalis. Femoral and adductor canals, popliteal fossa. Major arteries (femoral, popliteal tibial, plantar, dorsalis pedis arteries), veins and nerves. Identify femoral, popliteal, tibial arteries. Lumbar and sciatic plexus. Find femoral, sciatic, tibial, peroneal nerves.

7th **week:**
Practical: Anatomy: CONSULTATION - Anatomy of upper and lower limb

8th **week:**
Practical: Anatomy: Skull I. 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!)

9th **week:**
Practical: Anatomy: The skull II. 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.

10th **week:**
Practical: Anatomy: The skull III. Inferior aspect of the skull. External cranial base.

11th **week:**
Practical: Anatomy: The skull IV. 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.

12th **week:**
Practical: Anatomy: The skull V. The pterygopalatine fossa, temporal fossa, infratemporal fossa. The temporomandibular joint, atlantooccipital and atlantoaxial joints.

13th **week:**
Practical: Anatomy: Consultation: The skull.

14th **week:**
Practical: Anatomy: ESE (End Semester Exam)

Requirements

Concerning attendance, the rules written in the Regulations Governing Admission, Education and Examinations of the Faculty of Medicine, University of Debrecen are valid. The presence in practices will be recorded. The head of the department may refuse to sign the subject if a student is absent more than three times from practices in the semester even if he/she has an acceptable reason. Compensation of practices is possible only on the same week at an other student's group. Altogether, compensation of three practices is allowed.
Rules of the End Semester Examination (ESE)
The exam is an oral examination conducted with the aid of anatomical preparations in the dissecting room, in the time of the last practical on the 14th week. The exam will focus on IDENTIFICATION of gross anatomical structures selected from a list of structures that will be made available for the students in the first week of the semester. The examination is successful in case of 60% or better performance. The successful ESE is converted to grades on the basis of the following scheme of conversion:

0 - 59 % = 1 (fail)
60 - 69 % = 2 (pass)
70 - 79 % = 3 (satisfactory)

80 - 89 % = 4 (good)
90 - 100 % = 5 (excellent)

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

Registration for the examination:
Students are supposed to register for the ESE through the NEPTUN system.
In case student could not obtain AW5 grade, the Department will provide one exam chance for practical part in the active semester. The practical grade cannot be improved during the exam period.

Division of Dental Biochemistry

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

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. 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.

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.

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.

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. 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. Self Control Test	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.

Requirements

Requirements for signing the semester: attendance in seminars.

Required knowledge from Molecular Biology: topics of molecular biology presented at the lectures (slides are available at the https://elearning.med.unideb.hu web site, login with your university network ID and password) and topics discussed in the seminars.

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

On the **seminars**, lectures of the previous week 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 have got signature previously). Only those students can collect seminar bonus points, who don't miss more than three seminars (regarding repeaters, too).

Control tests: During the semester students can write two control tests from the material of the lectures and seminars. Both tests are composed of 40 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 2.5 points). By the test maximum 100 points can be collected. 60% (60 points) is needed to get a passing mark, and the grade increases with every 10 points (60-69.5 pass, 70-79.5 satisfactory, 80-89,5 good, 90-100 excellent).

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

Improvement exam: It is allowed to take one improvement exam 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 website (http://bmbi.med.unideb.hu), you can login with your university network ID and password.

The successful completion of the Practical part is prerequisite for obtaining signature for the Theoretical (Lecture) part.

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

5th **week:**
Practical: Introduction practice

6th **week:**
Practical: Introduction practice

7th **week:**
Practical: Introduction practice

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

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

10th **week:**
Practical: Protein blotting and immunological

identification by specific antibodies.

11th **week:**
Practical: Studies on phosphatases

12th **week:**
Practical: Studies on phosphatases

13th **week:**
Practical: Studies on phosphatases

Requirements

Requirements for signing the semester:

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: “Introduction” on week 5-7, “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/GM, Dent/Information about practices)! For obtaining the signature students need to attend the three practices, submit the laboratory books in the required format. Grades will be given on the basis of the quality of notebooks and laboratory work.

In case student could not obtain AW5 grade, the Department will provide one exam chance for practical part in the active semester. The practical grade cannot be improved during the exam period.

CHAPTER 17
ACADEMIC PROGRAM FOR THE 2ND YEAR

Department of Biomaterials and Prosthetic Dentistry

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Requirements

Conditions of signature in the lecture book:

The amount of missed practices cannot exceed 3 practices, even if they are certified. All the missed practices must be certified. There is no possibility to compensate for missed practices. Being late for a practice means a missed practice. A missed practice means 'not-accepted' practice automatically, and a ‘not-accepted’ practical self-control test. During the practices wearing a lab coat is compulsory.

Conditions of signature at Phantom Laboratory Practice:
Practical self-control tests will be held before each practices. The aim of the practical self-control tests is to evaluate the students’ basic knowledge of the actual weekly topic. The evaluation of a practical self-control test can be ‘accepted’ or 'not-accepted'. A missed practice means a ‘not-accepted’ practical self-control test. If the amount of the 'not-accepted' practical self-control tests exceeds 3, the signature will be refused automatically.

Conditions of offered mark:
Two 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 14th week of the semester. Oral or written tests during the semester will be registered as practices, so the missed self-control test means a missed practice. 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 average of 3,50, (3,50-4,0 good; 4,50-5 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.

Assessment:
ESE (involving possibility of failure).

Department of Basic Medical Sciences

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

1st **week:**
Practical: 1. fejezet: Emlékszik?

2nd **week:**
Practical: 1. fejezet: Emlékszik? / Tegezés, Önözés

3rd **week:**
Practical: 2. fejezet: Tegezés - Önözés

4th **week:**
Practical: 3. fejezet: Élelmiszerek 1.

5th **week:**
Practical: 4. fejezet: Élelmiszerek 2.

6th **week:**
Practical: 5. fejezet: Étkezések, étteremben 1.

7th **week:**
Practical: 6. fejezet: Étkezések, étteremben 2.

8th **week:**
Practical: 7. fejezet: Összefoglalás, midterm test

9th **week:**
Practical: 8. fejezet: A városban 1.

10th **week:**
Practical: 9. fejezet: A városban 2.

11th **week:**
Practical: 10. fejezet: Édes otthon 1.

12th **week:**
Practical: 11. fejezet: Édes otthon 2.

13th **week:**
Practical: 12. fejezet: Összefoglalás

14th **week:**
Practical: Oral exam

Requirements

Requirements of the course:

Attendance

Attending language classes is compulsory. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions. If they miss 6 occasions, (no matter why) the final signature will be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week with their own teacher in case they bring a certificate from the doctor to the class. The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time the attendance is refused.

Testing, evaluation

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

A further minimum requirement is the knowledge of 200 words per semester divided into 10 word quizzes. There are five word quizzes before and another five after the midterm test. If students fail or miss any word quizzes they cannot start their written test and have to take a vocabulary exam that includes all 100 words before the midterm and end term tests. A word quiz can be postponed by a week and students can take it only with their own teacher. Students can get bonus points (5-5%) by taking two extra quizzes containing 20 sentences each, before the midterm and end term tests. The sentences are taken from the units of the coursebook.

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

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

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

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

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

Division of Dental Anatomy

Subject: **ORAL ANATOMY, HISTOLOGY AND EMBRYOLOGY II. LECTURE**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **56**
Seminar: **42**

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

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

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

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

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

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

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

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

9th **week:**
Lecture: Histology of the stomach and the intetines. Pancreas. Liver - part one Liver - part two. Portal system. Peritoneum. Bursa omentalis.
Seminar: Histology: Digestive system - part one 1. Stomach (HE stain) 2. Stomach (PAS+H stain) 3. Jejunum (HE stain) 4. Colon (HE stain stain) 5. Appendix (HE stain) 6. Demonstration: Esophagus (HE stain), stomach (GEP cells: silver impregnation and immunohistochemical reaction).

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

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

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

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

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

genetic and hormonal origin. **Seminar:** Histology: SELF CONTROL - Respiratory system, digestive system, urogenital system.	Self Control Test

Requirements

Requirements

Concerning attendance, the rules written in the Regulations Governing Admission, Education and Examinations of the Faculty of Medicine, University of Debrecen. 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.

The successful completion of the Practical part is prerequisite for obtaining signature for the Theoretical (Lecture) part.

Subject: **ORAL ANATOMY, HISTOLOGY AND EMBRYOLOGY II. PRACTICAL**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Practical: **42**

1st **week:**
Practical: Anatomy: Topographical anatomy of the head and neck I-II. **a**. Topographical anatomy of the head and neck: part one. Surface anatomy: Draw the surface projections and landmarks of the following structures on the cadaver: Head: cutaneous branches of the trigeminal nerve. Branches of the facial nerve on the face and neck. Facial, superficial temporal and external carotid arteries. Retromandibular vein. Parotid

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

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

3rd **week:**
Practical: Anatomy: Topographical anatomy of the head and the neck: V-VI. **a**.Head: Retromandibular fossa. At the side of the removed parotid gland dissect the alveolar nerve and artery from the mandibular canal and remove that half of the mandible. Cut out the masseter, the external and internal pterygoid muscles by careful preparation of the structures between the two pterygoid muscles. Preparation of the inferior alveolar nerve, lingual nerve, chorda tympani, maxillary artery, auriculotemporal nerve, middle meningeal artery, stylohyoid, styloglossus, stylopharyngeus muscles, glossopharyngeal nerve. Remove the lateral plate of the pterygoid process of the sphenoid bone. Find the muscles of the soft palate. Overview: blood supply and innervation of the teeth. **b**. Dissection of the nucheal region from the external occipital protuberance to the 7th thoracic vertebra. Occipital artery, muscles of the nucheal region from layer to layer. Identify the suboccipital triangle and its elements. Remove all muscles attached to the occipital bone. Make visible the posterior arch of the atlas and exarticulate the atlantooccipital joint. Cut through the alar ligaments and the apical ligament. Bend the head forward. The head remains connected to the body only through the pharynx and esophagus. In the other cadaver, structures related to the pharynx are dissected. Para- and retropharyngeal spaces.

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

tonsil. Make schematic drawings of these structures. Overview: blood supply and innervation of the oral cavity mucosa, tongue and larynx.

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

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

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

8th **week:**
Practical: Anatomy: Thoracic cavity II-III. **a**. Study of the heart on isolated preparations. Size and position of the heart. Pericardium. External anatomy of the heart. Arteries and veins of the heart. Internal anatomy of the atria and the ventricles of the heart. Types, locations and functions of the heart valves. Layers of the heart wall. The conducting system. Functional aspects of the circulatory system. Pulmonary and systemic circulation. Presentation of radiographs, cardivascular 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).

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

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

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

Lumbar plexus. **b**. Repetition. Clinical cases.

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

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

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

Requirements

Concerning attendance, the rules written in the Regulations Governing Admission, Education and Examinations of the Faculty of Medicine, University of Debrecen are valid. The presence in practices will be recorded. The head of the department may refuse to sign the subject if a student is absent more than two times from practices in the semester even if he/she has an acceptable reason. Compensation of practices is possible only on the same week at an other student's group. Altogether, compensation of three practices is allowed.
Rules of the End Semester Examination (ESE)
The exam is an oral examination conducted with the aid of anatomical preparations in the dissecting room, in the time of the last practical on the 14th week. The exam will focus on IDENTIFICATION of gross anatomical structures selected from a list of structures that will be made available for the students in the first week of the semester. The examination is successful in case of 60% or better performance. The successful ESE is converted to grades on the basis of the following scheme of conversion:

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

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

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

In case student could not obtain AW5 grade, the Department will provide one exam chance for practical part in the active semester. The practical grade cannot be improved during the exam period.

Division of Dental Biochemistry

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

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

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

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

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

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

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

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

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

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

10th **week:**
Lecture: The urea cycle and its regulation. Mitochondrial carbamoyl phosphate synthetase. Intracellular glutamine cycle. Decarboxylation and carboxylation reactions in the amino acid metabolism. C1 transfer and transmethylation, related enzyme and vitamin deficiencies. Monooxygenation and dioxygenation reactions.

Fate of the carbon skeleton of amino acids: glucogenic and ketogenic amino acids. Degradation of amino acids in the pyruvate pathway. Transport function of alanine. Degradation and synthesis of cysteine. Formation and utilization of PAPS. Degradation and synthesis of serine and glycine. Pathways of threonine degradation. Degradation of amino acids in the - ketoglutarate pathway. Degradation of histidine, histidinemia.

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

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

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

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

Requirements

Requirements for signing the semester: attendance in seminars.

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

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

On the **seminars** the lectures of the previous week can be discussed. On the seminars 10 bonus points can be collected by the seminar tests. Based on the test results, from 60% 4 bonus points; from 70% 6 bonus points; from 80 % 8 bonus points; from 90% 10 bonus points can be collected

(please ask for more details from the seminar teachers). The seminar bonus points will be added to the 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 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.

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 control tests of the material of the lectures). Control tests consist of test questions. 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: 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. 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 website (http://bmbi.med.unideb.hu, login with your university network ID and password).

The successful completion of the Practical part is prerequisite for obtaining signature for the Theoretical (Lecture) part.

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

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

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

3rd **week:**
Practical: Determination of the activity of glycolytic enzymes (aldolase, LDH),

electrophoresis of LDH. Studies on the coupling of mitochondrial electron transport by proton motive force to ATP synthesis.

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

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

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

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

8th **week:**
Practical: Studies on transaminases.

9th **week:**
Practical: Studies on transaminases.

10th **week:**
Practical: Studies on transaminases.

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

Requirements

Requirements for signing the semester:

Every laboratory **practices** must be performed, if someone is absent due to any serious reason, the missing experiments have to be performed within the three weeks practice period joining another group (after obtaining permissions from the practice teacher of the other group). Grades will be given on the basis of the quality of the laboratory work, notebooks and the result of the practical tests.
In case student could not obtain AW5 grade, the Department will provide one exam chance for practical part in the active semester. The practical grade cannot be improved during the exam period.

Division of Dental Physiology and Pharmacology

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

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

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

Practical: Investigation of the cardiovascular functions

3rd **week:**
Lecture: Neuromuscular junction. Synapse The autonomic nerves
Basic receptor function. Skeletal and smooth muscle physiology I.
Basic receptor function. Skeletal and smooth muscle physiology II.
Mechanics and contractility of cardiac myocyte
Practical: Computer aided acquisition and processing of biological signals

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

Practical: Determination of parameters characterising the respiratory functions

5th **week:**
Lecture:
Cardiac work and energetics; cardiac failure
Novel results in cardiac physiology
Principles of hemodynamics
Features of arterial circulation

Practical: Computer simulation of the frank-straling-mechanism
Self Control Test

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

Practical: Computer simulation of the humoral regulation of intestinal smooth muscle

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

Practical: Remedial lab

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

Practical: Investigation of the endothelial function on isolated arterial ring

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

Practical: Simulation of the action potential in the squid axon

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

Practical: Examination of the cranial nerves
Self Control Test

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

12th **week:**
Practical: Examination of the somatosensory

and motoric systems	Self Control Test
13th **week:** **Practical:** Remedial lab	14th **week:** **Practical:** Remedial lab

Requirements

1. Signature of the semester

Attendance of lectures, laboratory practices and seminars is compulsory. The Signature of the semester may be refused for the semester in case of more than three absences from the seminars 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 semester.
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.

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)

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 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.

The successful completion of the Practical part is prerequisite for obtaining signature for the Theoretical (Lecture) part.

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

1st **week:**
Practical: Introduction

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

3rd **week:**
Practical: Computer aided acquisition and processing of biological signals

4th **week:**
Practical: Determination of parameters characterising the respiratory functions

5th **week:**
Practical: Computer simulation of the frank-straling-mechanism

6th **week:**
Practical: Computer simulation of the humoral regulation of intestinal smooth muscle

7th **week:**
Practical: Remedial lab

8th **week:**
Practical: Investigation of the endothelial function on isolated arterial ring

9th **week:**
Practical: Simulation of the action potential in the squid axon

10th **week:**
Practical: Examination of the cranial nerves

12th **week:**
Practical: Examination of the somatosensory and motoric systems

13th **week:**
Practical: Remedial lab

14th **week:**
Practical: Closing lab

Requirements

In case student could not obtain AW5 grade, the Department will provide one exam chance for practical part in the active semester. The practical grade cannot be improved during the exam period.

Department of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS II.: INTRODUCTION TO THE FIXED PROSTHODONTICS**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **28**

1st **week:**
Lecture: Basics of gnathology. The connection of gnathology with prosthodontics. Articulators. Basics of mounting of the casts into articulators.
Practical: Discussion about the subject, and the practical work. Examination of the casts and drawing on the casts. Demonstration of wax up.

2nd **week:**
Lecture: Occlusion and articulation in natural dentition. Occlusal theories related to prosthodontics.
Practical: Wax-up of 34, 35 guiding cusps

3rd **week:**
Lecture: Jaw relations. Positions of the mandible.
Practical: Wax-up of 34, 35 supporting cusps

4th **week:**
Lecture: Mandibular movements
Practical: Wax-up of 36 all cusps

5th **week:**
Lecture: Introduction into fixed prosthodontics. Fixed prosthesis
Practical: Wax-up of 14, 15, 16 all cusps

6th **week:**
Lecture: Instruments used for tooth preparation. General aspects of tooth preparation.
Practical: Instruments of tooth preparation. Practice with handpieces. Setting of the mannequin

7th **week:**
Lecture: Preparation of molars and premolars.
Practical: Tooth preparation. Lower molar. Silicon index.

8th **week:**
Lecture: General aspects of tooth preparation (full veneer crown).
Practical: Tooth preparation. Lower molar. Silicon index.

9th **week:**
Lecture: Preparation of incisors and canines.
Practical: Tooth preparation. Lower molar. Silicon index.

10th **week:**
Lecture: Preparation mistakes in practice
Practical: Tooth preparation. Lower molar. Silicon index.

11th **week:**
Lecture: Clinical phases of crown fabrication I. history taking, patient examination, study cast.
Practical: Tooth preparation. Upper incisor. Silicon index.

12th **week:**
Lecture: Clinical phases of crown fabrication II. Framework try-in, biscuit probe, cementation.
Practical: Tooth preparation. Upper incisor. Silicon index.

13th **week:**
Lecture: Centric relation determination for fixed prosthesis.
Practical: Tooth preparation. Upper incisor. Silicon index.

14th **week:**
Lecture: Consultation
Practical: Tooth preparation. Upper incisor. Silicon index.

Requirements

Conditions for signing the lecture book:
Each practice is evaluated as an accepted or non-accepted. See details at the "practice evaluation" chapter.
If the number of non-accepted practices exceeds 4, the signature will be rejected. In this case the subject cannot be completed during the semester.

- After 3 non-accepted practices, the student will be given a documented oral notification.
- After 4 Non-accepted practice the student will be given a written notification from the Department.

We do not tolerate lateness for practices:

- The door of the phantom room is going to be locked in the beginning of the practice.
- Being late means that the student is not inside the phantom room when the practice supposed to start.
- If you are late because of overlapping classes, please see the department regarding the issue.
- Absences cannot be compensated with extra practice.

Absences must be certified. The number of absences cannot exceed two practices.

Practice evaluation:
Each practice is evaluated as accepted or non-accepted.
There can be written and/or oral questions during any practice.
The practice is not-accepted if the student is late.
The practice is not-accepted if the student is absent, even if he/she has a certificate.
The practice is not-accepted if the theoretical knowledge of the student does not meet the minimal requirements.
The practice is not-accepted if the manual work of the student does not meet minimal requirements.
The practice is not-accepted if the student is ordered to leave the practice due to any behavioral issues.

End semester exam (ESE) evaluation:
The ESE grade will be calculated from the results of term-time tests as on offered grade or from the exam test during the exam period.
Two term-time tests will be held during the semester during the practices or at a prearranged time.
Topics of the online term-time tests are the following:

- 1st test: topics from week 1-7 (Gnathology)
- 2nd test: topics from week 10-14 (Tooth preparations)
- The 2nd test may include questions from the first test's topics.
- Tests may include questions from topics of previously taught subjects (e.g. Dental Materials, Odontology)

If the student fails to attend the test, the result will be a fail (1).
Both term-time test results must be at least pass (2) in order to get an offered grade.
The first test results may be improved (remedial test) with the second test. In such case, the student will write two separate tests.
Students must register for the remedial test during the practice time. Only registered students can attend the remedial test.
If the result of any of the term-time tests is fail (1) the student must take the exam during the examination period as 'A' 'B' or 'C' chance exam.
The exams held during the exam period are written (tablet) tests.
Oral exam will be held only on the „C" chance exam, in case the student fails the written (tablet) exam.
The grades of the online term-time tests, remedial test and exams, will be calculated as the following:

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

Offered grades are calculated from the term-time test results:

- 2 - 2 = 2
- 2 - 3 = 3
- 2 - 4 = 3
- 2 - 5 = 3
- 3 - 3 = 3
- 3 - 4 = 4
- 3 - 5 = 4
- 4 - 4 = 4
- 4 - 5 = 5
- 5 - 5 = 5

Digital tests:
Type of the questions:

- Simple choice
- Multiple choice
- Relation analysis
- Short essay, typed on tablets

Any of the questions may include diagrams, drawings and photographs.
All students will be given the same questions, but the order of questions may be random.
The questions of the Hungarian and English tests will be different.
When writing the test, students may move back and forth freely between the questions.
Each test consists of 15-30 questions.
Each question is worth one score. Different scoring will be indicated clearly.

The length of the test is about 1-2 minutes per question.
The length of the tests is calibrated to compensate if any unexpected technical problem occurs with the tablet system.
To prevent cheating or behavior problems, the tests will be recorded by the camera set up in the lecture halls.
All electronic devices (smartphone, Bluetooth, etc.) are forbidden during the test.
If the student is caught using any devices (even if you are finished) the test will be invalid. Further actions may also be taken.
Data transfer of the tablets are recorded by the University.
Taking pictures of the questions is forbidden.
During the tests nobody can call the teacher regarding problems with the questions.
If you have any problems with the question you can use the “mark this question” button next to the question. If there is a reasonable problem, the Department will remove that question during grading.

Department of Basic Medical Sciences

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

1st **week:**
Practical: Emlékszel?

2nd **week:**
Practical: Testrészek

3rd **week:**
Practical: Tünetek

4th **week:**
Practical: Gyógyszerek

5th **week:**
Practical: Klinikák és szakorvosok

6th **week:**
Practical: Lassítsunk egy kicsit

7th **week:**
Practical: Összefoglalás, Midterm test

8th **week:**
Practical: Szoktál kanapészörfölni?

9th **week:**
Practical: Jó és rossz szokások

10th **week:**
Practical: Instrukció

11th **week:**
Practical: Tessék mondani!

12th **week:**
Practical: Anamnézis

13th **week:**
Practical: Összefoglalás, End term test

14th **week:**
Practical: Oral exam

Requirements

Requirements of the course:

Attendance

Attending language classes is compulsory. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions. If they miss 6 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 with their own teacher in case they bring a certificate from the doctor. The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time the attendance is refused.

Testing, evaluation

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

A further minimum requirement is the knowledge of 200 words per semester divided into 10 word quizzes. There are five word quizzes before and another five after the midterm test. If students fail or miss any word quizzes they cannot start their written test and have to take a vocabulary exam that includes all 100 words before the midterm and end term tests. A word quiz can be postponed by a week and students can take it only with their own teacher. Students can get bonus points (5-5%) by taking two extra quizzes containing 20 sentences each, before the midterm and end term tests. The sentences are taken from the units of the coursebook.

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

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

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

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

Coursebook: See the website of the Department of Foreign Languages: **ilekt.med.unideb,hu.**

Audio files to the course book, oral exam topics and vocabulary minimum lists are also available on the website.

Division of Dental Anatomy

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

1st **week:**
Lecture: Macroscopic anatomy of the central nervous system – Introduction I.
Macroscopic anatomy of the central nervous system – Introduction II.
Macroscopic anatomy of the central nervous system – Introduction III.
Macroscopic anatomy of the central nervous system – Introduction IV.

2nd **week:**
Lecture: Histology of the nervous system – I.
Histology of the nervous system – II.
Structure of the cerebral cortex.
General features of neurons and glial cells.

3rd **week:**
Lecture: Neuronal excitatory processes, role of ion channels.
Axonal transport: degeneration and regeneration in the central nervous system.
Ultrastructure and molecular architectures of synapses I.
Ultrastructure and molecular architectures of synapses II.
Practical: Histology: I. Peripheral nerve, neuroglia, ganglia, enteral plexus.

4th **week:**
Lecture: Synaptic function: vesicular release.
Synaptic regulation, pre-, and postsynaptic mechanisms, synaptic plasticity
Basic forms of neuronal interaction in the central nervous system.
Neuronal integration, EEG.
Practical: Histology: II. Cerebellum, thalamus, basal ganglia

5th **week:**
Lecture: Consultation lecture
Metabolism of the central nervous system – I.
Metabolism of the central nervous system – II.
Development of the central nervous system – neurohistogenesis. Parts of the nervous system
Practical: Histology: III. Cerebral cortex (neocortex, archicortex)

6th **week:**
Lecture: Development of the brainstem and spinal cord.
Development of the diencephalon and telencephalon.
Neurogenesis. Neuronal migration
Programmed cell-death, genesis and elimination of synapses

7th **week:**
Lecture: Sensory functions of the spinal cord; receptors, primary afferents.
The somatosensory system.
The viscerosensory system.
Physiology of sensory functions and skin sensation.

8th **week:**
Lecture: Pain sensation and itch

Structure of the acoustic and vestibular system I.
Structure of the acoustic and vestibular system II.
Physical basis of sensory functions I. (Wave-actions)
Practical: Histology: IV. Spinal cord, brainstem.

9th **week:**
Lecture: Mechanisms of hearing and vestibular sensation

Structures of the eye and the retina.

Physical basis of sensory functions – II. (optics)
Retinal mechanisms of vision.

Practical: Histology: Inner ear

10th **week:**
Lecture: Eye movements, optical reflexes, basic mechanisms of color vision.
Central processing of visual information.
Taste and olfaction I.
Taste and the olfaction II.
Practical: Histology: Eye, palpebra, lacrimal gland

11th **week:**
Lecture: Somatomotor functions of the spinal cord. The neuromuscular endplate, spinal cord motor apparatus.
Spinal cord reflexes, proprioceptive and nociceptive reflexes.
Role of brainstem is motor coordination.
Roles of the basal ganglia and cerebral cortex in the coordination of movements.

12th **week:**
Lecture: Vegetative system: peripheral and brainstem vegetative mechanisms.
Hypothalamic functions.

The limbic system.
Monoaminergic system; motivation reward, addiction, regulation of behaviour.

13th **week:**
Lecture: Sleep, wakefulness, attention, mechanisms of circadian rhythm.
Learning, memory, speech.
New results in neurobiology I.
New results in neurobiology II.

14th **week:**
Seminar: Discussion of lecture material.

Requirements

1. Signature of the semester

Neurobiology is delivered by teachers of the Department of Physiology and the Department of Anatomy, Histology and Embryology. The administrative duties of the course are managed by the Department of Physiology.

Attendance of the lectures, seminars are compulsory. The course director may refuse to sign the semester, if a student misses more than two seminars. Making up of missed seminars is not possible. Making up the histology part is possible with the same rules that applied for the courses: Anatomy-I and II.

In order to pass the course successfully students are advised to use textbooks (below), lectures and notes taken during the practical classes. Course thematic and lecture slides (including figures) can be downloaded from the e-Learning website of the faculty of Medicine or from the web site of dept. of Physiology.

2. Evaluation during the semester
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.

3. Examination

The semester is closed by an end-semester exam (ESE) covering the topics of all lectures, seminars, histology and laboratory practices of the semester. The ESE is a written test that is conducted with the help of Moodle system. The evaluation of the written ESE is based on the scale below:

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

For more details see the website of the Department of Physiology.

The successful completion of the Practical part is prerequisite for obtaining signature for the Theoretical (Lecture) part.

Subject: **NEUROBIOLOGY PRACTICAL (NEUROANATOMY, NEUROBIOCHEMISTRY, NEUROPHYSIOLOGY)**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Practical: **38**

1st **week:**
Practical: Dissecting Room: Anatomy: Dissection of the brain – Part I. Demonstration ofsurface structures ofcerebral hemispheres, meninges, cisterns, structure of the calvaria, blood supply of the brain

2nd **week:**
Practical: Dissecting Room: Anatomy: Dissection of the brain – Part II. The structures and the position of the lateral ventricles.

3rd **week:**
Practical: Dissecting Room: Anatomy: Dissection of the brain – Part III. Flechsig'scut, basal ganglia, diencephalon, third ventricle

4th **week:**
Practical: Dissecting Room: Anatomy: Dissection of the brain – IV. Structures of the brainstem, cerebellar peduncles. Coronal sections of the brain – I.

5th **week:**
Practical: Dissecting Room: Anatomy: Dissection of the brain – Part V. Fourth ventricle, rhomboid fossa, circulation of cerebrospinal fluid. Cerebellum.

6th **week:**
Practical: Dissecting Room: Anatomy: Dissection of the brain – VI. Coronal sections of the brain – II. Spinal cord.

7th **week:**
Practical: Dissecting Room: Anatomy: Dissection of the brain – In situ I. Demonstration: trigeminal nerve, trigeminal ganglion; facial nerve

8th **week:**
Practical: Dissecting Room: Anatomy: Dissection of the brain – In situ II. Demonstration of the oculomotor, trochlear, abducent, glossopharyngeal, vagus, accessory and hypoglossal nerves.

9th **week:**
Practical: Dissecting Room: Anatomy: Consultation – I.

10th **week:**
Practical: Dissecting Room: Anatomy: Sensory organs – I. Structures of the ear, n. VIII.

11th **week:**
Practical: Dissecting Room: Anatomy: Sensory organs – II. Structures of the eye and orbita

12th **week:**
Practical: Dissecting Room: Anatomy: Consultation – II.

13th **week:**
Practical: Dissecting Room: -

14th **week:**
Practical: Dissecting Room: Anatomy: Consultation - III. (open lab)

Requirements

1. Signature of the semester

Neurobiology is delivered by teachers of the Department of Physiology and the Department of Anatomy, Histology and Embryology. The administrative duties of the course is managed by the Department of Physiology.
Attendance of the practicals are compulsory. The course director may refuse to sign the semester if a student misses more more than five practicals. 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 II.
In order to pass the course successfully students are advised to use textbooks (below), lectures and notes taken during the practical classes. The actual information concerning this course can be find on the e-Learning website of the faculty of Medicine or on the web site of dept. of Physiology.

2. Evaluation during the semester
None

3. Examination
Laboratory practical knowledge of the students will be tested at the end of the semester as part of the Practical Exam. The Practical Exam is evaluated by grade between 1 (fail) and 5 (excellent).

For more details of the Practical Exam see the website of the Department of Physiology.

In case student could not obtain AW5 grade, the Department will provide one exam chance for practical part in the active semester. The practical grade cannot be improved during the exam period.

Division of Dental Biochemistry

Subject: **BIOCHEMISTRY II.**
Year, Semester: 2nd year/2nd semester
Number of teaching hours:
Lecture: **48**
Seminar: **22**

1st **week:**
Lecture: Gene expression I: Levels of eucariotic gene expression. The active chromatin. Regulation of transcription. Regulation at the mRNA level.

2nd **week:**
Lecture: Gene expression II: Translational regulation. Posttransational events. Gene therapy. Biochemistry of cell proliferation I: Mitotic cascade. M-phase kinase. Products and biochemical function of protooncogenes. Mechanism of oncogene formation.

3rd **week:**
Lecture: Biochemistry of cell proliferation II: Tumor suppressor genes and their biochemical function. Biochemical features of terminal differentiation. Biochemistry of programmed cell death.

4th **week:**
Lecture: Signal transduction I: Signal Term and levels of regulation. Significance and interrelationship between metabolic, cytokine, hormonal and neuronal regulation. Forms of external signals. Receptors and transducers. Systems increasing the sensitivity of regulation: allosteria, substrate cycle, interconversion cycle, cascades. Signalling pathways of nonpenetrating signals. Ionchannel receptors. Seven transmembrane domain receptors G proteins and GTP-ases. The adenylate cyclase and the phospholipase C signalling pathway. G proteins and GTP-ases. The adenylate cyclase and the phospholipase C signalling pathway. Control of enzyme activity. Other phospholipases. cGMP phosphodiesterase 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.

5th **week:**
Lecture: Signal transduction II: Cell death receptors. Signals acting via cytoplasmatic targets: the NO system. Coupling of signalling pathways to the regulation of genes and to the actin filament movement. Nuclear receptors. Signal crosstalks.
Iron and hem metabolism I: Iron transport, storage and distribution in the human body. Molecular regulation of the iron level in cells: stability of transferrin receptor and ferritin mRNA, IRE binding protein. Risk of the free iron and intracellular hemolysis.

6th **week:**
Lecture: Iron and hem metabilism II: Uroporphynoids, hem-proteins. Synthesis of hem, regulation of the synthesis in eukariotic cells. Degradation of hem: formation, conjugation and excretion of bile pigments. Hem oxygenase. Disorders in hem metabolism. Hemolobine and inflammation: Biochemistry of the blood. Metabolism of red blood cells. Genetic diseases leading to haemolysis. Hemoglobin; structure, function and regulation. Pathological forms of hemoglobin. Specific biochemical reactions of leukocytes. Leukocytes and inflammation. Serum proteins.
Self Control Test

7th **week:**
Lecture: Biochemistry of blood clotting I: Cellular, humoral and vascular aspects of blood clotting. Structure, activation, adhesion and aggregation of thrombocytes. Classification of blood clotting factors and their role. Factors depending on vitamin K. Contact phase of blood coagulation. Blood clotting in the test tube and in the body.

8th **week:**
Lecture: Biochemistry of blood clotting II: Classification of blood coagulation. Role of thrombocytes and the vascular endothel. Limiting factors inhibitors and activators of blood coagulation. Fibrinolysis.
Biochemistry of the liver I: Biotransformation.

9th **week:**
Lecture: Biochemisry of the liver II: Biochemical consequences of ethanol consumption. Biochemistry of the sport: Biochemistry of the cytoskeleton. Proteins of myofibrils. Molecular mechanism for the generation of force. Metabolic fuel of muscle.

Metabolism of muscle in various work load. Effect of exercise. Special metabolism of the muscle.

10th **week:**
Lecture: Biochemistry of the extracellular matrix: function and components. Glucosaminoglycans and proteoglycans. Collagens: structure, function and genetic origin. Synthesis of type I. collagen. Macromolecular organization of collagen monomers. Disorders in the synthesis of collagen. Collagenases. Structure and function of elastin. Elastase. Structure and functional domains of fibronectins. Plasma and tissue fibronectins, genetic background: alternative splicing. Receptors of fibronectins: integrins and other type of receptors. Role of fibronectins. Other adhesion proteins (laminin, entactin, thrombospondin, von Willebrand factor, tenascin, etc).
Neurobiochemistry I: Blood-brain barier and the transport processes in the CNS

11th **week:**
Lecture: Neurobiochemistry II: Metabolical processes in the CNS, synthesis of neurotransmitters. Enzymathic processes in the production and degradation of neurotransmitters. Metabolism of the central nervous system, energy prodocing pathways of neurons.

12th **week:**
Lecture: Neurobiochemistry III: Biochemical background of Alzheimer disease and bichemical bases of its therapy. Dentist biochemistry: Molecular determinant of tooth development. Molecular determinants expressed during molar tooth development. Cytodifferentiation during tooth development. Odontoblast differentiation. General interpretation of interactions of mesenchymal cytodifferention for epithelial cells. Growth factors and hormone-like molekules influence dentin and enamel biomineralization. Function of salivary gland, salivary secretation and its neural and hormonal control, signal transduction pathways. Functions of salivary proteins. Biochemical mechanism of plaque and salivary calculus formation Composition of saliva: inorganic, organic and macromolecules. Saliva-bacterium interactions in oral microbial ecology. Pathobiochemical effects of salivary molecules degradation.
Self Control Test

Requirements

Requirements for signing the semester: attendance in seminars.

Required knowledge from Biochemistry II.: topics of cell-and organ biochemistry presented at the lectures (slides are available at the https://elearning.med.unideb.hu website, login with your University ID and password) and topics discussed in the seminars.

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

On the **seminars** 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 have got signature previously). Only those students can collect seminar bonus points, who don't miss more than three seminars (in case of repeaters, too). 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. Control tests consist of single- and multiple choice test questions. Bonus points earned by seminar activity will be added to the total points collected during the semester. 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. 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 website (http://bmbi.med.unideb.hu, login 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
Secretion of saliva, chewing, swallowing

2nd **week:**
Lecture:
Motor functions of the gastrointestinal tract
Exocrine functions of stomach, pancreas, liver and intestines
Absorption of nutrients

3rd **week:**
Lecture:
Food intake and its regulation
Energy balance, Regulation of body temperature
Quantitative description of kidney functions

4th **week:**
Lecture:
Glomerular filtration
Tubular transports
Urinary concentration & dilution

Self Control Test

5th **week:**
Lecture:
Water-balance, osmoregulation
Control of body fluid volume
Acid-base balance

6th **week:**
Lecture:
Acid-base disturbances, Calcium homeostasis I.
Calcium homeostasis II; Physiology of bone
K+-homeostasis, Micturition

7th **week:**
Lecture:
General principles of endocrinology
Hypothalamus-pituitary system , Growth hormone
The thyroid gland

8th **week:**
Lecture:
The hormones of adrenal cortex
The hormones of adrenal medulla
The hormones of pancreatic islets

9th **week:**
Lecture:
Regulation of pancreatic islet function
General principles in the regulation of gonadal functions
Female & Male gonadal functions

Self Control Test

12th **week:**
Self Control Test

Requirements

1. Signature of the semester
Attendance of lectures and seminars is compulsory. The signature of the semester may be refused for the semester in case of more than three absences from the seminars Completion of a missed seminar with a different group is not possible.
In cases of more than 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 maters, 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 2018/2019 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 2018/2019 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 one had an offered grade and it was improved, then the conversion is: 2: 69%; 3: 79%; 4: 89%, and 5: 100%.
- If the examination was attempted because no mark 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 Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS III.: PROPEDEUTICS AND TECHNOLOGY OF TOTAL AND PARTIAL REMOVABLE DENTURES**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **37**

1st **week:**
Lecture: Anatomical and final impression taking. Clinical anatomy
Practical: Impression taking in the phantom lab.

2nd **week:**
Lecture: Functional cast
Practical: Clinical anatomy. Planning the borders of the denture.

3rd **week:**
Lecture: Centric relation position
Practical: Video of a final impression and CR's measurement.

4th **week:**
Lecture: Total denture's try-in. Total denture's correction. Instructing patients with dentures.
Practical: Practice of final impression.

5th **week:**
Lecture: Reasons and consequences of tooth loss. Classification of the RPD
Practical: Measuring the centric relation.

6th **week:**
Lecture: Parts of the RDP, and their function
Practical: Repeater practice.

7th **week:**
Lecture: Support and anchorage of the denture.
Practical: Repeater practice.

8th **week:**
Lecture: Clasp retention, casted clasps
Practical: Try-in denture.

9th **week:**
Lecture: Clinical phases of the RDP fabrication I
Practical: Impression taking for RPDs.

10th **week:**
Lecture: Clinical phases of the RDP fabrication II
Practical: Total renture's try-in. Total denture's correction at the first control appointment.

11th **week:**
Lecture: Combined dental prosthesis I
Practical: Planning of an RPD on a cast. Factors of RPD's planning.

12th **week:**
Lecture: Combined dental prosthesis II
Practical: Repeater practice.

13th **week:**
Lecture: Broken denture reparation
Practical: Repeater practice.

14th **week:**
Lecture: Consultation
Practical: Repeater practice.

Requirements

Conditions of signature in the lecture book:
Active participation in the practices, the fulfillment of practical requirements. The ratio of missed practices cannot exceed 20%. All the missed practices must be certified. There is no possibility to compensate for missed practices.
Assessment: oral ESE. One must pass the online entrance test in order to continue to the oral exam.

Subject: **INTRODUCTION TO PROSTHODONTICS IV.: ODONTOTECHNOLOGY I.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **10**
Practical: **37**

1st **week:**
Lecture: Custom tray, functional cast
Practical: Custom tray fabrication

2nd **week:**
Lecture: Tooth setup. Denture processing
Practical: Occlusal rims fabrication

3rd **week:**
Lecture: Clasp retention
Practical: Mounting into articulator

4th **week:**
Lecture: Laboratory phases of partial removable denture I
Practical: Tooth setup

5th **week:**
Lecture: Laboratory phases of partial removable denture II
Practical: Denture processing

6th **week:**
Lecture: Broken denture reparation
Practical: Denture processing

7th **week:**
Lecture: Combined dental prosthesis I
Practical: Polishing / Cast fabrication

8th **week:**
Lecture: Combined dental prosthesis II
Practical: Surveying / Pre-duplicating

9th **week:**
Lecture: Combined dental prosthesis III
Practical: Duplicating

10th **week:**
Lecture: High-tech in dentistry
Practical: RPD's wax pattern

11th **week:**
Practical: Spruing / Investing

12th **week:**
Practical: RPD metal framework processing

13th **week:**
Practical: RPD metal framework finishing / Polishing

14th **week:**
Practical: Broken denture fixing

Requirements

Conditions of signature in the lecture book:
The amount of missed practices cannot exceed 3 practices, even if they are certified. All the missed practices must be certified. There is no possibility to compensate for missed practices. Being late for a practice means a missed practice. A missed practice means 'not-accepted' practice automatically, and a ‘not-accepted’ practical self-control test.

Practical self-control tests will be held before each practices in tablet or written form. The evaluation of a practical self-control test can be ‘accepted’ or 'not-accepted'. A missed practice means a ‘not-accepted’ practical self-control test. If the amount of the 'not-accepted' practical self-control tests exceeds 4, the signature will be refused automatically.
During the practices wearing a lab coat is compulsory.

Conditions of offered mark:
Two 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 13th or 14th week of the semester. 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 average of 3,50, (3,50-4,0 good; 4,50-5 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.

Assessment: ESE

Department of Basic Medical Sciences

Subject: **CLINICAL BIOCHEMISTRY I.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **8**
Practical: **6**

1st **week:**
Lecture: 1. Introduction: pathobiochemistry, clinical chemistry, laboratory diagnostics
2. Different levels of laboratory diagnostics (reference values, requesting test, interpretation of results)

2nd **week:**
Lecture:
3. Laboratory aspects of investigating human disorders
4. Pathochemistry and laboratory signs of cell damage

8th **week:**
Practical: Hematology I. Blood collection, anticoagulants. Preparation of a blood smear, staining.

11th **week:**
Lecture: 5. Blood group serology, biochemistry, inheritance, antigens and antibodies of AB0 blood group system
6. Biochemistry, inheritance, antigens and antibodies of Rh blood group system and its

clinical significance. Compatibility testing.

12th **week:**
Lecture:
7.Other blood group system (Kell, Kidd, Duffy, MN, Ss, Ii). Regulation of transfusion
8. Blood products.

Practical: Determination of AB0 and Rh blood groups.

13th **week:**
Practical: Detection of irregular antibodies, antibody screening, compatibility testing.

Requirements

Participation in practices is obligatory. In case of further absences practices should be made up for by attending the practicals with another group on the same week, or a medical certificate needs to be presented. Please note that strictly only a maximum of 2 students are allowed to join another group to make up for an absence.

Requirements for signing the Lecture book: The Department may refuse to sign the Lecture book if the student is absent from practices.

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: **HUNGARIAN LANGUAGE III/1.**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Practical: **28**

1st **week:**
Practical: Introduction, orientation

2nd **week:**
Practical: The tooth / A fog anatómiája

3rd **week:**
Practical: The oral cavity / A szájüreg anatómiája

4th **week:**
Practical: Numbering / A fogak számozása

5th **week:**
Practical: Dental materials / Fogászati anyagok

6th **week:**
Practical: Dental tools / Fogászati eszközök

7th **week:**
Practical: Dental specialists / Fogászati szakterületek

8th **week:**
Practical: MIDTERM ORAL TEST

9th **week:**
Practical: Dental problems / Fogak betegségei, tünetek

10th **week:**
Practical: General history taking / Általános anamnézis

11th **week:**
Practical: Dental history taking / Fogászati anamnézis

12th **week:**
Practical: Instructions / Utasítások a betegnek

13th **week:**
Practical: Complaints / Panaszok

14th **week:**
Practical: End term oral exam, evaluation, grades

Requirements

Requirements of the course:

Attendance

Attending language classes is compulsory. If a student late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions. If they miss 6 occasions, the final signature will be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week with their own teacher in case they bring a certificate from the doctor to the class. 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 a listening and 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)

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

Subject: **IMMUNOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Seminar: **28**

1st **week:**
Seminar: Elements of the immune system. The structure of lymphoid tissues, primary and secondary lymphoid organs.

2nd **week:**
Seminar: Components and cells of the innate response. Characteristics and function of the innate immune response.

3rd **week:**
Seminar: 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.

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.
Self Control Test

9th **week:**
Seminar: The development of immunological memory. Immunotolerance. Tumor immunology, tumor immunotherapy.

10th **week:**
Seminar: The immune response to intracellular pathogens. The immune response to extracellular pathogens. Oral inflammatory diseases..

11th **week:**
Seminar: hypersensitivity reactions, allergy.

12th **week:**
Seminar: Mechanisms of the development of autoimmune diseases.

13th **week:**
Seminar: Oral manifestation of autoimmunse diseases.

14th **week:**
Seminar: The molecular basis of antigen recognition by B and T-lymphocytes. B and T cell development.
Self Control Test

Requirements

Signing of the Lecture Book:
Participation in the Seminars is compulsory. The Department shall refuse to sign the students' Lecture book if he/she is absent from more than three seminars during semester. However, students can make up for a missed seminar with another group; yet, only on the same week. Making up for a seminar should be communicated to both seminar teachers prior to the seminar.
Self control tests (SCTs), offered grades, end-term exam:
During the semester two self control test (SCT) will be organised (weeks 8 and 14).
The first SCT contains the material of seminars on weeks 1-7. To ensure a solid basic knowledge of immunology, students must score higher than 60% to qualify for the 2nd SCT, hence for an offered

grade.
The 2nd SCT contains the material of seminars on week 8-14.
If a student's score for the first SCT is higher than 60% and is higher than 50% for the 2nd SCT, she/he will be offered a grade. Should student accept this offered grade, she/he will be exempted from the end-term exam.
The offered grades are calculated by the following algorithm, based on the cumulative percentage points of the two SCTs (i.e. 200 points maximum).

110 - 139: pass (2)
140 - 159: satisfactory (3)
160 - 179: good (4)
180 - 200: excellent (5)

Those students who have not qualified for an offered grade must take the end-term exam during the exam period. The end-term exam consists of a written and an oral part.
"A" exam: To qualify for the oral part of an "A" exam, students must score higher than 70% on the written (entry) exam. Students who score less than 70% on the written part will fail (thus, the oral exam will not take place).
"B" exam: "B" exams are identical to "A" exams except when the student failed the oral, but not the written, part of the "A" exam. With a score of higher than 70% on the written part of the "A" exam, the student is exempt from the written exam on the "B" exam.
"C" exam: "C" exams are oral exams only, without a written entry test.
Those students who would like to improve the grade of a successful ("A" or "B" exam) or do not accept the offered grade, are also exempted from the entry test.
The list of exam topics is available on the departmental website (www.elearning.med.unideb.hu).
Lecture materials and other information concerning education can be found on our website at www.elearning.med.unideb.hu.

Department of 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

Department of Restorative Dentistry

Subject: **ORAL BIOLOGY**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Lecture: **14**
Seminar: **14**

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

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

3rd **week:**
Lecture: Dentinogenesis.
Seminar: The fibers 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. Vitamins
Seminar: Metabolism of fluoride. Toxic effects of fluoride

14th **week:**
Lecture: Theories of aging. The aging mouth
Seminar: Effects of aging 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: **14**
Practical: **42**

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 Fantom head. Practice in drilling. Positions.

2nd **week:**
Lecture: Class I. cavity preparation. for amalgam restoration. Lower and upper premolars and molars.
Practical: Introduction of dental materials. Mixing, insertion and usage of the dental materials in practice.

3rd **week:**
Lecture: 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., IV., 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: Amalgam and composite restorations in real teeth. Removal of the caries.

14th **week:**
Lecture: Diagnostic possibilities of dental caries.
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 one written test that takes place during a lecture. The self-control tests cannot be repeated only with an adequate proof in a given time. There can be more tests without any previous notification during the practices. The results of these impact on the evaluation of the daily work. The result of any missed test conclude to failure (1). The result cannot be improved.
• The practices start and finish in accordance with the timetable, arriving late is not allowed.
• Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
• Missed classes cannot be more than 20% of the total practice classes.
• A certification is required for any absences which has to be handed to the leader of the

practice course.
• Missed classes cannot be made up for.
• At the end of each practical, student's work is evaluated with a grade. For signing 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 14th week student is required to take a practical exam.

Grade formation:
• The average of the grades of the 14 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.

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 infections.

9th **week:**
Lecture: 17. The structure and classification of viruses.
18. Replication strategies of viruses.

Practical: Viral infections of relevance to dentistry I.

10th **week:**
Lecture: 19. Host 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. Fungal stucture. Candida
28. Antifungal drugs. Protozoa
Practical: Case reports of infections with dental importance

Requirements

Participation in the practical courses is obligatory. The Department may refuse to sign the students' Lecture book if they are absent from more than two practices or seminars in a semester. At the end of the semester the student is required to take a final examination (consisting of a written entry test and an oral examination) based on the whole material (lectures, practices and book) taught in the Dental Microbiology course.

Subject: **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 pancreas 4. 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: - Characteristics 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 salpingitis 25. 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

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 13th week (computerized) written exam, 14th week practical and histopathological 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 85% to pass this part of the exam. In the 2nd semester the questions comes from the 1st and the 2nd semester.
During the computerized histopathology exam the students get 6 slides, and has to reach 85% to pass this part of the exam.
The practical exam takes place in the autopsy room. An acceptable result in the practical exam is mandatory to apply for the oral part.
During the theoretical exam 2 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, histopathological(14th 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). 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
https://elearning.med.unideb.hu/

Department of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS V.: PROPEDEUTICS AND TECHNOLOGY OF FIXED PROSTHODONTICS**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **37**

1st **week:**
Lecture: Tooth preparation for bridges. Insertion direction. Evaluation of abutment teeth. Prosthetic value of abutment teeth.
Practical: Preparation for bridge (molar and premolar). Alginate impression of antagonist arch.

2nd **week:**
Lecture: Impression making for fixed prosthesis I.
Practical: Preparation for bridge. Alginate impression.

3rd **week:**
Lecture: Impression making for fixed prosthesis II.
Practical: Preparation for bridge.

4th **week:**
Lecture: Provisional restorations I.
Practical: Preparation for bridge. Impression making of preparation arch.

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

6th **week:**
Lecture: Framework try in and biscuit probe of fixed prosthesis.
Practical: Making of provisional crown.

7th **week:**
Lecture: Cementation. Removal of fixed prosthesis.
Practical: Preparation for bridge and crown

8th **week:**
Lecture: Post and core restorations I.
Practical: Preparation for bridge.

9th **week:**
Lecture: Post and core restorations II
Practical: Preparation for bridge. Impression making of preparation arch.

10th **week:**
Lecture: Indirect inlay, onlay, overlay restorations.
Practical: Post and core restorations made with direct and indirect techniques.

11th **week:**
Lecture: Treatment planning of combined prosthesis I. Clasp holder crowns.
Practical: Preparation for inlay restoration in molar tooth

12th **week:**
Lecture: Treatment planning of combined prosthesis II. Precision attachments.
Practical: Preparation for bridge and crown.

13th **week:**
Lecture: Complex practice workflow. Infection control in the clinical office.
Practical: Preparation for bridge and crown.

14th **week:**
Lecture: Consultation
Practical: Preparation for bridge and crown.

Requirements

Conditions of signature in the lecture book:
Each practice will be evaluated as accepted or non-accepted. See details at the "practice evaluation" chapter.
If the number of non-accepted practices exceeds 4, the signature will be rejected. In this case the subject cannot be completed during the semester.

- After 3 non-accepted practices, the student will be given a documented oral notification.
- After 4 Non-accepted practices the student will be given a written notification from the department.

We do not tolerate lateness for practices.

- The door of the phantom room is going to be locked in the beginning of the practice.
- Being late means that the student is not inside the phantom room when the practice supposed so start.
- Regarding lateness due to overlapping classes, please see the Department.
- We cannot provide opportunity to make up for a missed practice.

Absences must be certified. The amount of absences cannot exceed two practices.

Practice evaluation, practical work grading:
Practices between week 1 and 5 will be dedicated to practice tooth preparation. Practical work will be evaluated on week 6-14 as accepted or non-accepted. There can be written and/or oral questions during any practice.
The following preparation mistakes (if any of them is present) will result non-accepted practical evaluation:

- Undercut preparation
- Diverging preparation form
- Definite destruction of the tooth
- Impossible to seat a restoration on the tooth or teeth
- That degree of over reduction of tooth which would causes complications in clinical circumstances (endodontic treatment, require of dowel core restoration, the restoration fall off again and again)

The practice is not-accepted if the student is late. The practice is not-accepted if the student is absent, even if he/she has a certificate. The practice is not-accepted if the theoretical knowledge of the student does not meet the minimal requirements. The practice is not-accepted if the manual work of the student does not meet minimal requirements. The practice is not-accepted if the student is ordered to leave the practice due to any behavioral issues.

Assessment:
Final exam covering the topics of Introduction to Prosthodontics I-VI. The exam starts with an online (tablet) entrance test. Students must complete the entrance test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is "fail"(1). (In case of a repeated retake (C) exam the final (oral) exam will be held in the presence of an exam committee, even if the student failed the entrance test.)

Entrance test:
The entrance test consist of questions from the six subjects (Introduction to Prosthodontics I-VI.)
Type of the questions:

- Simple choice

- Multiple choice
- Relation analysis
- Short essay, typed on tablets

Any of the questions may include diagrams, drawings and photographs. When writing the test, students may move back and forth freely between the questions. Each question is worth one score. Different scoring will be indicated clearly. The length of the tests is calibrated to compensate any unexpected technical problem occurring during the test. To prevent cheating or behavior problems, the tests will be recorded by the camera set up in the lecture halls. All electronic devices (smartphone, Bluetooth, etc.) are forbidden during the test. If the student is caught using any devices (even if you are finished) the test will be invalid. Further actions may also be taken. Data transfer of the tablets are recorded by the University. Taking pictures of the questions is forbidden. During the tests nobody can call the teacher regarding problems with the questions. If you have any problems with the question you can use the "mark this question" button next to the question. If there is a reasonable problem, the Department will remove that question during grading.

Subject: **INTRODUCTION TO PROSTHODONTICS VI.: ODONTOTECHNOLOGY II.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **10**
Practical: **37**

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: High-tech technology in dental laboratory
Practical: Sprue placement

9th **week:**
Lecture: Technology of aesthetic covering of metal framework
Practical: Burn out, casting

10th **week:**
Lecture: Consultation
Practical: Cleaning the casting, sandblasting

11th **week:**
Practical: Processing of the metal framework

12th **week:**
Practical: Processing of the metal framework

13th **week:**
Practical: Ceramic covering of metal framework

14th **week:**
Practical: Ceramic covering of metal framework

Requirements

Conditions of signature in the lecture book:
The amount of missed practices cannot exceed 3 practices, even if they are certified. All the missed practices must be certified. There is no possibility to compensate for missed practices. Being late for a practice means a missed practice. A missed practice means 'not-accepted' practice automatically, and a ‘not-accepted’ practical self-control test.

Practical self-control tests will be held before each practices in tablet or written form. The evaluation of a practical self-control test can be ‘accepted’ or 'not-accepted'. A missed practice means a ‘not-accepted’ practical self-control test. If the amount of the 'not-accepted' practical self-control tests exceeds 3, the signature will be refused automatically.
During the practices wearing a lab coat is compulsory.

Assessment:
Final exam covering the topics of Introduction to Prosthodontics I-VI. The exam starts with an online (tablet) entrance test. Students must complete the entrance test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is “fail”(1). (In case of a repeated retake (C) exam the final (oral) exam will be held in the presence of an exam committee, even if the student failed the entrance test.)

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) theorie. 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, voluntariness. 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. Platelet function disorders.

2nd **week:**
Lecture: 4. Inherited thrombophilias
5. Acquired thrombophilias
6. Prethrombotic state, thromboembolias, consumption coagulopathies
Practical: Laboratory diagnostics of coagulopathias

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

4th **week:**
Practical: Laboratory diagnostic of Thrombophilia. Laboratory monitoring of anticoagulant therapy.

6th **week:**
Lecture:

7. Pathogenesis and pathomechanism of diabetes mellitus
8. Pathobiochemistry and clinical biochemistry of the acute complications of diabetes mellitus
9. Laboratory diagnostics of diabetes mellitus

8th **week:**
Lecture:
10. Laboratory diagnostics of acute coronary syndrome I.
11. Laboratory diagnostics of acute coronary syndrome II.

9th **week:**
Practical: Laboratory investigation of cerebrospinal fluid and other body fluids.

Requirements

Participation in practices is obligatory. In case of further absences practices should be made up for by attending the practicals with another group on the same week, or a medical certificate needs to be presented. Please note that strictly only a maximum of 3 students are allowed to join another group to make up for an absence.

Requirements for signing the Lecture book: The Department may refuse to sign the Lecture book if the student is absent from practices.

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: **DOSIMETRY, RADIATION HEALTH EFFECTS**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Seminar: **24**

1st **week:**
Seminar: Types and origin of ionizing radiation
Interactions of charged particles with matter

2nd **week:**
Seminar: Interactions of electromagnetic radiation with matter
Detection of X-ray, gamma and beta radiation by inducing light

3rd **week:**
Seminar: Gas ionization detectors
Dose concepts and dosimeters

4th **week:**
Seminar: Consultation: physics of ionizing radiation
How to use dosimeters (practice)

5th **week:**
Seminar: Biological effects of radiation
Forms of radiation injury

6th **week:**
Seminar: Constituents of population dose
Radiation protection rules, dose limits

7th **week:**
Seminar: How to work with unsealed

radioactive preparations?
Protection against external radiation

8th **week:**
Seminar: Classification and equipment of workplaces applying ionizing radiation
How to work with X-ray devices?

9th **week:**
Seminar: Radiation protection of patients
Consultation: radiation biology and protection

10th **week:**
Seminar: Operations in case of nuclear/radiological incidents bookkeeping
Supervision by the authorities

11th **week:**
Seminar: Radiation protection in a CT lab
Demonstration of the radiation protection system

12th **week:**
Seminar: Requirements for staffing
Consultation, exam
Self Control Test

Requirements

Attendance of at least 75% of the seminars. Usable understanding of the basic physical phenomena, the concepts of radiation effects and protection, as well as the regulations and practical solutions is required.
Chance "A" is a computer-based exam. Chance "B" and "C" are oral.
Electronic materials:
https://elearning.med.unideb.hu/course/view.php?id=707

Subject: **HUNGARIAN LANGUAGE III/2.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Practical: **28**

1st **week:**
Practical: Introduction, orientation

2nd **week:**
Practical: Pediatric dentistry / Gyermekfogászat

3rd **week:**
Practical: Pediatric orthodontics / Gyermekkori fogszabályozás

4th **week:**
Practical: Before treatment / Kezelés előtt

5th **week:**
Practical: Filling / Tömés

6th **week:**
Practical: Bleeding gum / Vérző íny

7th **week:**
Practical: Calculus / Fogkő

8th **week:**
Practical: MIDTERM TEST

9th **week:**
Practical: Crown, bridge /Korona, híd

10th **week:**
Practical: Extraction / Foghúzás

11th **week:**
Practical: Rootcanal treatment / Gyökérkezelés

12th **week:**
Practical: Restorations / Protézis, műfogsor

13th **week:**
Practical: Dental check-up / Fogászati ellenőrzés

14th **week:**
Practical: ENDTERM ORAL EXAM, Evaluation, grades

Requirements

Requirements of the course:
Attendance

Attending language classes is compulsory. If a student late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions. If they miss 6 occasions, the final signature will be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week. with their own teacher in case they bring a certificate from the doctor. 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 a listening and two oral exams.

A further minimum requirement is the knowledge of 200 words per semester divided into 10 word quizzes. There are five word quizzes before and another five after the midterm test. If 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)

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

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: 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:

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)
Test (offered grade)

Requirements

Course objectives

The aim of the course is to familiarize with traditional and modern imaging techniques used in general medicine and dental practice.

Short description of the course

During the course students will get acquainted with traditional general and dental X-ray equipment and techniques (X-ray, UH, CT, MRI), new digital radiography and dental applications, dosage concepts and radiation protection regulations.

Compulsory literature

White, Pharoah: Oral Radiology, Principles and Interpretation (Mosby 2014) ISBN: 978-0-323-09633-1
Essentials of Dental Radiography and Radiology, 5e 5th Edition by Eric Whaites, Nicholas Drage, Elsevier 2013
Exam Type: ESE
Written examination in the form of an electronic test / tablet.

Subject requirements:

The attendance on lectures is not obligatory, but recommended. Participation in seminars is compulsory. It is not possible to make up the absences. Absences shall be verified, the rate of absences shall not exceed 20%.

Information for repeaters

In case of a valid signature from the previous academic year the attendance on seminars is not obligatory, if requested. The request shall be given in to the Educational Secretariat no later than the last working day of the semester's first week.

Conditions for signing the lecture book

If the absence from seminars exceeds 20% (3 seminar days - but, the maximum of each two-two occasions for general and dental radiology) the signature of the lecture book shall be refused.

Final grade

An offered grade will be given by writing an electronic test in the last week at the time appointed by the Department (lecture, seminar or predetermined time). The material asked on the test consists of the lectures, seminars and official textbook.

The electronic test is evaluated as follows:

0-60%	failed		(1)
61-70%	passed	(2)	
71-80%	satisfactory	(3)	
81-90%	good		(4)
91-100%	excellent	(5)	

In case of a failed grade, an oral exam may be accomplished during the examination period with the topics issued by the Department.

Subject: **MEDICAL PSYCHOLOGY II.**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **20**
Practical: **10**

1st **week:**
Lecture: Health and medical psychology: definition, models, the bio-psycho-social model.
Seminar: The role of psychology in medical practice.

2nd **week:**
Lecture: Seeking professional help (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

Evaluation: third year students should pass “End of Semester Examination” (ESE) at the end of the first semester. The Department of Behavioural Sciences will adhere to the requirements of the

General Academic Regulations and Rules of Examinations. The student must be present and the examination at the designated time. (He/she must explain the reason for any absence from the examination to the Departmental Adviser within 1 days of the day of examination.)
The final mark is the average of the seminar and the lecture results. Both how to be to better than fail (1) to pass the ESE.

Department of Dentoalveolar Surgery

Subject: **ORAL SURGERY PROPEDEUTICS**
Year: 3rd
Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture:14
Practical:28

Lecture: Asepsis, antisepsis, sterility, sterilization in oral surgery
Practical: X-ray and other imaging techniques in oral surgery

4th **week:**
Lecture: Local anaesthetics, pharmacology
Practical: Patient examination at dentoalveolar outpatient department

5th **week:**
Lecture: Introduction of the local anaesthetic methods
Practical: Local anaesthetic methods at dentoalveolar outpatient department

6th **week:**
Lecture: TEST 1.
Practical: Practice of examination, local anaesthesia, and instruments at dentoalv. outpatient dept
Self Control Test

7th **week:**
Lecture: Complications of local anaesthesia
Practical: Practice of examination, local anaesthesia, and instruments at dentoalv. outpatient dept

8th **week:**
Lecture: Indications and techniques of dental extraction
Practical: Practice of examination, local instruments
Self Control Test

11th **week:**
Lecture: Basic techniques in oral surgery I- II.
Practical: Practice of techniques of examination and local anaesthesia, dental extraction, instruments

12th **week:**
Lecture: Importance of systemic diseases, medical emergencies and first aid in the dental office
Practical: Practice of techniques of examination and local anaesthesia, dental extraction, instruments

13th **week:**
Lecture: TEST 3.
Practical: Practice of techniques of examination and local anaesthesia, dental extraction, instruments
Self Control Test

14th **week:**
Lecture: Final consultation. Remedial test
Practical:
Practice of techniques of examination and local anaesthesia, dental extraction, instruments
Self Control Test

Requirements

REQUIREMENTS:

Conditions of signature in the lecture book: Students are required to attend the practices. Lectures: As given in the timetable (time and place) Practices: In the building of the Faculty of Dentistry Conditions of signature in the lecture book: Active participation in the practices (there is no possibility to compensate for missed practices). Being late from the practices and lectures is not permitted. Every student has to participate in the practices in their preassigned groups. There is no possibility to switch between the practical groups. With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 20%, even if it is certified Only one absence may be accepted from the obligatory lectures, in case of more absences the semester won't be accepted. If the result is „fail" on two tests out of the three that is written during the semester, the lecture book won't be signed. Missed practices and compulsory lectures should be certified in a credible way within three workdays. Assessment: There are three electronical tests during the semester. Missed tests are automatically assessed as fail. If two tests are assessed as 'Fail' out of the total number of three, then the signature will be refused. If the average result of three tests is above

3.51, the student does not have to take the electronic part of the final exam. End Semester Exam End semester exam has three parts: I. electronical part, II. practical part, III. theoretical part. The end semester exam starts with an electronical part, which is considered successful if the result is more than 70%. If this test is not successful, the student can not continue the exam. The electronic part has to be repeated on the B chance as well if the practical part is not successful. Parts of the practical exam are: recognition of instruments, patient examination, demonstration of techniques of local anaesthesia and tooth extraction. The first step of the practical exam is the recognition of 5 instruments, in this part it is not acceptable to make any mistake. If any part of the practical exam is unsuccessful, the whole exam is automatically failed. The practical exam has to be repeated if the result of the previous practical part was unsuccessful. If the electronical and practical parts are successful, but the theoretical is failed, than on the next exam only the theoretical part has to be repeated. On „C" chance exam there is no need to do the electronical part. The results of the written tests can be taken into consideration when deciding on the end semester grade.

Prerequisites: Anatomy II., Odontology, Biochemistry II.

Compulsory lectures:

1st week Anatomy of the maxillofacial region
4th week Local anaesthetics, pharmacology
7th week Complications of local anaesthesia
8thweek Indications and techniques of dental extraction
9thweek 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

Department of Periodontology

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

1st **week:**
Lecture: Sonic and ultrasonic scalers in periodontal treatment
Practical: Clinical periodontal assessment and radiographic analysis of the periodontium

2nd **week:**
Lecture: Decision Making During Treatment Planning for Patients with Periodontal Disease
Practical: Patient's role in nonsurgical periodontal therapy

3rd **week:**
Practical: The role of antiseptic therapy in the management of periodontal diseases

4th **week:**
Practical: Introduction to periodontal maintenance

5th **week:**
Practical: Comprehensive Patient Cases

6th **week:**
Practical: Scaling technique for ultrasonic instrumentation

7th **week:**
Practical: Scaling technique for hand instrumentation

8th **week:**
Lecture: Diagnosis and treatment planning
Practical: Diagnosis of periodontal lesions

9th **week:**
Practical: Treatment planning

10th **week:**
Practical: Case reports 1.

11th **week:**
Practical: Case reports 2.

12th **week:**
Practical: Case reports 3.

13th **week:**
Practical: Case reports 4.

14th **week:**
Practical: Patient' risk assessment
Supportive periodontal therapy

Requirements

The aims and objectives of this course:
- to be able to communicate effectively the impact of local factors on their periodontal health and disease management to the patients.
- be capable of examining, diagnosing, performing risk prediction, treatment planning and managing, in their broadest sense
- to achieve knowledge about periodontal hand scaling instruments in clinical practice
- 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: AW5

Compulsory reading:

- lectures and practices materials (handouts are available)

Prerequisites: Preclinical Periodontology, Biochemistry

Department of Restorative Dentistry

Subject: **RESTORATIVE DENTISTRY PROPEDEUTICS II. (ENDODONTICS)**
Year, Semester: 3rd year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **42**

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 diagnosis. 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:** Written exam **Practical:** Preparation of curved and / or narrow root canals	14th **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. 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 one written test that takes place during a lecture. The self-control tests cannot be repeated only with an adequate proof in a given time. There can be more tests without any previous notification during the practices. The results of these impact on the evaluation of the daily work. The result of any missed test conclude to failure (1). The result cannot be improved.
* The practices start and finish in accordance with the timetable, arriving late is not allowed.
* Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
*** Missed classes cannot be more than 20% of the total practice classes. * A certification is required for any absences which has to be handed to the leader of the practice course.**
* Missed classes cannot be made up for.
* At the end of each practical, student's work is evaluated with a grade. **For signing 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 (14) +
* 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)

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 practising of vein preparation/cannulation, preparation of infusion set, blood sampling and injection techniques (i.m., i.v.) on phantom models. (2 hours)

5th **week:**
Lecture: Surgical incisions. Conicotomy, tracheostomy.
Seminar: Video-demonstration of median/paramedian laparotomy, conicotomy and tracheostomy. (1 hour)
Practical: Conicotomy on phantom model. Wound closure with different suture techniques on surgical training models. Vein preparation/cannulation, preparation of infusion set, blood sampling and injection techniques (i.m., i.v.) on phantom models. (2 hours)
Self Control Test

Requirements

Prerequisite: Oral anatomy, histology and embryology, Dental Physiology II.
The lectures and seminars/practices are built on each other. Consequently, it is difficult to make up the missed classes. The make-up of the first 3 practices is obligatory. Compensation for the missed

seminars should be paid according to the Rules and Regulations of the University of Debrecen. If the student is absent from 2 seminars/practices in a semester (without any acceptable reason), the Department may refuse the signature. Performance is assessed on a five-grade scale (AW5) and is based on the performance over the curriculum and the result of the final test written at the end of the course.

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. Inheredited 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

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 13th week (computerized) written exam, 14th week practical and histopathological 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 85% to pass this part of the exam. In the 2nd semester the questions comes from the 1st and the 2nd semester.
During the computerized histopathology exam the students get 6 slides, and has to reach 85% to pass this part of the exam.
The practical exam takes place in the autopsy room. An acceptable result in the practical exam is mandatory to apply for the oral part.
During the theoretical exam 2 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, histopathological(14th 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). 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
https://elearning.med.unideb.hu/

CHAPTER 19
ACADEMIC PROGRAM FOR THE 4TH YEAR

Department of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **5**
Practical: **105**

1st **week:**
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: 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: **14**
Practical: **10**

1st **week:**
Lecture: Planning and preparation I.

2nd **week:**
Lecture: Planning and preparation II.

3rd **week:**
Lecture: Clinical procedures of fixed prosthodontics I.

4th **week:**
Lecture: Clinical procedures of fixed prosthodontics II.

5th **week:**
Lecture: Clinical procedures of fixed prosthodontics III.

6th **week:**
Lecture: Clinical procedures of fixed prosthodontics IV.

7th **week:**
Lecture: Clinical procedures of fixed prosthodontics V.

8th **week:**
Lecture: Porcelain fused to metal FPDs.

9th **week:**
Lecture: Polimer covered FPDs.

10th **week:**
Lecture: Laboratory procedures I.

11th **week:**
Lecture: Laboratory procedures II.

12th **week:**
Lecture: Laboratory procedures III.

13th **week:**
Lecture: Cements.

14th **week:**
Lecture: Postoperative care.

Requirements

Conditions of signature in the lecture book:
Active participation in the practices (there is no possibility to compensate for missed practices).
The practices begin/end according to the timetable, lateness is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice. The signature in the lecture book will be refused in cases of absence from more than 50% of any special practice. All absences must be certified. One self-control test will be held during the semester based upon the topics of lectures, practices and reading materials, at a date announced later. The result of the self-control test will be offered as the grade of the end of semester exam. This grade can be improved during the exam period.

Assessment:
End of semester examination. The exam starts with an online entrance test. Students must complete

this test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is “failed” (1). The complex, and special practical grades may be considered at the ESE grade.

Department of Orthodontics

Subject: **ORTHODONTICS I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **14**

1st **week:**
Lecture: Subject of orthodontics.
Terminology.
Growth (cephalocaudal gradient)

4th **week:**
Lecture: Cephalometric analysis, face aesthetic.
Diagnosis (occlusion).
Treatment planning.

7th **week:**
Lecture: Self control test.
Tooth movement.
Biomechanics.

10th **week:**
Lecture: Removable appliances 1. (plates).
Removable appliances 2. (functional appliances).
Removable appliances 3. (thermoplastic, combined appliances).

13th **week:**
Lecture: The sequence of tooth eruption.
Treatment timing.
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

Conditions of signing the lecture book:
Active participation in the practices (there is no possibility to compensate the missed practices).
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 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

Department of Basic Medical Sciences

Subject: **DERMATOLOGY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**

1st **week:**
Lecture: Dermatology in oral medicine. Structure of skin.

2nd **week:**
Lecture: Papulosquamous dermatoses

3rd **week:**
Lecture: Drug eruption

4th **week:**
Lecture: Primary and secondary lesions

5th **week:**
Lecture: Skin tumors

6th **week:**
Lecture: Vasculitis. Postthrombotic syndrome

7th **week:**
Lecture: Autoimmune and allergic skin diseases

8th **week:**
Lecture: Photodermatoses. Mycology. Dermatomycoses.

9th **week:**
Lecture: Bacterial skin diseases (tuberculosis, leprosy, pyoderma)

10th **week:**
Lecture: Role of infectious foci, alopecias

11th **week:**
Lecture: Dermatological surgery

12th **week:**
Lecture: STD

13th **week:**
Lecture: Seborrhoic diseases. Local therapy.

14th **week:**
Lecture: Viral dermatoses, epizoonozes

Requirements

- Presence of the students will be recorded (in the form of a presence sheet).
- It is compulsory to attend the lectures (no possibility for compensation).
- Only those missed lectures will be accepted where written notes (medical, legal, etc.) are presented.
- The lecture book will not be signed in case of more than 2 missed lectures.
- During the lectures medical knowledge will be provided which may not be available elsewhere. These topics will be asked during the exams.

- The final exam is an oral exam about theoretical issues.

Subject: **OTOLARYNGOLOGY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Seminar: **14**

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, treshold 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 pharynx.

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: **28**
Seminar: **24**
Practical: **4**

1st **week:**
Lecture: 1. The history, scope and methods of public health and preventive medicine, major public health issues in developing and developed countries
2. Introduction to human ecology
Seminar: 1-2. Demographical methods to study the health status of the population

2nd **week:**
Lecture: 3. Air pollution and health
4. Water pollution and health
Seminar: 3-4. Principles of prevention

3rd **week:**
Lecture: 5. Toxicology of organic solvents and pesticides
6. Health effect of noise and vibration

Seminar: 5-6. Occupational health and safety in dentist practice

4th **week:**
Lecture: 7. Healthy nutrition. Nutritional deficiency disorders
8. Food poisoning

Practical: 1-2. Chemical and microbiological examination of drinking water (laboratory practice for small groups)

5th **week:**
Lecture: 9. Health hazards of ionising radiation and radioactive substances
10. Heavy metals in the human environment
Practical: 3-4. Chemical and microbiological examination of drinking water (laboratory practice for small groups)

6th **week:**
Lecture: 11. The general effect of environmental pollution
12. Socioeconomic determinants, inequality and health

Seminar: 7-8. Mercury toxicity, case study

7th **week:**
Lecture: 13. Lifestyle and health
14. Public health consequences of substance abuse
Seminar: 9-10. Health promotion, Health education

8th **week:**
Lecture: 15. Introduction into the general epidemiology of non-communicable diseases
16. Epidemiology of mental diseases
Seminar: 11-12. Midterm test

9th **week:**
Lecture: 17. Epidemiology of skeletal and dental diseases
18.Epidemiology of neoplastic diseases

Seminar: 13-14. Epidemiological measures and studies

10th **week:**
Lecture:
20. Introduction into the general epidemiology of communicable diseases

Seminar: 15-16. Preventive strategies

11th **week:**
Lecture: 21. Epidemiology of communicable diseases transmitted through the skin and sexually transmitted diseases
22. Infection control and dentistry

Seminar: 17-18. Reporting and control of communicable diseases, vaccination

12th **week:**
Lecture: 23.Epidemiology of chronic respiratory diseases
24. Epidemiology of respiratory infectious diseases

Seminar: 19-20. WHO/HFA database

13th **week:**
Lecture: 25. Epidemiology of viral hepatitis
26. Health policy principles
Seminar: 21-22. Sterilization and disinfection

14th **week:**
Lecture: 27. Health care systems of developed countries
28. Needs, demands and use of health services

Seminar: 23-24. Hospital infection control

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, Organ and Oral Pathology

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

2nd **week:**
Lecture: Surgical treatment of tooth-eruption disorders
Endodontic surgery

3rd **week:**
Lecture: Oral surgical treatment of patients with hemostatic disorders

5th **week:**
Lecture: Odontogenic and non-odontogenic inflammations of the head and neck region and their treatment I.
Odontogenic and non-odontogenic inflammations of the head and neck region and their treatment II.

6th **week:**
Lecture: Antibiotics in oral surgery.
Osteomyelitis of the jaws

8th **week:**
Lecture: Test 1
Pathology and therapy of head and neck cysts I.
Self Control Test

9th **week:**
Lecture: Pathology and therapy of head and neck cysts II.

11th **week:**
Lecture: Diseases of the maxillary sinus and their treatment.
Diseases of the salivary glands and their treatment.

12th **week:**
Lecture: Preprosthetic surgery I.

14th **week:**
Lecture: Test 2.
Dysgnathias and their treatment.
Self Control Test

Requirements

Requirements for signature in the lecture book:

Only one absence is accepted from the obligatory lectures, in case of more absences the semester won't be accepted. Active participation in the special practices, and in the obligatory lectures, delays are not permitted. Students being late cannot join the practice or the lecture. Students should take part in the practice from its beginning to the end. All of the absences (practices and obligatory lectures) should be certified in a credible way within 3 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: During the study period, two electronic tests are written. An unwritten test will be automatically graded as failed. To achieve a passed grade a minimum of 60% is required to reach by the test. By the electronic test it is essential to arrive in time the late-comers are not allowed write the test. No extra date will be given to rewrite the test. During the test loud chatting and announcing the correct answer are strictly forbidden. Those who come to such a misdeed are immediately suspended from their exam and as consequence a failed grade will be given. Great coat, cap, bag, or any electronical devices cannot be kept by the student during the test. Their detection will draw a suspending from the test with it and

the result will be automatically a failed grade. Giving back the tablets are done simultaneously on the sign of the lecturer, until that no one can leave his or her location, otherwise the exam is considered insufficient. If the average of the 2 written tests is less than 1,51, remedial test should be written on the 14th week, the remedial contains the whole material of the 1st semester of the 4th year. Student, who fail to write the remedial test or get a fail, should take an AW5 oral end semester exam in the exam period. If the student fails or does not write the remedial test he/she needs to take an oral exam during the examination period with "B" and "C" chance, which will be evaluated with AW5. If the result of the "C" exam is failed, the course must be repeated. End semester exam contains the material of the 1st and 2nd semester of the 4th year Evaluated with: 5 AW end semester grade End semester exam has two parts: I. electronical part, II. oral exam. The end semester exam starts with an electronical part, which is considered successful if the result is at least 70%. in case of B and C chance exam. If the test is not successful, the student can not continue the exam. If the 1st and 2nd year's test average reaches 70%, the student does not have to take the electronic part of the end semester exam. The first semester's remedial test result will be only needed for the first semester grade calculation, so it does not count into the second semester's final grade. The entrance questions are from Oral Surgery Propedeutics to Oral Surgery I-II. After the inadequate exam, the student can take the B or C exam earliest on the 3rd day.
Prerequisites: Pathology II, Oral Surgery propedeutics

OBLIGATORY LECTURES:

2nd week Endodontic surgery/ Surgical treatment of tooth-eruption disorders
3rd week Oral surgical treatment of patients.with hemostatic disorders
5th 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

Subject: **SURGERY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**

1st **week:**
Lecture: History of surgery. Wounds, wound healing. Asepsis, antisepsis.

2nd **week:**
Lecture: Indications and contraindications of surgery, legal considerations.Surgical infections, antibiotic treatment

3rd **week:**
Lecture: Basics of anesthesiology. Blood transfusion, pathophysiology of bleeding.

4th **week:**
Lecture: Burns and other thermic injuries. Reconstruction after burns.

5th **week:**
Lecture: Basics of gynecology (Dental inflammation and dental anesthesia in pregnancy.)

6th **week:**
Lecture: Bone fractures and their healing. Conservative and operative treatment.

7th **week:**
Lecture: Diseases of the kidneys and urinary tract

8th **week:**
Lecture: Surgical gastroenterology (Stomach, intestines, liver, biliary duct and pancreas). Hernia surgery.

9th **week:**
Lecture: Trauma of the upper and lower extremities; trauma of soft tissue, bones and joints

10th **week:**
Lecture: Diagnostics and treatment of polytraumatized patients. Head, chest and abdominal injuries

11th **week:**
Lecture: First-aid, basics of life support, physiology of shock

12th **week:**
Lecture: Acute abdomen, types of bowel obstruction

13th **week:**
Lecture: Surgical oncology. Endocrine and breast surgery.

14th **week:**
Lecture: End Semester Exam

Self Control Test

Requirements

Students attend 14 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.

Department of Pediatric and Preventive Dentistry

Subject: **PREVENTIVE DENTISTRY II.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Seminar: **14**

1st **week:**
Seminar: Oral status and indices

2nd **week:**
Seminar: Caries risk assessment

3rd **week:**
Seminar: 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 and prosthodontics.

10th **week:**
Seminar: Preventive care in orthodontics.

11th **week:**
Seminar: Preventive care in oral surgery.

12th **week:**
Seminar: Preventive care in periodontology.

13th **week:**
Seminar: Up-to-date preventive methods.

14th **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 calculated 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 as a ‚B' chance.
Calculation of the 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

Department of Periodontology

Subject: **PERIODONTOLOGY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st **week:**
Lecture: Anatomy of the periodontium

2nd **week:**
Lecture: Dental calculus, bacterial plaque and other deposits. Microbiology of periodontal

disease

3rd **week:**
Lecture: The role of bacterial plaque and other local factors in the etiology of periodontal diseases.

4th **week:**
Lecture: Etiology of periodontal disease: the role of systemic factors.

5th **week:**
Lecture: Pathogenesis of periodontal disease I.

6th **week:**
Lecture: Pathogenesis of periodontal disease II.

7th **week:**
Lecture: Clinical diagnosis and treatment plan of periodontal disease in general

8th **week:**
Lecture: Self-control test.

9th **week:**
Lecture: Classification of periodontal disease. Advanced diagnostic methods in periodontology.

10th **week:**
Lecture: Gingivitis: Clinical features and diagnosis

11th **week:**
Lecture: Periodontitis: Clinical features and diagnosis

12th **week:**
Lecture: Emergencies and acute conditions in periodontology

13th **week:**
Lecture: Trauma from occlusion

14th **week:**
Lecture: Advanced diagnostic methods in periodontology

Requirements

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. Lecture book signature will be refused by the second test failure.
Assessment: End of Semester Exam.

Department of Restorative Dentistry

Subject: **RESTORATIVE DENTISTRY I. (CARIOLOGY)**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st **week:**
Lecture: Modern possibilities in dental caries diagnostics.

2nd **week:**
Lecture: Isolation of operative field. Absolute and relative isolation. Rubber dam placement.

3rd **week:**
Lecture: Morphology of the teeth. The physiology of occlusion with special focus on restorative dentistry.

4th **week:**
Lecture: Dental treatments of patients with chronic underlying diseases. Endocarditis prophylaxis. Antibiotics in dental practice.

5th **week:**
Lecture: Special types of cavity preparations: tunnel, box only. Complex preparation for composites in case of a complex caries lesion. Parapulpal pins.

6th **week:**
Lecture: Complex preparation for amalgam restorations. Pins and occlusal coverage with amalgam. Bonded amalgam restorations.

7th **week:**
Lecture: Adhesive technique I. 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.

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: Rest. Dent. Prop. II. (Endodontics), Intro. to Prosthodontics V.: Prop. and Techn. of Fixed Prosthodontics together with Prosthetic Dentistry I.

Special practices (4th 1st semester):
1. Relative and absolute isolation in dentistry.
2. Sensitivity test.

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. Diagnostic procedures in cardiology.
Practical: History taking, physical examination (Department of Internal Medicine building B).

2nd **week:**
Lecture: Acquired valvular and congenital heart diseases.
Practical: History taking, physical examination (Department of Internal Medicine building B)

3rd **week:**
Lecture: Infective endocarditis.
Practical: History taking, physical examination (Department of Internal Medicine building B)

4th **week:**
Lecture: Angina pectoris.
Practical: Examination of cardiac patients (Dept. Cardiology)

5th **week:**
Lecture: Myocardial infarction.
Practical: Examination of cardiac patients (Dept. Cardiology)

6th **week:**
Lecture: Arrhythmias, pacemaker treatment.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

7th **week:**
Lecture: Cardiac failure, antithrombotic treatment in cardiology.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

8th **week:**
Lecture: Hypertension.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine)

9th **week:**
Lecture: Venous thromboembolic disorders.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine)

10th **week:**
Lecture: Arterial thromboses.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

11th **week:**
Lecture: Pneumonias, tuberculosis, lung cancer.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

12th **week:**
Lecture: COPD, respiratory failure.
Practical: Patients with pulmonary disorders (Dept. Pulmonology)

13th **week:**
Lecture: Glomerulonephritis, pyelonephritis.
Practical: Patients with pulmonary disorders (Dept. Pulmonology)

14th **week:**
Lecture: Renal failure.
Practical: Patients with renal disorders (Department of Internal Medicine building A)

Division of Dental Physiology and Pharmacology

Subject: **DENTAL PHARMACOLOGY I.**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **30**
Seminar: **14**

1st **week:**
Lecture: Drug receptors and pharmacodymamics 1.
Seminar: Prescription writing.

2nd **week:**
Lecture: Pharmacokinetics 1.Pharmacokinetics 2.
Seminar: Prescription writing.

3rd **week:**
Lecture: Pharmacology of adrenoceptors 1.Pharmacology of adrenoceptors 2.
Seminar: Prescription writing.

4th **week:**
Lecture: Pharmacology of adrenoceptors 3.Cholinergic drugs 1.
Seminar: Prescription writing.

5th **week:**
Lecture: Cholinergic drugs 2.Antihypertensive agents 1.
Seminar: Prescription writing.

6th **week:**
Lecture: Antihypertensive agents 2.ACE inhibitors.
Seminar: WRITTEN EXAMINATION.

7th **week:**
Lecture: Antianginal drugs. Agents used in hyperlipidemia.
Seminar: Prescription writing.

8th **week:**
Lecture: Drugs used in congestive heart failure. Antiarrhythmic agents.
Seminar: Prescription writing.

9th **week:**
Lecture: General anesthetics. Local anesthetics 1.
Seminar: Prescription writing.

10th **week:**
Lecture: Local anesthetics 2.Local anesthetics 3.
Seminar: Prescription writing.

11th **week:**
Lecture: Opioid analgesics. Non-opioid analgesics and antipyretics 1.
Seminar: WRITTEN EXAMINATION.

12th **week:**
Lecture: Non-opioid analgesics and antipyretics 2.Non-steroidal anti-inflammatory drugs 1.
Seminar: Prescription writing.

13th **week:**
Lecture: Non-steroidal anti-inflammatory drugs 2. Antiasthmatic drugs.
Seminar: Prescription writing

14th **week:**
Lecture: Drugs used in disorders of coagulation, Antianemic agents. Diuretics. Drugs acting on the gastrointestinal tract 1.
Seminar: WRITTEN EXAMINATION.

Requirements

Attendance at seminars is compulsory. The Department may refuse to accept the semester if they are absent from more than 2 seminars. The current knowledge of the students will be tested in every month in each semester using a written test. Participation is compulsory, the results of the tests are recorded and will be presented to the examiner during the End of Semester Examination and the Final Examination. At the end of the 1st semester the students are required to take the End of Semester Examination (written and oral), based on the material taught in the semester. At the end of the 2nd semester the students are required to take the written and oral Final Examination, based on the material taught in Pharmacology in both semesters.

Department of Biomaterials and Prosthetic Dentistry

Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **5**
Practical: **105**

1st **week:**
Lecture: 1-5 week: Case presentation
Practical: 1-15 week: Complex dental treatment: restorative, periodontial and extraction procedures according to patients' needs. The minimum requirements declared by the departments to be fulfilled. General nursering procedures during treatments.

Requirements

Assessment:
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: **14**
Practical: **14**

1st **week:**
Lecture: History of digital dentistry
Seminar:
Practical: Introduction to digital dentistry

2nd **week:**
Lecture: Fundamentals of basic 3D scannings I.
Practical: Open source demonstrating applications

3rd **week:**
Lecture: Fundamentals of basic 3D scannings II.
Practical: Open source demonstrating applications

4th **week:**
Lecture: Efficient 3D point cloud processing
Practical: Software-based processing of 3D point clouds

5th **week:**
Lecture: Mesh optimization methods and their geometrical principles
Practical: Mesh optimization in practice

6th **week:**
Lecture: Introduction to Computer Aided manufacturing (CAx).
Practical: Application of CAD software (FreeCAD as example).

7th **week:**
Lecture: Introduction to mesh and solid models: coordinate geometry and file formats.
Practical: Mesh and solid modelling with CAD (Computer aided Design/Drawing) application.

8th **week:**
Lecture: Introduction to cutting (material removal processes): machines, tools and materials; cutting forces, CNC machining. Introduction to additive technologies.
Practical: Machining design with CAM (Computer Aided Manufacturing) applications. Rapid Prototyping with 3D printing.

9th **week:**
Lecture: Custom-made implant design and fabrication based on 3D printing
Practical: Custom-made implant design and fabrication based on 3D printing

10th **week:**
Lecture: Digital techniques in orthodontics
Practical: Digital techniques in orthodontics

11th **week:**
Lecture: Digital techniques in prosthetic dentistry
Practical: Digital techniques in prosthetic dentistry

12th **week:**
Lecture: Digital techniques in oral surgery
Practical: Digital techniques in oral surgery

13th **week:**
Lecture: Digital dentistry in the praxis
Practical: Digital dentistry in the praxis

14th **week:**
Lecture: Test
Practical: Practical test

Requirements

Conditions of signature to the lecture book:
Active participation in the practices (there is no possibility to compensate for missed practices).
The practices begin/end according to the timetable, lateness is not permitted.
The signature in the lecture book will be refused in cases of absences from more than 2 practices. All absences must be certified.
During the semester the student's performance will be evaluated at least twice (in the 6th and 12th week). If the student's performance does not reach the required level, the student will receive a documented notification of her/his poor performance. If the student's performance in the 12th week is still unsatisfactory, the subject's lecturer will notify the head of the department.

Final five grade practical (AW5) evaluation:
The evaluation covers the topics of lectures and practices and consists of a written and a practical part. If the student fails, or does not attend the evaluation, the AW5 grade is „fail”, which can be improved as a „B” or „C” chance during the exam period.

Subject: **PROSTHETIC DENTISTRY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st **week:**
Lecture: Total dentures: patient examination, examination of soft and hard tissues, diagnosis, treatment plan.

2nd **week:**
Lecture: Impression techniques, determination of the centric relation position, usage of the facebow.

3rd **week:**
Lecture: Statical and esthetic considerations of arranging artificial teeth.

4th **week:**
Lecture: Denture delivering and oral hygiene for total denture patients.

5th **week:**
Lecture: Definition of removable partial prosthodontics, types of partial dentures, parts of partial dentures. Support and anchorage of the denture.

6th **week:**
Lecture: Components of a removable denture. Casted clasp systems.

7th **week:**
Lecture: Clinical procedures of constructing a removable partial denture step by step. Reaction of oral mucosa to bearing the base of a denture. Insertion, counselling, complaints and adjustments, refitting. Procedures and repairs.

8th **week:**
Lecture: Temporomandibular disorders and their treatments I.

9th **week:**
Lecture: Temporomandibular disorders and their treatments II.

10th **week:**
Lecture: Precision attachments for partial dentures.

11th **week:**
Lecture: Mechanical principles of the partial denture design.

12th **week:**
Lecture: Biomechanical aspects of wearing a removable partial denture.

13th **week:**
Lecture: Principles of planning a removable partial denture.

14th **week:**
Lecture: Dental laboratory relations. Consultation.

Requirements

Conditions of signature in the lecture book:
Active participation in the practices (there is no possibility to compensate for missed practices). The practices begin/end according to the timetable, lateness is not permitted. Attendance can only be accepted if the student is present in the practice room from the beginning until the end of the practice. The signature in the lecture book will be refused in cases of absence from more than 50% of any special practice. All absences must be certified. A practical mark may be given on the basis of the student's term-time practical performance, which may be considered at the ESE grade.

Assessment:
End of semester examination. The exam starts with an online entrance test. Students must complete this test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is “failed” (1). The complex, and special practical grades may be considered at the ESE grade.

Department of Orthodontics

Subject: **ORTHODONTICS II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **14**
Seminar: **1**
Practical: **14**

1st **week:**
Lecture: Treatment systems 1. (Angle I)
Treatment systems 2. (Angle II)
Treatment systems 3. (Angle III)

4th **week:**
Lecture: Fixed appliances 1. (Lingual arch, Goshgarian, Hyrax, Temporary Anchorage Device)
Fixed appliances 2. (Multiband appliance)
Fixed appliances 3. (Phases of Multiband Treatment)

7th **week:**
Lecture: Interdisciplinary orthodontics 1. (Adult Treatment)
Interdisciplinary orthodontics 2. (Orthodontic Treatment and Periodontology, Prosthetic)
Interdisciplinary orthodontics 3. (Complex Treatment of Patient with Cleft Lip and Palate)

10th **week:**
Lecture: Orthodontic materials
Relapse
Retention

13th **week:**
Lecture: Minimum questions

Requirements

Lectures: As given in the timetable (time and place).
Practices: In the building of Faculty of Dentistry.

Conditions for signing the lecture book
Participation on the practices is compulsory (there is no possibility to compensate the missed practices).

Assessment: Final exam (of two semesters)
Before the final exam it is compulsory to complete the minimum questions (written or electronic)
Prerequisite of the course:
Orthodontics I.

Subject: **EMERGENCY MEDICINE**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: 22
Practical: 22

2nd **week:**
Lecture: Cardiac arrest, levels of cardiopulmonary resuscitation, basic life support, professional basic life support, advanced life support, post resuscitation care.
Practical: Safe defibrillation. AEDs, manual defibrillators.

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.

8th **week:**
Lecture: Abdominal pain. Gastrointestinal bleeding. Vomiting and diarrhea. Obstetric and gynecologic emergencies.
Practical: Complex treatment of critical patients.

9th **week:**
Lecture: Stroke, headache, subarachnoid hemorrhage, convulsions, altered mental status, coma.

Practical: Complex case situation.

10th **week:**
Lecture: Abdominal pain. Gastrointestinal tracct bleeding. Vomiting and diarrhea. Obstetric and gynecologic emergencies.
Practical: Complex case situations.

11th **week:**
Lecture: Disaster medicine. Conception of the mass accident disaster. Organisation of rescue in the field.
Practical: Consultation.

Requirements

Requirements for signing the lecture book:

For obtaining the signature at the end of the semester you are required to attend all practicals. In case of absence you have to do the practical at a chosen time, written excuse is not accepted. Concerning the supplementary practical you have to contact your physician responsible for the practical. Facilities for maximum 2 (two) complementary practicals are available at the Simulation Center in Debrecen. If somebody will have more than 2 missed practices will get no signature. Evaluation: students write a test every week reading previous week lectures topic. The final examination consists of an oral and a practical part. Students can go for the oral exam only if they pass the practical exam. You can register for the exam before the beginning of the examination period. In case you fail to register for the exam we consider it as a failed one. "A" and "B" exam chances are assured.
The subject Emergency medicine (AOOXY03T9) includes course material equivalent to 0.5 credits according to the electronic, Moodle-based teaching program entitled “Basic Life Support module (BLS)” and course material equivalent to 2.0 credits according to the electronic, Moodle-based teaching program entitled “Advanced Life Support module (ALS)”

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st **week:**
Lecture: Maxillofacial traumatology, soft tissue and tooth injuries, pathology of fractures
Practical: Patient examination, anamnesis.

2nd **week:**
Lecture: Diagnosis and treatment of mandibular fractures I
Practical: Special asking of the patient (anamnesis, complaints from dental suspect)

3rd **week:**
Lecture: Diagnosis and treatment of mandibular fractures II
Practical: Inspection, palpation, extra- and intraoral examination of the patient

4th **week:**
Lecture: Central and lateral midface fractures and their treatment
Practical: Palpation examination of the lymph-nodes in the maxillofacial region

5th **week:**
Lecture: TMJ diseases.
Practical: Ambulant treatment of oral surgical inflammatory diseases

6th **week:**
Lecture: Test I.
Practical: Aftercare of oral surgical inflammatory diseases
Self Control Test

7th **week:**
Lecture: Neurological diseases of the face
Practical: Treatment of dental trauma

8th **week:**
Lecture: Developmental anomalies of maxillofacial region, clefts
Practical: Conservative therapy of jaw-fractures

9th **week:**
Lecture: Craniofacial surgery
Practical: Post extraction instructions, treatment of complications

10th **week:**
Lecture: Orthognatic surgery
Practical: Performance of dento-alveolar operations.

11th **week:**
Lecture: Benign tumours
Practical: Oncological screening in the oral cavity and preventive practice in oral surgery

12th **week:**
Lecture: Odontogenic tumors
Practical:
Reconstructive surgery in operativetreatment of malignant tumours

13th **week:**
Lecture: Differential diagnosis of facial pain
Practical: Removal of retainedteeth.

14th **week:**
Lecture: Test II.
Practical: Closure of antroalveolar communication, minor soft tissue operation
Self Control Test

Requirements

4th **week:**
Seminar: Comparison of the primary and permanent dentitions (anatomy, physiology)

5th **week:**
Seminar: Prevention in the pediatric dental practice.

6th **week:**
Practical: Accurate oral status assessment in case of primary, mixed and permanent dentitions.

7th **week:**
Practical: Fissure sealing

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

Practical: Crown build up preparation for SS crown.
12th **week:**
Practical: Apexification.

13th **week:**
Practical: Splinting of traumatized teeth.
14th **week:**
Practical: Fluoride modalities

Department of Pediatric and Preventive Dentistry

Subject: **PEDIATRIC DENTISTRY PROPEDEUTICS**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Seminar: **5**
Practical: **10**

Requirements
Requirements 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 calculated according to the average of the practical grades (1/4) and the result average of the 2 SCT (3/4).
- If the average of the SCTs is under 60% the student must take an end-semester (oral) exam as a ‚B' chance.

Prerequisites of taking the subject: Preventive dentistry II, Orthodontics I

Seminars: Teaching building of Faculty of Dentistry
Practical: At the Department of Pediatric and Preventive Dentistry.

Department of Periodontology

Subject: **PERIODONTOLOGY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st **week:**
Lecture: Treatment of periodontal diseases: goals, steps

2nd **week:**
Lecture: Cause-related therapy: Oral hygiene.

3rd **week:**
Lecture: Cause-related therapy: Root surface debridement.

4th **week:**
Lecture: Chemical plaque-control. Drugs in periodontology.

5th **week:**
Lecture: Written exam.

6th **week:**
Lecture: Surgical phase of periodontal therapy: Gingivectomy.

7th **week:**
Lecture: Surgical phase of periodontal therapy: Flap procedures.

8th **week:**
Lecture: Surgical phase of periodontal therapy: Mucogingival surgery.

9th **week:**
Lecture: Guided tissue regeneration. Growth factors and biochemical means.

10th **week:**
Lecture: Treatment of furcation-involved teeth.

11th **week:**
Lecture: Connection between periodontology and other subdisciplines.

12th **week:**
Lecture: Written exam

13th **week:**
Lecture: Effectiveness of periodontal therapy. Maintenance phase.

14th **week:**
Lecture: Biological and clinical aspects of dental implants. Diagnosis and treatment of peri-implant disease.

Requirements

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 signing 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.

Exam. ESE
Offered grade evaluation:
At least 2 self-control tests will be held during the semester.
If the offered grade is ‚failed' the student must take an oral exam as a ‚B' chance.

Department of Restorative Dentistry

Subject: **RESTORATIVE DENTISTRY II. (ENDODONTICS)**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st **week:**
Lecture: The pulp and periapical area: anatomy and histology. The dentin-pulp complex. The principles of endodontology

2nd **week:**
Lecture: 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

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.).

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: Disorders of oesophagus, stomach and bowels.
Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

2nd **week:**
Lecture: Acute and chronic liver diseases. Liver cirrhosis.
Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

3rd **week:**
Lecture: Disorders of the gall bladder and pancreas.
Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

4th **week:**
Lecture: Coagulopathies, von Willebrand1s disease. Drug induced bleedings.
Practical: Patients with hematological disorders and bleedings (Department of Internal Medicine building B)

5th **week:**
Lecture: Disorders of the platelets: ITP, TTP, HUS, DIC
Practical: Patients with hematological disorders and bleedings (Department of Internal Medicine building B)

6th **week:**
Lecture: Anaemias. Acute leukaemias.
Practical: Patients with hematological disorders

or thrombosis (Department of Internal Medicine building B)

7th **week:**
Lecture: Chronic leukaemias. Chronic myeloproliferative disorders.
Practical: Patients with hematological and bleeding disorders (Department of Internal Medicine building B)

8th **week:**
Lecture: Lymphomas (Hodgkin and non-Hodgkin). Myelodysplasia.
Practical: Patients with hematological and bleeding disorders (Department of Internal Medicine building B)

9th **week:**
Lecture: Disorders of the pituitary gland, adrenal gland and thyroid gland.

10th **week:**
Lecture: Disorders of the parathyroid gland. Diabetes mellitus.
Practical: Patients with endocrinological disorders and diabetes mellitus (Department of Internal Medicine building A)

11th **week:**
Lecture: Systemic autoimmune disorders: SLE, Sjögren, systemic sclerosis, polymyositis.
Practical: Patients with endocrinological disorders and diabetes mellitus (Department of Internal Medicine building A)
Patients with immunological disorders (3rd Dept. Medicine).

12th **week:**
Lecture: Immune deficiency, vasculitis.
Practical: Patients with immunological disorders (Institute of Internal Medicine Building C)

13th **week:**
Lecture: Rheumatologic disorders. Peripheral circulatory deficiency.
Practical: Patients with immunological disorders (Institute of Internal Medicine Building C)

14th **week:**
Lecture: Disorders of the orbita. Uveitis.
Practical: Institute of Internal Medicine, Division of Rheumatology

Requirements

Participation in the lectures is recommended, the practicals are obligatory. Following the first semester an end of semester exam (ESE) is necessary. Final Exam (FE) is compulsory at the end of the 2nd semester. Signature of the lecture book is denied after two missing practicals.

Division of Dental Physiology and Pharmacology

Subject: **DENTAL PHARMACOLOGY II.**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Lecture: **30**
Seminar: **14**

1st **week:**
Lecture: Introduction to central nervous system.Antipsychotics.
Seminar: Prescription writing.

2nd **week:**
Lecture: Antidepressant agents.Pharmacological management of parkinsonism.
Seminar: Prescription writing.

3rd **week:**
Lecture: Sedative-hypnotic drugs 1.Sedative-hypnotic drugs 2.
Seminar: Prescription writing.

4th **week:**
Lecture: Antiepileptic drugs.The alcohols.
Seminar: Prescription writing.

5th **week:**
Lecture: Principles and mechanisms of antibiotic therapy. Penicillins 1.
Seminar: WRITTEN EXAMINATION.

6th **week:**
Lecture: Penicillins 2. Cephalosporins.
Seminar: Prescription writing

7th **week:**
Lecture: Macrolides. Clindamycin.
Seminar: Prescription writing.

8th **week:**
Lecture: Tetracyclines and chloamphenicol. Aminoglycosides.
Seminar: Prescription writing.

9th **week:**
Lecture: Sulfonamides. Quinolones and fluoroquinolones.
Seminar: Prescription writing.

10th **week:**
Lecture: Antiviral agents. Antifungal agents.
Seminar: Prescription writing.

11th **week:**
Lecture: Immunotherapy. Antineoplastic drugs.
Seminar: WRITTEN EXAMINATION.

12th **week:**
Lecture: Anticaries agents. Antiplaque and antigingivitis drugs.
Seminar: Prescription writing.

13th **week:**
Lecture: Antiseptics and disinfectants. Drugs for medical emergencies 1. Drugs for medical emergencies 2.
Seminar: Consultation.

14th **week:**
Lecture: Drugs for medical emergencies 3. Toxicological aspects of dental practice 1. Toxicological aspects of dental practice 2.
Seminar: WRITTEN EXAMINATION.

Requirements

Attendance at seminars is compulsory. The Department may refuse to accept the semester if they are absent from more than 2 seminars. The current knowledge of the students will be tested in every month in each semester using a written test. Participation is compulsory, the results of the tests are recorded and will be presented to the examiner during the End of Semester Examination and the Final Examination. At the end of the 1st semester the students are required to take the End of Semester Examination (written and oral), based on the material taught in the semester. At the end of the 2nd semester the students are required to take the written and oral Final Examination, based on the material taught in Pharmacology in both semesters.

CHAPTER 20
ACADEMIC PROGRAM FOR THE 5TH YEAR

Department of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY III.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **5**
Practical: **280**

1st **week:**
Lecture: 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: **14**
Practical: **10**

1st **week:**
Lecture: Rigid and elastic impression materials, advanced impression materials.

2nd **week:**
Lecture: Working cast and dies.

3rd **week:**
Lecture: Polymers in dentistry. Techniques for producing dentures made of polymers.

4th **week:**
Lecture: Adhesive materials in dentistry.

5th **week:**
Lecture: Dental ceramics.

6th **week:**
Lecture: Biocompatibility and corrosion.

7th **week:**
Lecture: Metal alloys in dentistry.

8th **week:**
Lecture: CAD / CAM systems in dentistry.

9th **week:**
Lecture: TMI disorders.

10th **week:**
Lecture: Removing post and core restorations.

11th **week:**
Lecture: Making a final prosthetic plan.

12th **week:**
Lecture: Design and fabrication of fixed-and-partial dentures combinations.

13th **week:**
Lecture: Complex and multidisciplinary prosthodontic treatment.

14th **week:**
Lecture: Advanced technologies and materials used in prosthetic dentistry.

Requirements

Conditions of signature in the lecture book:
Active participation in the practices (there is no possibility to compensate for missed practices).
The practices begin/end according to the timetable, lateness is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice. The signature in the lecture book will be refused in cases of absence from more than 50% of any special practice. All absences must be certified. One self-control test will be held during the semester based upon the topics of lectures, practices and reading materials, at a date announced later. The result of the self-control test will be offered as the grade of the end of semester exam. This grade can be improved during the exam period.

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 exam grade is “failed” (1). The complex, and special practical grades may be considered at the ESE grade.

Department of Basic Medical Sciences

Subject: **FORENSIC MEDICINE**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Seminar: **14**
Practical: **14**

1st **week:**
Lecture: Forensic Odontology as a discipline and other related forensic sciences (Forensic Pathology, Forensic Anthropology).
Practical: Every week's practical topic is the same as the lecture's topic.

2nd **week:**
Lecture: Determining identification (facial, dental, oral, dental structure, super-imposition technique, report on dental findings).

3rd **week:**
Lecture: Age determination (development of tooth, deciduous and adult teeth, Gustafson method)

4th **week:**
Lecture: DNA techniques (dental application).

5th **week:**
Lecture: Mass disaster management (forensic odontologic consideration).

6th **week:**
Lecture: Report on wounds (general/ surgical/description, wound characteristics, healing process, consequences). Bite marks (human and other, examing, reporting, evaluating).

7th **week:**
Lecture: Child abuse (dentistry's role in reporting and preventing).

8th **week:**
Lecture: Evaluation of malpractice cases in forensic dentistry.

9th **week:**
Lecture: Civil and criminal case involvement. Effective medical testifying.

10th **week:**
Lecture: Dental jurisprudence. Courtroom practice. Dental report on personal injuries.

11th **week:**
Lecture: Case evaluation. Description of teeth (systematic charting, morphology, marking schemes, caries, filling, missing teeth, bridges, prostheses).

12th **week:**
Lecture: Death body evaluation on the scene or in the autopsy room (external description, case report).

13th **week:**
Lecture: Techniques in Forensic Odontology (forensic photography, computer assisted identification).

14th **week:**
Lecture: An overview on the study of Forensic Odontology.

Subject: **NEUROLOGY**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **10**
Practical: **10**

1st **week:**
Lecture: Meningeal signs. Examination of cerebrospinal fluid, meningitis, causes of increased cell number and protein content, interpretation of bloody CSF. Infectious diseases of central nervous system.

2nd **week:**
Lecture: Anatomy and examination of cranial nerves I-XII, I: temporal epilepsy; II: visual field defects, papillaoedema; III-IV-VI: gaze disturbances, diplopia, anisocoria, pathway of pupilla reflex, hemianopic pupillary reaction, cortical blindness.

3rd **week:**
Lecture: Anatomy and examination of cranial nerves I-XII, V: everything; VII: central and peripheral facial palsy, ageusia, innervation of salivatory glands, herpes zoster geniculi; VIII: peripheral and central type of dizziness, tinnitus, Bell's palsy.

4th **week:**
Lecture: Anatomy and examination of cranial nerves I-XII, IX-X: glossopharyngeus neuralgia, dysphagia, dysarthria; XI: torticollis; XII: central and peripheral hypoglossus lesion. Bulbar and pseudobulbar signs. Torticollis.

5th **week:**
Lecture: Motor system, -power -muscle tone -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 practical every week in the first ten weeks of the 1st semester.
2. In the exam period an oral exam has to be taken, which is evaluated by a 5-grade mark.
Places for exams are opened every week during the exam period. Students have to register in Neptun for the exam. Without registration the exam cannot be taken. The first exam is the 'A' chance, the second exam is the 'B' chance, both are oral exams. If somebody failed 'A' and 'B' chances, the third possibility is the 'C' chance, which is in front of an exam committee. In this case the student has to fix an appointment with the educational advisor. Teaching materials presented at lectures and seminars are asked at the exams.
If the student wishes to improve the grade, it is possible once in the exam period after registration in the Neptun for a free exam place.
6. Educational advisor: Dr. Boczán Judit, Dr. Csapó Krisztina

Teaching materials can be reached at www.neurology.dote.hu

Subject: **PEDIATRICS**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **14**

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.

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 Oral Medicine

Subject: **ORAL MEDICINE**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st **week:**
Lecture: Principles of diagnosis of oral mucosal diseases. Developmental varieties of oral mucosa.

2nd **week:**
Lecture: Ulcerative, bullous & vesicular oral disorders.

3rd **week:**
Lecture: White and red lesions of oral mucosa. Discolorations of oral mucosa (developmental and disease)

4th **week:**
Lecture: Gingival hyperplasia and benign tumours of oral mucosa

5th **week:**
Lecture: Precancerous lesions and oral malignant tumours

6th **week:**
Lecture: Disease of salivary glands and tongue diseases

7th **week:**
Lecture: Paraneoplastic lesions

8th **week:**
Lecture: Written exam

9th **week:**
Lecture: Oralfacial complaints without physically detectable disorders. (burning mouth syndrome, subjective xerostomy, dysgeusia)

10th **week:**
Lecture: Cardiovascular and respiratory system: oral symptoms

11th **week:**
Lecture: Gastrointestinal tract and renal diseases: oral symptoms

12th **week:**
Lecture: Hematological diseases: oral symptoms and dental care of patients with hemostasis disorders

13th **week:**
Lecture: Endocrinological and immunological diseases: maxillofacial and general symptoms

14th **week:**
Lecture: Diseases of TMJ and their therapy

Requirements

Lectures: As given in the timetable (time and place)

Practices: In the building of the Faculty of Dentistry (Dept. of Period.)

Conditions of signing 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 the missed practices cannot exceed 20%, even if it is certified.
- 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.

The test, written during the semester should be passed. The result of the failed test must be repeated once during the semester. The appointment of the remedial will be punctually announced on the information board. Lecture book signature will be refused by the second test failure.

Assessment: ESE.

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY III.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st **week:**
Lecture: Premalignant conditions, precancers

2nd **week:**
Lecture: Malignant tumours in general. 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.
Self Control Test

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.
Self Control Test

14th **week:**
Lecture: Final consultation and

Remedial test

Self Control 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

Department of Pediatric and Preventive Dentistry

Subject: **PEDIATRIC DENTISTRY I.**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **15**

1st **week:**
Lecture: Pain control, topical and local anesthesia, minor oral surgery in childhood.
Practical: Examination methods, treatment planning, normal anatomic structures of oral cavity.

2nd **week:**
Lecture: Etiology of dental caries and its characteristics in childhood.
Practical: Discuss and recognize common developmental disturbances of the teeth.

3rd **week:**
Lecture: Caries in the primary dentition, diagnosis, treatment.
Practical: Classify common oral lesions and infections by clinical features.

4th **week:**
Lecture: Caries and consecutive diseases, diagnosis and treatment.
Practical: Discuss etiological factors influencing the formation of dental caries in children.

5th **week:**
Lecture: Endodontic treatment in childhood. The treatment of the immature permanent teeth.
Practical: Develop an individualized oral health care program for the child patient.

6th **week:**
Lecture: Traumatic injuries to the teeth and supporting tissues.
Practical: Do step by step amalgam filling in posterior primary and permanent teeth.

7th **week:**
Lecture: Prosthetic dentistry for children.
Practical: Identify and distinguish morphologic differences in the primary teeth.

8th **week:**
Lecture: Common growth and developmental anomalies of the teeth.
Practical: Prepare cavity in primary posterior teeth. Extract primary tooth.

9th **week:**
Lecture: Common structural disturbances of the

teeth.
Practical: Pulpotomy and pulpectomy. Treatment of dental injuries, splinting.

10th **week:**
Lecture: Periodontology in pediatric dentistry.
Practical: Fabricate a space maintainer. Restore an anterior primary and permanent tooth.

11th **week:**
Lecture: Oral manifestation of infective disease.
Practical: Restore a fractured incisor with composite material. Carry out apexification.

12th **week:**
Lecture: Oral manifestation of systemic diseases.
Practical: Seal fissures.

13th **week:**
Lecture: Oral manifestation of systemic diseases.
Practical: Use preventive methods.

14th **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 as a ‚B' chance.
- The practical mark is calculated on basis of the average of the practical grades (1/4) and the test result (3/4).

Prerequisites of taking the subject: Preventive dentistry II, Orthodontics II

Department of Psychiatry

Subject: **PSYCHIATRY**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **5**
Practical: **5**

1st **week:**
Lecture: Examination of a psychiatric patient Psychopathology.
Practical: Classification of illnesses.

2nd **week:**
Lecture: Anxiety disorders.
Practical: Affective illnesses.

3rd **week:**
Lecture: Alcohol and drug.

4th **week:**
Lecture: Organic psychosyndromes. Border territory of dentistry and psychiatry.

5th **week:**
Lecture: Schizophrenia. Pharmacotherapy.
Practical: Border territory of dentistry and psychiatry.

Requirements

Psychiatric titles of first term:
1. Basic points in psychopathology. 2. Classification in psychiatry. Nosological systems. 3. The psychiatric interview. 4. Alcoholismus chronicus. 5. Anxiety disorders. 6. Affective illnesses. 7. Schizophrenia. 8. Organic psychosyndromes. 9. Questions from the border territory of dentistry and psychiatry. 10. Psychotherapy and psychopharmacotherapy.

Department of Restorative Dentistry

Subject: **RESTORATIVE DENTISTRY III. (CARIOLOGY AND ENDODONTICS)**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Lecture: **14**
Practical: **10**

1st **week:**
Lecture: Up-to date preparation techniques: Laser, oscillating instruments, chemical. Mechanical caries removal, airabrasion in restorative dentistry.

2nd **week:**
Lecture: Dentin-hypersensitivity and treatment options.
Erosion. Causes, manifestations in oral cavity, diagnosis making and its therapy.

3rd **week:**
Lecture: Bleaching of vital and non-vital teeth.

4th **week:**
Lecture: Modern concepts and methods in the course of shaping the root canal.

5th **week:**
Lecture: Obturation materials - a comparative evaluation.

6th **week:**
Lecture: Pulp-periodontal interrelationship.

7th **week:**
Lecture: Microscope in endodontics.

8th **week:**
Lecture: Written exam

9th **week:**
Lecture: Case presentation

10th **week:**
Lecture: Case presentation

11th **week:**
Lecture: Case presentation.

12th **week:**
Lecture: Case presentation.

13th **week:**
Lecture: Case presentation.

14th **week:**
Lecture: Case presentation./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)

Department of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY IV.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **5**
Practical: **240**

1st **week:** **Lecture:** 1-5 week: Case presentation **Practical:** 1-15 week: Complex dental treatment: restorative, periodontial and extraction procedures according to patients' needs. The	minimum requirements declared by the departments to be fulfilled. General nursering procedures during treatments

Requirements

Assessment:
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-11th week: Case presentation

Requirements

Conditions of signature in the lecture book:
Active participation in the practices (there is no possibility to compensate for missed practices). The practices begin/end according to the timetable, lateness is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice. The signature in the lecture book will be refused in cases of absence from more than 50% of any special practice. All absences must be certified. Practical mark may be given on the basis of the student's term-time practical performance, which may be considered at the final exam grade.

Assessment:
Final exam. The exam starts with an online entrance test. Students must complete this test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is "failed" (1). The complex and special practical grades may be considered at the final exam grade.

Department of 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: The importance of age groupsin

preventive and pediatric dentistry.
Practical: Discuss etiological factors influencing the formation of dental caries in children. Develop an individualized oral health care program for the child patient.

5th **week:**
Lecture: Dental fear and anxiety.
Practical: Do step by step amalgam filling in posterior primary and permanent teeth. Identify and distinguish morphologic differences in the primary teeth.

6th **week:**
Lecture: Children with special care and need
Practical: Recognize and treat dental injuries. Fabricate a simple splinting device.

7th **week:**
Lecture: Behavior management, conscious sedation, general anesthesia.
Practical: Fabricate a space maintainer

8th **week:**
Lecture: Child abuse and neglect.
Practical: Restore an anterior primary and permanent tooth with composite restorative material

9th **week:**
Lecture: Orthodontic pediatric interface
Practical: Restore a fractured incisor with composite crown.

10th **week:**
Lecture: Minimally invasive 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

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

Practices: In the building of Faculty of Dentistry, Department of Pediatric Dentistry and Preventive 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: 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.

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY IV.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **12**
Practical: **10**

1st **week:**
Lecture: Mechanism of acute and chronic pain

2nd **week:**
Lecture: Pharmacological analgesiain oral surgical practice

3rd **week:**
Lecture: Local anesthesia in the dentalpractice, allergy andfaint

4th **week:**
Lecture: Differential diagnosis of facial pain and trismus

5th **week:**
Lecture: Antibiotic treatment and endocarditis prophylaxis in dentistry and oral surgery

6th **week:**
Lecture: Dental focal disease

7th **week:**
Lecture: Radiotherapy and medication induced osteonecrosis of the jaws

8th **week:**
Lecture: Inflammations of dental origin and their treatment in the dentaloffice

9th **week:**
Lecture: Dental and oral surgical treatment of patients with hemostatic disorders

10th **week:**
Lecture: Complications of tooth extractio, iatrogenic injuries and their treatment

11th **week:**
Lecture: Dental trauma

12th **week:**
Lecture: Final consultation

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. 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. 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

Department of Periodontology

Subject: **PERIODONTOLOGY III.**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **12**
Practical: **10**

1st **week:**
Lecture: Introductory lecture.

2nd **week:**
Lecture: 2nd - 12th week topic: Case presentation and analysis.

Requirements

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 signing the lecture book:
Active participation on the practices (there is no possibility to make up the missed practices).

Students may miss practices with acceptable certificate, but the ratio of missed practices cannot exceed 20 %, even it is certificated.

The practical work will be evaluated at the end of each practice separately, as 'accepted' or 'not-accepted'.
The number of accepted practices must be above 80% of practices.

Missed practice is not-accepted.

Students have to fulfil the minimum practical requirements of the subject.
The minimum practical requirements of the subject will be handed out 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.

Department 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

3rd **week:**
Lecture: Root resorption (classification and treatment).

4th **week:**
Lecture: Treatment of fractured teeth (crown and root fractures).

5th **week:**
Lecture: The importance of follow-up in endodontics (wound healing and repair following endodontic therapy). Focal infection theory.

6th **week:**
Lecture: Written exam

7th **week:**
Lecture: Case presentation

8th **week:**
Lecture: Case presentation

9th **week:**
Lecture: Case presentation

10th **week:**
Lecture: Case presentation

11th **week:**
Lecture: Case presentation

12th **week:**
Lecture: Case presentation

Requirements

Examination: Final Examination (FE_oral exam)
Materials for exam preparation: official lecture book, lectures and materials of the special practicals.

Requirements for signing the lecture book:
• During the semester, in accordance with the course requirements there is one written test that takes place during a lecture. The self-control tests cannot be repeated only with an adequate proof in a given time. The result of any missed test conclude to failure (1). The result cannot be improved.

ENDODONTICS CASE PRESENTATION
During the case presentation, student is required to present the case of his/her own patient (multirouted MOLAR tooth, with multiple root canals) treated with rubber dam isolation.

Presentation requirements:

• Filled signed endodontic form without any missing detail, approved, signed and stamped by the supervisor
• Evaluable radiological documentation
• Logically built up computer presentation
The mandatory endodontics case study is planned according to previously agreed date and is presented in sequence order.

!!! Missing the presentation of case study, or missing any part of the above mentioned listed requirements, results in the refusal of signing the lecture book.

• Special practicals:
o The practices start and finish in accordance with the timetable, arriving late is not allowed.
o Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
o Absences, in theory, are not allowed. o In reasoned cases, for certified absences the department ensure make up classes for students on a previously agreed date, during the semester.
o A certification is required for any absences which has to be handed to the leader of the practice course.
o At the end of each practical student's work is evaluated with a grade based on the knowledge of his/her theory, practice work and manuality.
o At the end of the semester, student is given a grade for his/her term work based on the average of the grades given during the semester.

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 Biomaterials and Prosthetic Dentistry

Subject: **ESTHETIC DENTISTRY**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**

1st **week:**
Seminar: Introduction to Esthetics Morphopsychology and Facial Esthetics.

2nd **week:**
Seminar: Esthetic Smile

3rd **week:**
Seminar: Landmarks and Proportions of the Face. Treatment planning

4th **week:**
Seminar: Documentation in Esthetic Dentistry

5th **week:**
Seminar: Esthetics and its Relationship to Function I.

6th **week:**
Seminar: Esthetics and its Relationship to Function II.

7th **week:**
Seminar: Morphologic Changes During a Lifetime

8th **week:**
Seminar: TMetal-Ceramic and All-Ceramic Crows and Bridges.

9th **week:**
Seminar: Periodontal Esthetic Surgery.

10th **week:**
Seminar: Oral and Maxillofacial Esthetic Surgery.

11th **week:**
Seminar: Tooth Color Science, Tooth Color Analysis, Bleaching Methods.

12th **week:**
Seminar: All-Ceramic Inlays and Onlays.

13th **week:**
Seminar: Ceramic Veneers.

14th **week:**
Seminar: Esthetics in Implantology

Requirements

The required minimum number of attendants is 10.

Conditions of signature in the lecture book:

Five grade (AW5) practical grade evaluation. The final AW5 marks are decided according to the

marks given during the semester. At least 1 written or oral self-control test will be held during the semester. Any self-control test with a failed (1) result can be repeated once during the semester, in a given time. If the student fails to improve the result, the final AW5 grade is “failed” (1), and the grade must be improved during the examination period, as a “B” or “C” chance.

Assessment: AW5

Subject: **HISTORY OF DENTISTRY, PROSTHETIC DENTISTRY COMPULSORY ELECTIVE I.**
Year, Semester: 2nd year/1st semester
Number of teaching hours:
Lecture: **14**

1st **week:**
Lecture: Introduction to the history of dentistry.

2nd **week:**
Lecture: The ancient Orient. Egypt, Mesopotamia, Palestine and Syria. India.

3rd **week:**
Lecture: The far east: China, Japan.

4th **week:**
Lecture: Pre-Columbian America: Aztec, Maya, Inca culture.

5th **week:**
Lecture: Greco-Roman medicine.

6th **week:**
Lecture: Aftermath of antiquity in east and west.

7th **week:**
Lecture: The world of Islam.

8th **week:**
Lecture: High and late middle ages in Europe.

9th **week:**
Lecture: Awakening of natural sciences.

10th **week:**
Lecture: The 18th century.

11th **week:**
Lecture: Dentistry in the industrial ages. Prosthetics.

12th **week:**
Lecture: Conservative dentistry. Self-control test

13th **week:**
Lecture: Dental surgery. Orthodontics.

14th **week:**
Lecture: Research and teaching.

Requirements

The required minimum number of attendants is 10.
Students registered for the course will be informed through the Neptun system regarding date and place of the first seminar.

Conditions of signature in the lecture book: Active participation in the practices (there is no

possibility to compensate for missed practices). All absences must be certified.

Assessment: Five grade (AW5) practical grade evaluation
Students should submit an essay through the Department's online exam interface by the given deadline. If the student does not upload the essay by the given deadline, the AW5 will be "fail" (1) and the student must retake the subject. The theme of the essay will be sent through the Neptun system to the students. The signature in the lecture book will be rejected for students, whose essays show significant similarities. The "fail"(1) mark (except caused by similarities) can be improved during the exam period, as a "B" or "C" chance exam. The "B" or "C" chance exams are electronic tablet tests.

Subject: **PRAXIS MANAGEMENT**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Lecture: **12**

1st **week:**
Lecture: Course introduction. What is a dental practice?

2nd **week:**
Lecture: Locating, designing a dental office.

3rd **week:**
Lecture: Financing a dental practice.
Dental insurance.

4th **week:**
Lecture: Stock control.Staff management. The working team.

5th **week:**
Lecture: Time management.

6th **week:**
Lecture: The appointment book.

7th **week:**
Lecture: Painless paperwork.

8th **week:**
Lecture: Performance and achievement.
Stress management.

9th **week:**
Lecture: Equipment and maintenance.

10th **week:**
Lecture: Quality management.

11th **week:**
Lecture: Summary: How to professionally market your dental practice

Department of Orthodontics

Subject: **PEDIATRIC DENTISTRY ELECTIVE**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Seminar: **12**

1st **week:**
Seminar: Praxis management in pediatric dentistry. Organizing a dental screening.

2nd **week:**
Seminar: Anamnesis, patient charts, dental screening in pediatric dentistry (describing symptoms, diagnostics).

3rd **week:**
Seminar: How to write a referral letter?

4th **week:**
Seminar: Common dental materials and instruments used in pediatric dentistry.

5th **week:**
Seminar: Common mistakes in pediatric dentistry.

6th **week:**
Seminar: Adolescent problems in pediatric dentistry.

7th **week:**
Seminar: Problem Based Learning, case analysis.

8th **week:**
Seminar: Problem Based Learning, case analysis.

9th **week:**
Seminar: Problem Based Learning, case analysis.

10th **week:**
Seminar: Problem Based Learning, case analysis.

11th **week:**
Seminar: Problem Based Learning, case analysis.

12th **week:**
Seminar: Problem Based Learning, case analysis.

Requirements

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.

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.

2nd **week:**
Lecture: Pathologic contractile function of the heart (contractile proteins, intracellular Ca2+-homeostasis and cardiac pumping).

3rd **week:**
Lecture: Myocardial ischemia, myocardial infarction and new ischemic syndromes (hibernation, preconditioning, stunning).
Seminar: The basics of ECG.

4th **week:**
Lecture: Cardiac hypertrophy and failure.
Seminar: ECG diagnosis of arrhythmias I.

5th **week:**
Lecture: Heart failure (molecular pathophysiology).

Seminar: ECG diagnosis of arrhythmias II.

6th **week:**
Lecture: Endothelium, smooth muscle, vessels.
Seminar: Differential diagnostics or arrhythmias, evaluation of ECG recordings.

7th **week:**
Lecture: Hypertension.
Seminar: Conduction disorders, ECG sings of volume and pressure overload.

8th **week:**
Lecture: New translational perspectives in cardiovascular medicine.
Seminar: Angina pectoris, myocardial infarction.

9th **week:**
Lecture: Stem cells in cardiovascular medicine.
Seminar: Exercise stress test ECG, Holter ECG.
Self Control Test (Self control test (Bonus points for the exam can be collected during the written mid-semester clinical physiology test during the 9th week.)

10th **week:**
Lecture: Cellular and molecular elements of the respiratory system with clinical significance.
Seminar: Electronic pacemakers, mechanisms of arrhythmias.

11th **week:**
Lecture: Clinical physiology of the respiratory system.
Seminar: ECG signs of electrolyte disorders, differential diagnostics, practicing.

12th **week:**
Lecture: Clinical physiology of nutrition and metabolism
Seminar: Evaluation of ECG recordings (oral ECG exam).

13th **week:**
Lecture: Clinical physiology of the nervous system I.

14th **week:**
Lecture: Clinical physiology of the nervous system II.
Self Control Test (Result of the 9th and 14th weeks tests will form the basis for a recommended final mark.)

Requirements

Students are expected to attend lectures and obliged to attend seminars. The Department may refuse the acknowledgment of the semester from this subject if a student is absent for more than two seminars. Seminar attendance is recorded electronically during the first 5 minutes of the seminars, thereby late arrivals by 6 or more minutes result in seminar absences. A successful oral ECG test (during the 12thweek of the second semester) is also a prerequisite for Clinical Physiology.

Third year students are invited to participate in two written tests ("Assessment of the work" (AW)) during the 9th and 14th weeks organized by the Division of Clinical Physiology. Single choice test questions (single right or single false answers should be chosen from five possibilities) will be asked to assess students' proficiency. Bonus points can be collected for the 9th week written exam to be included into the result of the pre-final (14th week exam) and final tests (during examination period). 20 questions covering the materials of lectures and seminars between 1-9 weeks will be asked on the 9th week written self control.

Students reaching higher than passing limits will be offered by a recommended grade following the 14th week self control. This pre-final exam will contain 50 questions where the entire curriculum of Clinical Physiology will be included. The Division cannot ensure opportunities for the inspection of the corrections of the above self controls on a personal basis, nevertheless test questions can be discussed after the tests during independent events organized for all students at the same time. Students are expected to arrange this event where a minimum of 40 students should participate and

to contact the academic advisor for technical support.
If a final grade cannot be recommended, written exams will be performed during the examination period. First exams and first repeated exams are in written, while the second repeated exam is in an oral. In addition students can register for an oral improvement provided they exceeded the passing limit of any written tests. There is not a special topic list for oral improvement exam, oral ECG analysis and all the materials of seminars and lectures are asked.
For more information, please visit: klinfiz.unideb.hu. Login requires NEPTUN code and its password.

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

1st **week:**
Lecture: Introduction to the concept of communication. Channels of communication. Verbal and non-verbal communication. The main non-verbal channels.

2nd **week:**
Lecture: The helping relationship. Influencing factors. principles. The role of empathy in the communication.

3rd **week:**
Lecture: Aggressive, passive and assertive communication. Effective communication techniques.

4th **week:**
Lecture: The importance of communication with people in different situations. Difficulties in communication situations. Persuasive communication.

5th **week:**
Lecture:

Practical: Empathy, problems of empathy, active listening. Significance of the firs impression.

6th **week:**
Lecture:

Practical: Aggressive, passive and assertive communication. Persuasive communication.

7th **week:**
Practical: Movie (2 hours long)

8th **week:**
Lecture:

Practical: Movie - analyzing its communicational aspects. The role of confidence.

9th **week:**
Lecture:

Practical: Presentation of the field practice. Closing the semester, semester-review. Feedbacks.

10th **week:**
Practical: Presentation of the field study. Feedback for the presenters. Feedback for the teacher. Deadline of giving the essay. Closing the semester.

Requirements

Aims:
Introducing and recognizing fundamental characteristics of human communication and developing basic knowledge, skills and attitudes which are most important in doctor patient relationship. This course serves as a basis for the continuation of third year studies of more specific communicational knowledge needs for healing and curing in the field of medical practice.
Framework and process of learning:
In form of small-group learning discussions, role-plays, observational tasks will be introduced by which students can be active participants in learning by acquiring not only theoretical issues. Because teachers guide semi-structured seminars, student will be facilitated to give feedback, express opinions and propose available topics, which could build into to learning process.
During first seminars individual learning objectives can be elaborated together with teacher and classmates and can be achieved alongside the main objectives of the whole group.
Standpoints of the observational task of communication class:
For the purpose of developing so called observational skills, a special task will be introduced. Students will be requested to watch systematically human behaviours at different places where one can perceive various forms of formal and informal communication (two weeks will be given for completing observations instead of attending seminars during this period. Seminars will be continued after two weeks break).
Sensitivity toward relating phenomena can be enhanced by these observational tasks. Several places of health case system, like wards, surgeries for outpatients, waiting rooms or other places like libraries, the campus where many human interactions can be observed are available.
Students will be asked to prepare a presentation and deliver it in front of the group. (Presentations will be held on the following week after finishing observations) and write an essay on the basis of their experience (volume: 3-4 pages, relevant theoretical background can be embedded. Deadline of giving in is the second week following the presentations).
The presentation will be given for the whole group and classmates will give feedback using structured criteria-system (see formative Assessment table on the back of the sheet. Presentation skills, proper use of nonverbal communicational channels can be assessed by which improvement of personal communicational skills can be facilitated.
After completed observational task the basic verbal communicational skills will be 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: Exemption Tests.

3rd **week:**
Practical: Word processor programs, MS Word I.

4th **week:**
Practical: Word processor programs, MS Word II.

5th **week:**
Practical: Fundamentals and basic concepts of informatics.

6th **week:**
Practical: Logical and physical realization of networks.

7th **week:**
Practical: Internet.

8th **week:**
Practical: Spreadsheets programs, MS Excel I.

9th **week:**
Practical: Spreadsheets programs, MS Excel II.

10th **week:**
Practical: Spreadsheets programs, MS Excel III.

11th **week:**
Practical: Spreadsheets programs, MS Excel IV.

12th **week:**
Practical: Computerised presentation, MS PowerPoint.

13th **week:**
Practical: Summary.

14th **week:**
Practical: Test.

Requirements

The acquisition of fundamental theoretical and practical knowledge from the function of the modern personal computers. Course description: PC architecture, operating systems, file management, network knowledge, internet and its opportunities of application, word processor, spreadsheet, the usage of presentational programs, the achievement of scientific databases and its use.
Without registration, there is no way to do the course! First year students who missed/skipped the exemption test, but signed up for the course in the Neptun must attend the course and do the final test at the end. For students attending the informatics course a maximum of 4 absences are allowed during the semester to receive a signature (we recommend to use as few as possible, in case an emergency comes up). This is taken very seriously! Missing more than 4 classes automatically

means losing the chance to pass the course. There will be a final test at the end of the semester. Students are allowed to make up the missed practices with another group but only on the given week, if there are enough free seats in the room.
The course start with an exemption test. Only first year students are allowed to write the exemption test at the first week of the given semester with their group (appointment should be checked in the given timetable). In any other cases (students older than first year/repeaters/students who are not exempted) students have a final test at week 14 of the given semester. There is no other self control test during the semester. At the end of the course students will write a final test. The exemption and the final tests covers topics and skills in connection with Microsoft office Word, Excel, and PowerPoint (versions: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 followings: 0-60% = 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 internet offered at the webpage of the course (Email registration is required for downloading files). Students who did not get exemption/did not show up at the exemption test/repeaters/students older than first year MUST ATTEND on the course. They should join to one of the groups mentioned in the timetable. The number of the seats is limited in the classroom. Students who has informatics course in the given appointment (according to the timetable) have priority to attend the lesson. Others are allowed to join to the given group if there are free seats. Older students have to do the whole course as well. Students passing the exemption test will automatically receive 5 (excellent) grade at the end of the semester. Students who failed the exemption test must attend the course and do the final test at the end. Students having ECDL (European Computer Driving License) or 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: **28**

1st **week:**
Practical: Class introduction *and* Chapter 1 Introduction to medical terminology

2nd **week:**
Practical: Chapter 2: Anatomical positions, planes and directions

3rd **week:**
Practical: Chapter 3: Parts of the body; Vocab Quiz 1

4th **week:**
Practical: Grammar 1: Basic elements of Latin grammar; Vocab Quiz 2

5th **week:**
Practical: Chapter 4: The mouth and the teeth; Vocab Quiz 3

6th **week:**
Practical: Chapter 5; Regions; Vocab Quiz 4

7th **week:**
Practical: Formation of adjectives; Vocab Quiz

5

8th **week:**
Practical: Revision, Midterm Test

9th **week:**
Practical: Chapter 6: The skeletal system 1

10th **week:**
Practical: The skeletal system (2); Plural forms; Vocab Quiz 6

11th **week:**
Practical: Chapter 7: Joints; complex adjectives; Vocab Quiz 7

12th **week:**
Practical: Chapter 8: The muscular system; Vocab Quiz 8

13th **week:**
Practical: Chapter 9: Greek roots; Latin and Greek prefixes related to numerals and quantities; Latin numerals; Vocab Quiz 9

14th **week:**
Practical: Revision 2; Vocab Quiz 10,**End term Test**

Requirements

Requirements of the course:
Attendance

Attending language classes is compulsory. If a student is late it considered as an absence. Students can miss only 10 percent of the classes that is maximum 2 occasions. If they miss 6 occasions, (no matter why) the final signature will be refused and the student must repeat the course.

Absentees can make up the missed classes in the same week with their own teacher in case they bring a certificate from the doctor to the class. The teacher evaluates active participation in each class. Students are not supposed to share coursebooks in the classes therefore if they fail to bring the coursebook to the class for the second time attendance is refused.

Testing, evaluation

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

A further minimum requirement is the knowledge of 300 words per semester. There is a written word quiz in the first 5-10 minutes of the class, every week. If students fail 4-4 successful word quizzes till the mid-term and the end-term tests they are not allowed to sit in for the test. If students do not have minimum 8 successful word quizzes they have 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: **30**
Practical: **26**

1st **week:**
Lecture: 1) Introduction to genetics, molecular genetics and genomics. DNA is the genetic material. (2) Molecular organization of chromosomes in prokaryotes and eukaryotes. The human genome. Cell division: mitosis. (3) Cell division: meiosis.
Practical: Seminar. How to study. Required and advised readings. Laboratory safety rules in student's laboratories. The nucleus and the chromatin. Cell division, mitosis and meiosis.

2nd **week:**
Lecture: (4) Cytogenetics I. Karyogram, ideogram, banding techniques. Human autosomal trisomies. (5) Cytogenetics II. Abnormalities of the X and Y chromosomes. Sex determination in humans. (6) Cytogenetics III. Structural aberrations of human chromosomes. Genomic imprinting. Uniparental disomy. Molecular cytogenetics.
Practical: Seminar on cytogenetics

3rd **week:**
Lecture: (7) The structure and function of genes. Gene expression. (8) Gene regulation in prokaryotes. (9) Gene regulation in eukaryotes.
Practical: Seminar on gene structure and function..

4th **week:**
Lecture: (10) Epigenetics, the genetic role of RNA. (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.
Practical: Seminar on mendelian genetics I. Theoretical background, problem solving.

Self Control Test (1st test in extra time on Monday morning.)

5th **week:**
Lecture: (13) Gene interactions, epistasis, lethal genes. Multiple alleles. (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) Population genetics.
Practical:
Complementation test. The gene concept.

7th **week:**
Lecture: (19) The molecular, biochemical and cellular basis of genetic diseases I. (20) The molecular, biochemical and cellular basis of genetic diseases II. (21) The treatment of genetic diseases.
Practical: Induction of beta-galactosidase in E. coli cells.

8th **week:**
Lecture: (22) Cancer genetics and genomics. (23) Pharmacogenetics, pharmacogenomics Ecogenetics and ecogenomics. (24) Human gene mapping and disease gene identification.
Practical: Seminar on mendelian genetics II. Problem solving. Pedigree analysis. Polymorphisms.

9th **week:**
Lecture: (25) Human gene mapping and disease gene identification. (26) Bacterial genetics. (27) Developmental genetics and birth defects.
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) Genomics, the human genom project. (29) Prenatal diagnosis. Personalized medicine. (30) Genetic counseling and ethical issues.
Practical: Seminar on population genetics.

11th **week:**
Lecture: Medical genomics lectures
Practical: Detection of human polymorphism by polymerase chain reaction.

12th **week:**
Lecture: Medical genomics lectures
Practical: PCR evaluation of the human polymorphism experiment.
Transformation of E. coli by plasmid DNA.

13th **week:**
Lecture: Medical genomics lectures
Practical: Seminar. General consultation.

14th **week:**
Lecture: Medical genomics lectures
Practical: Medical genomics seminar
Self Control Test (3rd test in extra time on Monday morning.)

Requirements

Conditions of signing the lecture book:

Concerning attendance, the rules are set out in the Rules and Regulations of the University are clear. The presence of students at 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: **12**
Practical: **2**

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.
7. Technologies for testing human genome sequence and proteome variability.

13th **week:**
Lecture: 8. Systems biology and medical diagnostics. Biotechnology.
9. Bioinformatics II. Protein sequence comparison, motifs, prediction of 3D structure, multiple sequence alignments.

14th **week:**
Lecture: 12. Evolutionary genome biology.
13-14. Genomescan technology, global genetic association and its relevance to multigenic diseases.

15. Nanotechnology and medicine.
Practical: 1. Sequence alignment practical.
2. Browsing databases for human diseases genes.

10. Modern genetic maps.
11. Genome databases, gene ontology. Genome analysis, practical examples.
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: **8**
Seminar: **7**

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: Luminescence spectroscopy. Theoretical and technical background and principles of application of fluorescence spectroscopy. Fluorescence conjugation of biomolecules, techniques based on fluorescence resonance energy transfer.

4th **week:**
Lecture: Selected applications of Magnetic Resonance Imaging: exploitation of molecular motions.

5th **week:**
Lecture: Modern microscopy methods for structural and functional characterization of cells. Theoretical background of fluorescence microscopy and image processing. Generation of scanning and wide-field images. Detectors, analog/digital conversion and digital storage of images. Digital image analysis: principles and biological applications. Principles of confocal microscopy. High resolution non-linear optical microscopy.

6th **week:**
Lecture: Principles and applications of flow cytometry. Structure of a flow cytometer and its application fields: immunogenetics, receptor and antigen research and diagnostics, DNA and cell cycle analysis, measurement of membrane potential, membrane permeability and determination of cytosolic pH and ion concentrations, application of fluorescence resonance energy transfer to determine protein associations. (FCET).

7th **week:**
Lecture: Structure of the cell membrane, functional consequences of the mobility (lateral and rotational movement) of proteins in the membrane. Novel models for the structure of the cell membrane, lipid domains. Time-dependent fluorescence and phosphorescence spectroscopy, fluorescence recovery after photobleaching (FRAP), fluorescence correlation spectroscopy.

8th **week:**
Lecture: Modern electrophysiological techniques. Passive and active electrical properties of the cell membrane, structure and function of ion channels. Principles and application of the patch clamp technique: recording ionic currents and membrane potential.

9th **week:**
Lecture: LSC - Laser-Scanning Cytometry (imaging cytometry, slide-based imaging cytometry). Limitations of flow cytometry and microscopy. Comparing flow cytometry, confocal microscopy and laser-scanning cytometry. How does laser-scanning cytometry work? Strength and limitations of the laser-scanning cytometry. Laser scanning-cytometry in cell biology and clinical research.

10th **week:**
Lecture: Closing test

Requirements

Aim of the course: Based on the principles covered in biophysics and cell biology discussion of problems with special relevance to medical biology from a modern molecular biophysical and quantitative biological aspect.
Short description of the course topics:1. Application of nuclear magnetic resonance spectroscopy (NMR) and imaging (MRI) in biology and medicine 2.Luminescence spectroscopy. 3. Flow cytometry and its applications. 4. Structure of the cell membrane, mobility of lipids and proteins in the plasma membrane. 5. Advanced microscopy. 6. Modern electrophysiological techniques 7. Slide-based cytometry.

Compulsory literature: course material and lecture slides published on the website of the Department
Recommended reading: Medical biophysics (Damjanovich, Fidy, Szöllősi Eds.), Medicina, 2009;

Web address for the course material:
Type of examination: practical grade, 5 levels

Requirements:

Conditions for signing the lecture book: attending 5 lectures out of 7. Attention! Lecture books are handled exclusively by the study advisor during the dedicated office hours!
Type of examination: practical grade, 5 levels
Examination: Written test. The exam date is shown in the.

below 50%: fail
50%-59%: pass
60-69 % : satisfactory
70-79 %: good
>= 80% excellent
Repeated/improved exam: during the examination period, one occasion, written test.

Subject: **RADIOTHERAPY IN THE CLINICAL PRACTICE**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Lecture: **14**

1st **week:**
Seminar: Equipments of teletherapy I.
Equipments of teletherapy II.

2nd **week:**
Seminar: Teletherapy (processes, clinical aspects)
Locoregional treatment, risk organs

3rd **week:**
Seminar: Role of radiotherapy (case reports)
Palliative therapy

4th **week:**
Seminar: Special teletherapy techniques
Brachytherapy I.

5th **week:**
Seminar: Brachytherapy II.
Brachytherapy III.

6th **week:**
Seminar: Eye plaque brachytherapy
Isotope therapy

Requirements

The goal is to get to know the process and clinical considerations of radiotherapy (indications, contraindications, equipments).

Department of Oral and Maxillofacial Surgery

Subject: **IMPLANTOLOGY - BASICS OF ORAL IMPLANTOLOGY**
Year, Semester: 4th year/2nd semester
Number of teaching hours:
Seminar: **14**

7th **week:**
Seminar: - History of implantology, introduction
- Biology of osseal healing, biocompatibility, osseointegration and materials related to dental implants
- Anatomy, diagnostic techniques preceding

implantation

8th **week:**
Seminar: - Indications, contraindications and planning of dental implants, time of implantation
- Basics of oral surgery regarding dental implantation
- Complementary surgical techniques, augmentation, sinus lifting, nerve transposition, etc.

9th **week:**
Seminar: - Basic techniques of prosthetics fixed on dental implants
- Implant supported fixed prostheses
- Implant supported removable prostheses

10th **week:**
Seminar: Practice I. (Planning, inserting the dental implant)

11th **week:**
Seminar: Practice II. (Impression techniques: closed tray)

12th **week:**
Seminar: Practice III. (Impression techniques: open tray)

13th **week:**
Seminar: Prosthetics fixed on dental implants, maintenance, treatment of complications

14th **week:**
Seminar: Test
Self Control Test

Subject: **ORAL SURGERY ELECTIVE I. EXTRACTION PRACTICE**
Year, Semester: 4th year/1st semester
Number of teaching hours:
Practical: **14**

3rd **week:**
Self Control Test

6th **week:**
Self Control Test

7th **week:**
Seminar:
Theoretical: Basic rules of the dental office
History taking and examination of oral surgical patients
Infection control
Presurgical preparation of the patients.
Indications and contraindications for extraction
Extraction phantom lab: Instrumentation, positioning of the patient

8th **week:**
Seminar:
Theoretical: Technique and complications of tooth extraction
Pre-surgical information of patient and written consent form
After-care of the oral surgical patients, postexraction instructions
Extraction phantom lab: Technique of tooth extraction and suturing, management of the extraction wound

9th **week:**
Seminar:
TEST
Theoretical: Local anaesthetics
Methods of local anaesthesia, possible adverse reactions and side effects
Extraction phantom lab: application of local anaesthesia
Self Control Test

10th **week:**
Seminar:

Theoretical: Treatment of intra- and postoperative complications of tooth extraction, Usage of elevators
Extraction phantom lab: anaesthesia and extraction of different teeth

11th **week:**
Seminar:
Video lab: Complications of tooth removal and its treatment
Extraction phantom lab: Local anaesthesia, tooth extraction, management of the extraction wound, usage of elevators

12th **week:**
Seminar: TEST Final consultation
Extraction phantom lab: Local anaesthesia, tooth extraction, management of the extraction wound, usage of elevators
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:

AW5 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: **14**

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

Requirements

Number of students should be at least 20!

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:

AW5 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.

Department of Restorative Dentistry

Subject: **CARIOLOGY ELECTIVE I.(FUNDAMENTALS OF CARIOLOGY)**
Year, Semester: 3rd year/1st semester
Number of teaching hours:
Seminar: **14**

1st **week:**
Seminar: Morphology of the teeth. Gnatological aspect of occlusal surfaces

2nd **week:**
Seminar: Partial 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: 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: **14**

1st **week:**
Seminar: Nutrition as the foundation of general and oral health.

2nd **week:**
Seminar: Adequate diet. Energy balance and weight control

3rd **week:**
Seminar: Nutritions and dietary supplements. I.

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
How medications and herbal remedies can affect nutrition, diet and oral health

14th **week:**
Seminar: Self control test

Requirements

No of Seminars: 15
For information about the module contact: Dr. Kelentey Barna
The module is taught provided at least 5 students sign up for it.

Requirements for signing the lecture book:
- To attend seminars on a regular basis (there is no place for making up for missed classes)
- Absences are required to be officially certified which cannot be more than 2 seminars.
- To take the final test of the seminar. The student who does not take this grade offering test his/her lecture book will be refused to be signed.

Examination: Assessment of work on the 5 grade scale

The method of formation of the assessment of work grade:

Based on the result of the final test we follow the below conversion to define the grade:

Achieved result in %	Grade
0-39.9 %	fail (1)
40-54.9 %	pass (2)
55-69.9 %	satisfactory (3)
70-84.9 %	good (4)
85-100 %	excellent (5)

Retake of the final test is not allowed. If the final test is below 40%(pass), then the mid semester grade is a fail. This can be amended with B and C exam chances in the exam period.

Subject: **CARIOLOGY ELECTIVE III. (ESTHETICS IN RESTORATIVE DENTISTRY)**
Year, Semester: 5th year/2nd semester
Number of teaching hours:
Seminar: **12**

1st **week:**
Seminar: Esthetics. Proportions, rules, symmetry and individualisation during composite restorations and build ups. Effects of ageing. Primary, secondary and tertiary morphology

2nd **week:**
Seminar: Bioemulation. Direct or indirect methods? Advantages, disadvantages

3rd **week:**
Seminar: The four dimension of color. Optical characteristics of enamel and dentin

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: **14**

1st **week:**
Seminar: Endodontic guidelines I.

2nd **week:**
Seminar: Endodontic guidelines II.

3rd **week:**
Seminar: One-visit endodontics I.

4th **week:**
Seminar: One-visit endodontics II.

5th **week:**
Seminar: Avulsion I.

6th **week:**
Seminar: Avulsion II.

7th **week:**
Seminar: Endodontic adjuncts I.

8th **week:**
Seminar: Endodontic adjuncts II.

9th **week:**
Seminar: Endodontic adjuncts III.

10th **week:**
Seminar: Endodontic adjuncts IV.

11th **week:**
Seminar: Endodontic case presentation I.

12th **week:**
Seminar: Endodontic case presentation II.

13th **week:**
Seminar: Endodontic monoblocks I.-II.

14th **week:**
Seminar: Test

Requirements

Seminar: 15
The module is taught provided at least 5 students sign up for it.
For information about the module contact: Dr. Juhász Alexander

Requirements for signing the lecture book:
- To attend seminars on a regular basis (there is no place for making up for missed classes.)
- Absences are required to be officially certified which cannot be more than 2 seminars.
- To take the final test of the seminar. The student who does not take this grade offering test his/her lecturebook will be refused to be signed.

Examination: Assessment of work on the 5 grade scale

The method of formation of the assessment of work grade:

Based on the result of the final test we follow the below conversion to define the grade:

Achieved result in %	Grade	
0-39.9 %	fail	(1)
40-54.9 %	pass	(2)

55-69.9 %	satisfactory (3)
70-84.9 %	good (4)
85-100 %	excellent (5)

Retake of the final test is not allowed. If the final test is below 40%(pass),then the mid semester grade is a fail. This can be amended with B and C exam chances in the exam period.

Subject: **ENDODONTICS ELECTIVE II. (MICROSCOPE IN DENTAL PRACTICE)**
Year, Semester: 5th year/1st semester
Number of teaching hours:
Seminar: **14**

1st **week:**
Seminar: Microscopy from the beginning (history, magnification, illumination, types). The dental microscopes. I.

2nd **week:**
Seminar: Microscopy from the beginning (history, magnification, illumination, types). The dental microscopes. II.

3rd **week:**
Seminar: Ergonomics in dentistry. I.

4th **week:**
Seminar: Ergonomics in dentistry. II.

5th **week:**
Seminar: Musculoskeletal Disorders (MSDs) in dentistry. I.

6th **week:**
Seminar: Musculoskeletal Disorders (MSDs) in dentistry. II.

7th **week:**
Seminar: Four handed treatment. I.

8th **week:**
Seminar: Four handed treatment. II.

9th **week:**
Seminar: Dental microscope in endodontic and restorative dentistry. I.

10th **week:**
Seminar: Dental microscope in endodontic and restorative dentistry. II.

11th **week:**
Seminar: Dental microscope in the other fields of dentistry. I.

12th **week:**
Seminar: Dental microscope in the other fields of dentistry. II.

13th **week:**
Seminar: Digital photodocumentation and the dental operating microscope. I.-II.

14th **week:**
Seminar: Writing test.

Requirements

Seminar: 15
The module is taught provided at least 5, max. 10 students sign up for it.
For information about the module contact: Dr. Bágyi Kinga

Requirements for signing the lecture book:
- To attend seminars on a regular basis (there is no place for making up for missed classes.)

- Absences are required to be officially certified which cannot be more than 2 seminars.
- To take the final test of the seminar. The student who does not take this grade offering test his/her lecturebook will be refused to be signed.

Examination: Assessment of work on the 5 grade scale

The method of formation of the assessment of work grade:

Based on the result of the final test we follow the below conversion to define the grade:

Achieved result in %	Grade
0-39.9 %	fail (1)
40-54.9 %	pass (2)
55-69.9 %	satisfactory (3)
70-84.9 %	good (4)
85-100 %	excellent (5)

Retake of the final test is not allowed. If the final test is below 40%(pass), then the mid semester grade is a fail. This can be amended with B and C exam chances in the exam period.

Reading materials:

Rick Schmidt, Martin Boudro: The Dental Microscope (Why and How)
http://www.kennewickfamilydental.com/the-dental-microscope.html

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 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

CHAPTER 22
TITLES OF THESES

Department of Biomaterials and Prosthetic Dentistry

1. Title: Cementation of Dental Ceramics
2. Title: Custom made post and core restorations
3. Title: Prefabricated posts and their application in dentistry
Tutor: Tünde Radics D.M.D., Ph.D.

4. Title: CAD/CAM technology in fabricating total removable dentures
5. Title: Impression techniques for removable partial denture cases
Tutor: István Lampé D.M.D.

6. Title: Challenge of investigating and develop modern esthetic filling materials
7. Title: Dimensional changes of dental composites
8. Title: Mechanical characteristic of dental composites
Tutor: Katalin Bukovinszky D.M.D.

9. Title: At-home bleaching
10. Title: Basics of fixed prosthodontics
11. Title: Intraoral scanners in orthodontics
12. Title: Tooth whitening in clinical practice.
Tutor: Tamás Bistey D.M.D., Ph.D.

13. Title: Biodentin containing modified hyaluronic acid hydrogel composite application in dentistry (Common topic with Dr. Melinda Szalóki)
14. Title: Effect of 10-Methacryloyloxydecyl dihydrogen phosphate on cell viabilities (Common topic with Dr. Melinda Szalóki)
15. Title: The effect of BMP-7 overexpression on the differentiation of dental pulp stem cells
Tutor: Ferenc Tóth M.Sc.

16. Title: Combined drug delivery in dentistry
17. Title: Electrospun nanofibers and composites in dentistry
18. Title: Functionalization possibilities of Ti-implants
Tutor: József Bakó M.Sc., Ph.D.

19. Title: Biodentin containing modified hyaluronic acid hydrogel composite application in dentistry (Common topic with Ferenc Tóth)
20. Title: Effect of 10-Methacryloyloxydecyl dihydrogen phosphate on cell viabilities (Common topic with Ferenc Tóth)
21. Title: Role of 10-Methacryloyloxydecyl dihydrogen phosphate (MDP) and γ-methacryloxypropyl trimethoxysilane promoters in histopathological sample preparation of titanium containing thin bone section
Tutor: Melinda Szalóki M.Sc., Ph.D.

22. Title: Classification of ceramics used in prosthodontics
23. Title: Practical aspects of dental photography
24. Title: Rubber dam isolation for indirect restorations
Tutor: László Póti D.M.D.

25. Title: Dental aspects of autoimmun diseases
26. Title: Dental aspects of primer and secunder immundeficiencies
Tutor: Márta Szegedi D.M.D.

Department of Pharmacology and Pharmacotherapy

1. Pharmacotherapy of trigeminal neuralgia

2. Parkinson patient in the dental chair

3. "Anxiety in the dental chair: pharmacological treatment"

Tutor: József Szentmiklósi M.D., Ph.D.

1. Connections between rheumatoid arthritis and periodontal disease with a focus on pharmacotherapy
Tutor: Attila Megyeri M.D., Ph.D.

1. Pharmacotherapy of bronchial asthma: dental implications

2. Class I antiarrhythmic agents: dental implications

3. Reflux disease and the dental patient

Tutor: Ágnes Cseppentő M.D.

Department of Oral and Maxillofacial Surgery

1. Title: Perineural spread in squamosus cell carcinomas of the oral cavity
2. Title: Salivary gland diseases
Tutor: Adrienne Szabó M.D., Ph.D.

3. Title: Dhysgmatia
4. Title: Reconstruction
5. Title: Trauma
Tutor: Róbert Boda M.D.

6. Title: Lipomas in maxillofacial region
7. Title: Treatment facilities in chronic bilateral mandibular luxation
8. Title: Treatment modalities in frontal sinus fractures
Tutor: Dóra Horváth M.D.

9. Title: Mandibular distraction osteogenesis
10. Title: Odontogenic keratocyst
11. Title: Treatment modalities of mandibular fractures in childhood
Tutor: Levente Czompa M.D.

Department of 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: Invisalign orthodontic system
5. Title: Pierre Robin sequence (PRS)
6. Title: Treatment of impacted teeth
Tutor: Judit Török D.M.D.

7. Title: Drug induced developmental defects of the dental enamel
8. Title: Lobodontia: specific pattern of dental dysmorphpology
9. Title: Regenerative endodontic treatment of the young permanent teeth
Tutor: Gabriella Kovalecz D.M.D.

10. Title: Fixed orthopedic appliances
11. Title: Orthodontic bonding materials
12. Title: The etiology and prevalence of white spot lesions in orthodontic patients
Tutor: Géza Vitályos D.M.D.

13. Title: Appliances for distillation in the orthodontics
Tutor: Viktória Hegedűs D.M.D.

14. Title: Dental aspects of Down syndrome
Tutor: Brigitta Baksa D.M.D.

15. Title: Alternate Rapid Maxillary Expansions and Constrictions (Alt-RAMEC) History and Protocol
16. Title: Last 120 years of Orthodontic Extraction Frequencies
17. Title: Mandibular Symphyseal Distraction Osteogenesis
Tutor: Péter Borbély D.M.D.

Department of Periodontology

1. Title: Orthodontic management in aggressive periodontitis
2. Title: Periodontal disease and the special needs patient
3. Title: Surgical treatment of the residual periodontal pocket
Tutor: István Varga D.M.D., Ph.D.

4. Title: Cone beam CT imaging in different areas of dentistry
5. Title: Periodontal ligament from aspect of periodontal regeneration
6. Title: Role of biological mediators in periodontal healing responses
Tutor: János Angyal D.M.D., Ph.D.

7. Title: Prevalence and etiopathogenezis of Epstein-Barr virus in chronic and aggressive periodontitis
8. Title: Prevalence and etiopathogenezis of periodontopathogen bacteria in chronic and aggressive periodontitis
Tutor: Katinka Hernádi D.M.D., Ph.D.

9. Title: Periodontal splinting
Tutor: Eszter Szentléleky D.M.D.

Department 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: Revolutionary sealers in endodontics
Tutor: Alexander Juhász D.M.D.

7. Title: Microscope in dentistry
8. Title: New technologies to improve root canal disinfection
9. Title: Obstruction of root canal
Tutor: Kinga Bágyi Dr. habil., D.M.D., Ph.D.

10. Title: Adhesive in dentistry
11. Title: Composite repair
12. Title: Effects of ageing on composite, composite interface (TDK)
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: Lasers and its use in restorative dentistry
17. Title: Photopolymerization lamps, photopolymerization of the composite filling
18. Title: Temporary filling materials in restorative dentistry
Tutor: Bettina Balogh D.M.D.

19. Title: Endodontic treatment in case of special root canal morphology
20. Title: Methods and instruments of root canal filling removal
Tutor: László Nagy M.D.

21. Title: Root perforation and treatment possibilities
Tutor: László Nagy D.M.D.

22. Title: Irrigant solution accidents
23. Title: Machine-assisted irrigant agitation techniques
24. Title: Resin-based core root canal filling materials
Tutor: Enikő Tóth D.M.D.

Department of Oral Medicine

1. Title: Periodontal disease and cancer
2. Title: Periodontal disease and liver disease
Tutor: Ildikó Tar Ph.D.

Department of Dentoalveolar Surgery

1. Title: Autoimmune diseases with oral symptoms
2. Title: Corticotomy in the maxillofacial surgery
3. Title: Dental and surgical aspects of treating patients with special needs
4. Title: Dental management of mentally handicapped patients with genetical disorders
5. Title: Embriology, clinical appearance and treatment of non-odontogen cysts in the maxillofacial region
6. Title: Four-handed dentistry
7. Title: Iatrogenic dental injuries in need of dentoalveolar treatment
8. Title: Local bleeding control methods in dentoalveolar surgery
9. Title: Possible usage of laser in dentoalveolar surgery
Tutor: Etelka D. Tóth D.M.D.

10. Title: Dental aspects of neurodegenerative disorders
11. Title: Dental management of patients treated with oncological diseases
12. Title: Dental treatment of patients receiving allogeneic peripheral blood stem cell transplantation
Tutor: Enikő Gebri D.M.D.

13. Title: MRONJ: prevention and therapy

14. Title: Treatment possibilities of retained canines
Tutor: Levente Lukács D.M.D.

15. Title: Guided bone regeneration in dentoalveolar surgery
16. Title: Importance of systemic diseases in dentistry
17. Title: Management of impacted teeth other than third molars
Tutor: Adrienn Tóth D.M.D.

18. Title: Possible treatment options of sinus perforation
Tutor: Orsolya Liska D.M.D.

CHAPTER 23
LIST OF TEXTBOOKS

BMC

Introduction to Biophysics I.:
Serway/Vuille: College Physics.
10th edition. Cengage Learning, 2014. ISBN: 978-1285737027.
Gáspár R.: Physics for BMC students.
University of Debrecen, .

Introduction to Medical Chemistry I.:
McMurry, J., Fay, R.C.: Chemistry.
7th edition. Pearson Education, 2015. ISBN: 978-0321943170.

Introduction to Medical Chemistry II.:
McMurry, J., Fay, R.C.: Chemistry.
7th edition. Pearson Education, 2015. ISBN: 978-0321943170.
F., Erdődi, Cs., Csortos: Organic Chemistry for Premedical Students.
University of Debrecen, 2011.

Hungarian Language for BMC students:
Gerő Ildikó-Kovács Judit: Színesen magyarul.
2017.

Introduction to Biology I.:
Sadava, Hillis, Heller, Berenbaum: Life: The Science of Biology.
10th edition. Sinauer Macmillan, 2013. ISBN: 978-1-4641-4124-9.

Introduction to Biophysics II.:
Serway/Vuille: College Physics.
10th edition. Cengage Learning, 2014. ISBN: 978-1285737027.
Gáspár R.: Physics for BMC students.
University of Debrecen.

Introduction to Biology II.:
Sadava, Hillis, Heller, Berenbaum: Life: The Science of Biology.
10th edition. Sinauer Macmillan, 2013. ISBN: 978-1-4641-4124-9.

English for BMC students:
Clive Oxenden-Christina Latham-Koenig. Paul Seligson: English File 3E Pre-Intermediate Student's Book With Itutor.
3.. Oxford University Press, 2013. ISBN: 9780194598651.
Clive Oxenden-Christina Latham-Koenig. Paul Seligson: English File 3E Pre-Intermediate Student's Book With Itutor.
3.. Oxford University Press, 2013. ISBN: 9780194598651.

SBMC

Introduction to Biophysics:
Serway/Vuille: College Physics.
10th edition. Cengage Learning, 2014. ISBN: 978-1285737027.

Introduction to Medical Chemistry :
McMurry, J., Fay, R.C.: Chemistry.
7th edition. Pearson Education, 2015. ISBN: 978-0321943170.
F., Erdődi, Cs., Csortos: Organic Chemistry for Premedical Students.
University of Debrecen, 2011.

Introduction to Biology:
Sadava, Hillis, Heller, Berenbaum: Life: The Science of Biology.
10th edition. Sinauer Macmillan, 2013. ISBN: 978-1-4641-4124-9.

1st year

Odontology:
B.G. Jansen van Rensburg: Oral Biology.
Quintessence, 1995. ISBN: 0-86715-271-0.
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 Lecture:

McMurry, J., Fay, R.C.: Chemistry.
7th edition. Pearson Education, 2015. ISBN: 978-0321943170.
Gergely, P.: Organic and Bioorganic Chemistry for Medical Students.
3rd edition. Medical and Health Science Center, University of Debrecen, 2008.
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 Lecture:

Damjanovich, S., Fidy, J., Szöllősi, J.: Medical Biophysics.
1st edition. Medicina, 2009. ISBN: 978 963 226 249 9.

Biostatistics:

Wayne W. Daniel: Biosatatistics: 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.:

Gál Erika-Győrffy Erzsébet: Egy kicsit magyarul.
2017. ISBN: 978-963-12-9671-6.

Latin Language:

Répás László: Latin for Students of Dentistry.
2017.

Computer Science:

Greg Perry: Microsoft Office.
2007. ISBN: 9789-6396-3737-5.

Oral Anatomy, Histology and Embryology I. Lecture:

K. L. More: Clinically Oriented Anatomy.
4th edition. Lippincott Williams &Wilkins, 2004. ISBN: 0-683-06141-0.
Sobotta: Atlas of Human Anatomy I.-II..
14th edition. Urban & Schwarzenberg. ISBN: 978-0-443-10349-0.
Sadler, T. W. : Langman's Medical Embryology.
12th edition. Lippincott Williams &Wilkins, 2012. ISBN: 978-1-4511-4461-1.
Ross, M.H.: Histology. A Text and Atlas.
7th edition. Lippincott Williams & Wilkins, 2016. ISBN: 978-14698-8931-3.
D.J. Johnson: Anatomy for Dental Students.
Oxford University Press, 1983. ISBN: 0-19-261348-0.
B.K.B. Berkovitz, G.R. Holland, B.J. Moxham: A Color Atlas and Text of Oral Anatomy.
2nd edition. Mosby-Wolfe, 1992. ISBN: 0-7234-1688-5.
J.K. Avery: Essentials of oral histology and embryology. A clinical approach.
2nd edition. Mosby-Wolfe, London, 2000. ISBN: 0-323-00460-1.
Eric W. Baker: Anatomy for Dental Medicine.
Thieme, . ISBN: 978-1626223-238-9.

Molecular Biology Lecture:

Alberts et al.: Molecular Biology of the Cell.
5th edition. Garland Public Inc., 2007.
T. Á. Brown: Genomes.
3rd edition. Garland Public Inc. ISBN: 0-8153-

4138-5.

First aid and reanimation:

The St. John Ambulance Association and Brigade, The British Red Cross society: First Aid Manual.
Dorling Kisnerdsley Ltd., 1992. ISBN: 0-863-18-4.
József Betlehem: First Things to Be Done in Emergencies – Providing First Aid for Health Professionals.
Medicina Könyvkiadó Zrt. , 2012.

Preventive Dentistry I.:

N. O. Harrais, F. Garcia-Godoy: Primary Preventive Dentistry.
7th edition. Prentice Hall, 2009. ISBN: 13 9780132412230.

Medical Genetics:

Robert L. Nussbaum, Roderick R. McInnes, Huntington F. Willard, Ada Hamosh: Thompson and Thompson Genetics in Medicine.
8th edition. Saunders Elsevier, 2016. ISBN: 978-1-4377-0696-3.
Practical Courses in Genetics.
University Medical School of Debrecen, 2002.
Hartl D. L.: Essential Genetics: A Genomics Perspective.
6th edition. Jones & Bartlett Publishers, 2014. ISBN: 978-1-4496-8688-8.
Thomas D. Gelehrter, Francis S. Collins, David Ginsburg: Principles of Medical Genetics.
2nd. Williams and Wilkins, 1998. ISBN: 0-683-03445-6.
Tom Strachan, Andrew P. Read: Human Molecular Genetics.
4th. Garland Science, 2011. ISBN: 0-8153-4184-9.
Eberhard Passarge: Color Atlas of Genetics.
2nd edition. Georg Thieme Verlag, 2001. ISBN: 3-13-100362-6.

Cell Biology Lecture:

Alberts 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-Mezei Zsuzsa Lívia: Magyarules.
2018.

Medical Genomics:

Campbell, A. M., Heyer, L. J.: Discovering genomics, proteomics and bioinformatics.
Pearson Education Inc. ISBN: 0-8053-4722-4.

2nd year

Oral Anatomy, Histology and Embryology II. Lecture:

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.: Histology. A Text and Atlas.
7th edition. Lippincott Williams & Wilkins, 2016. ISBN: 978-14698-8931-3.
D.J. Johnson: Anatomy for Dental Students.
Oxford University Press, 1983. ISBN: 0-19-261348-0.
B.K.B. Berkovitz, G.R. Holland, B.J. Moxham: A Color Atlas and Text of Oral Anatomy.
2nd edition. Mosby-Wolfe, 1992. ISBN: 0-7234-1688-5.
Eric W. Baker: Anatomy for Dental Medicine.
Thieme, . ISBN: 978-1626223-238-9.

Biochemistry I. Lecture:

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. Lecture:

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.

History of Dentistry, Prosthetic Dentistry Compulsory Elective I.:

Walter A. Hoffmann-Axthelm: History of Dentistry.
Quintessence Publishing Co, 1981. ISBN: 3876521610, 97838765.

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.
M. Radnai: Odontology and Gnathology.
Medicina. ISBN: 9789632264394.
R. Wassell, A. Naru, Amar, J. Steele, F. Nohl: Applied Occlusion.
Quintessence Pub Co. ISBN: 9781850972778.
B. G. N. Smith, L. C. Howe: Planning and

Making Crowns and Bridges.
Taylor & Francis. ISBN: 9780415398503.

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 Lecture (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.: Histology. A Text and Atlas.
7th edition. Lippincott Williams & Wilkins, 2016. ISBN: 978-14698-8931-3.
Physiology Practice. Exercise Book.
revised edition.2000.
Physiology Practice. A Laboratory Guide.
revised edition.2000.
: Biochemistry and Molecular Biology, Sillabus, 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 Total and partial removable dentures:

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. 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.
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, 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 Fixed Prosthodontics:

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. 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.
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.:

W.R. Proffit: Contemporary Orthodontics .
Mosby Year Book, 2000. ISBN: 1-556-64553-8.
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.
E. W. Odell: Clinical Problem Solving in Dentistry.
Churchill Livingstone. ISBN: 9780443067846.
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.

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.

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.

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.

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.:

W.R. Proffit: Contemporary Orthodontics.
Mosby Year Book, 2000. ISBN: 1-556-64553-8.
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 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.
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.

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.

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.

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.
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.
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.

Echocardiography:

Feigenbaum: Echocardiography.
.

Endodontics elective II. (Microscope in dental practice):

Rick Schmidt, Martin Boudro: The Dental Microscope (Why andHow).
.

Neurology:

Karl E. Misulis, Thomas C. Head: Netter's Concise Neurology Updated Edition.
. ISBN: 978-0323482547, 0323.

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.
Thieme, 2006. ISBN: 1-58890-347-8.
M.Manoque, S. Patel, R.Walker: The Principles of Endodontics .
2005.
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..
G. Bergenholtz, P. H. Bindslev, C. Reit: Textbook of Endodontology.
Blackwell-Munksgaard, 2003. ISBN: 8-7161-2185-6.
Ford's P.: Problem-Based Learning in Endodontology.
Wiley-Blackwell, 2011. ISBN: 978-1-4051-6211-1.
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.
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.:

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.

Pediatric Dentistry II.:

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.

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.
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.
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.