

BULLETIN

UNIVERSITY OF DEBRECEN

ACADEMIC YEAR 2022/2023

FACULTY OF DENTISTRY

Coordinating Center for International Education

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CHAPTER 1 WELCOME FROM THE DEAN

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

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

I encourage you to read this booklet carefully, and become a unique and competent dentist of your country.

Best wishes: the Dean

CHAPTER 2

INTRODUCTION

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

CHAPTER 2

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

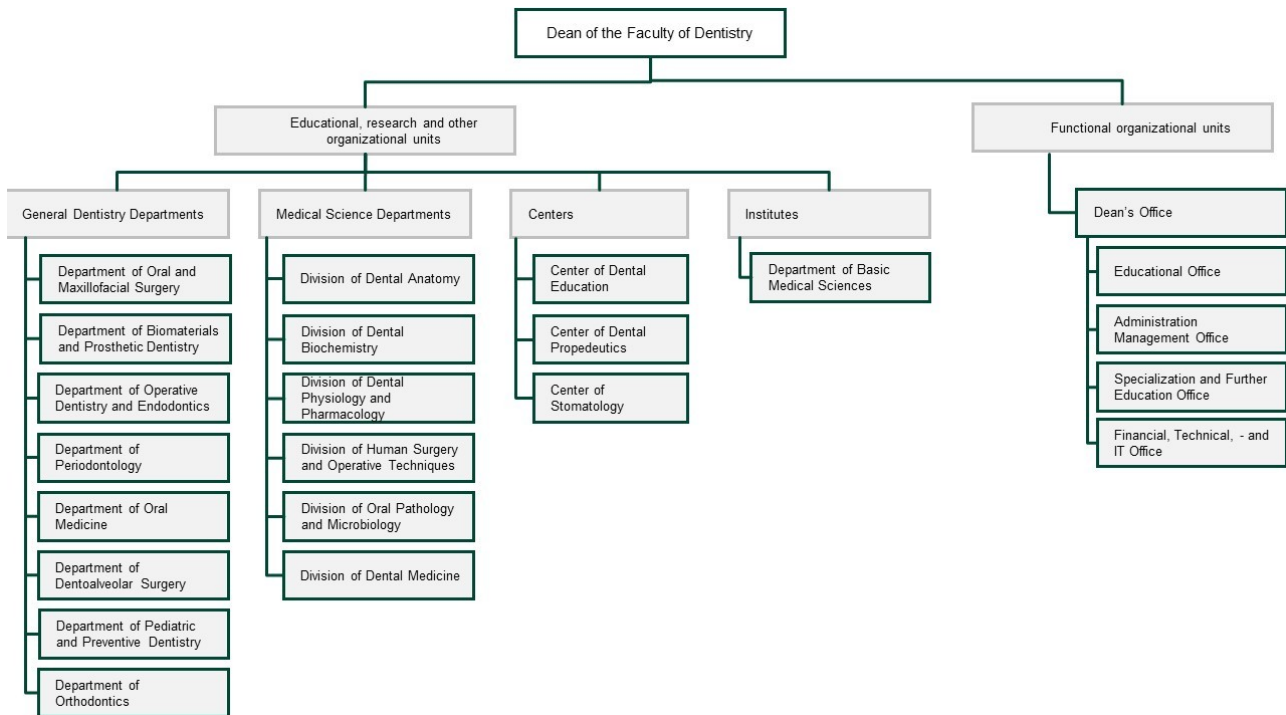
CHAPTER 3 ORGANIZATION STRUCTURE OF THE UNIVERSITY OF DEBRECEN

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., Ph.D., 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., Ph.D., D.Sc.
Address	4032 Debrecen, Egyetem tér 1.
Phone	+36-52-412-900/65314
E-mail	tozser@med.unideb.hu

CHAPTER 3

COORDINATING CENTER FOR INTERNATIONAL EDUCATION	
Director	Prof. 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. habil
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 Szentandrassy 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

FACULTY OF DENTISTRY - GENERAL DENTISTRY AND MEDICAL SCIENCE DEPARTMENTS



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.D., L.D.S., Ph.D.
Associate Professor	Ms. Tünde Radics D.M.D., Ph.D.
Senior Research Fellow	Ms. Andrea Keczánné Üveges M.Sc., Ph.D.
Assistant Professor	József Bakó M.Sc., Ph.D. Tamás Bistey D.M.D., Ph.D.
	Ms. Melinda Szalóki M.Sc., Ph.D.
Assistant Lecturer	Ms. Edit Hrubí D.M.D. Ms. Rita Mohácsi D.M.D. Ms. Anita Pétercsák D.M.D. Ms. Márta Szegedi D.M.D.
Departmental Engineer	Ms. Ibolya Kálmán-Szabó M.Sc.
Clinical Specialist	Ms. Katalin Bukovinszky D.M.D. Gábor Suta D.M.D. Márton Suta D.M.D.
Resident	Ms. Boglárka Berta D.M.D. Ms. Sára Csermák D.M.D. Ms. Ildikó Mag D.M.D.
Academic Advisor	István Lampé M.D., L.D.S.

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.
Master Lecturer	Róbert Boda M.D.
Assistant Lecturer	Ms. Dóra Horváth M.D.
Clinical Assistant	Levente Czompa M.D. Ms. Petronella Révész M.D.
Candidate Clinical Assistant	Ms. Eszter Barbara Bán M.D.
Resident	Géza Majoros M.D.

DEPARTMENT OF ORTHODONTICS

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

Head of Department	Géza Vitályos D.M.D., Ph.D.
Assistant Lecturer	Ms. Leila Hamid D.M.D. Ms. Judit Hevesi D.M.D.
Clinical Specialist	Ms. Judit Török D.M.D.
Dentist	Ms. Éva Berecz D.M.D. Ms. Eszter Faragó-Ládi D.M.D.
Resident	Ms. Barbara Oláh D.M.D. Ms. Patrícia (away) Vinnai D.M.D.

DEPARTMENT OF PERIODONTOLOGY

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

Associate Professor, Head of Division	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. Zsófia Hadházi D.M.D. Fábián Tar D.M.D.
Resident	Ms. Rita Erdélyi D.M.D. György Reznik D.M.D. Ms. Alexandra Szép D.M.D.

DEPARTMENT OF OPERATIVE DENTISTRY AND ENDODONTICS

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-725

E-mail: konzervalo@unideb.hu

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. Ms. Renáta Martos D.M.D., Ph.D.
Assistant Lecturer	Ms. Bettina Balogh D.M.D. László Nagy D.M.D. Ms. Kitti Sipos D.M.D. Ms. Enikő Tóth D.M.D.
Clinical Specialist	Alexander Juhász D.M.D.
Dentist	Ms. Judit Bohács D.M.D.

	Péter Suta D.M.D.
Resident	Ms. Veronika Gutema D.M.D.
	Ms. Erika Hidi D.M.D.
	Ms. Zsófia Szabó D.M.D.

DEPARTMENT OF ORAL MEDICINE

Nagyerdei krt. 98., Debrecen, 4028

Associate Professor, Head of Department	Ms. Ildikó Tar D.M.D., 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., Ph.D.
Assistant Lecturer	Ms. Brigitta (away) Baksa D.M.D., Ph.D.
	Ms. Zsuzsa Kapusi-Papp D.M.D.
Dentist	Ms. Adél (away) Dakos D.M.D.
Resident	Ms. Eszter Gábor D.M.D.
	Csaba Molnár D.M.D.
	Ms. Ágnes Szabó D.M.D.

DEPARTMENT OF DENTOALVEOLAR SURGERY

Nagyerdei krt. 98., Debrecen , 4028

Assistant professor	Ms. Enikő Gebri D.M.D.
Assistant Lecturer, Head of Department	Ms. Etelka D. Tóth D.M.D.
Assistant Lecturer	Levente Lukács D.M.D.
	Ms. Boglárka Skopkó D.M.D.
	Ms. Márta Szepesi D.M.D.
	Ms. Adrienn Tóth D.M.D.
Dentist	Ms. Georgina Farkas D.M.D.
	Ms. Nándor Hegedűs D.M.D.
	Nándor Kalas D.M.D.
	Ms. Orsolya Liska D.M.D.
	Ms. Dóra Szakács D.M.D.
Resident	Tamás Kőrösi D.M.D.
	Máté Taskó D.M.D.
	Ms. Janka Tóth D.M.D.

CHAPTER 5 ADMINISTRATIVE UNITS

FACULTY OF DENTISTRY DEAN'S OFFICE

Nagyerdei krt. 98., Debrecen, 4032, Tel: 52-411-717/56722

Head of Educational Office	István Lampé M.D., L.D.S.
Vice Head of the Educational Office	Ms. Viktória Reszegi
Secretary - Department of Biomaterials and Prosthetic Dentistry	Ms. Zsófia Bogdándyné Demeter
Secretary - Department of Operative Dentistry and Endodontics	Ms. Hajni Tóth Jánosné
Secretary - Department of Oral and Maxillofacial Surgery	Ms. Györgyi Baloghné Pápai
Secretary - Department of Orthodontics	Ms. Fruzsina Nagy M.Sc., Ph.D.

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 M.A.
Marketing Coordinator	Ms. Eszter Balázs M.Sc. Ms. Dóra Mónus M.A.
Financial Coordinator	Ms. Rita Kovács J.D.
Agent Coordinator	Ms. Katalin Tatár-Györe M.A.
Ranking and Marketing Coordinator	Ms. Zsófia Münnich M.Sc.
English Program Coordinators	Ms. Dóra Benkő (Admission, Visa Issues, BMC, US Loans) Ms. Fruzsina Kiss (Tuition fee, Financial certificates, Refunds) Ms. Marianna Gyuris (Admission, Visa issues, USMLE, MCCEE, Stipendium Hungaricum Scholarship, Wyckoff Heights) Ms. Ildikó Lakatos M.A. (Admission, Visa Issues) Ms. Enikő Sallai M.Sc.

(Tuition fee, Health Insurance)

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

IT Project Coordinator

Imre Szűcs B.Sc.

REGISTRAR'S OFFICE

Nagyerdei krt. 94., Debrecen, 4032, Tel: +36-52-258-008
E-mail: eduoffice@med.unideb.hu; deaokto@med.unideb.hu

Head of Registrar's Office

Pál Pap M.Sc., Ph.D.

Secretary

Ms. Viktória Rubos-Varga B.A.

Neptun Coordinator

Ádám Richárd Jasák B.A.

English Program Officer

Gábor Hatvani

Ms. Bernadett Illó M.A.

Ms. Éva Ludánszki

Ms. Réka Rónai M.Sc.

Ms. Nóra Beatrix Máthé B.Sc.

Hungarian Program Officer

Ms. Zsuzsa Barta B.A.

Tamás Buka M.A.

Ms. Nóra Faragó M.Sc.

Ms. Anikó Karcza B.Sc.

Ms. Andrea Beáta Kondás-Molnár M.Sc.

Ms. Ágnes Ojtozi M.A.

Ms. Anna Mária Pásztori B.Sc.

Ms. Andrea Dajkáné-Rácz B.Sc.

Attila Tóth 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 Szentandrassy M.D., Ph.D. (BMC I 2nd semester; BMC II)
Lecturer	János Almássy M.Sc., Ph.D. Ms. Szilvia Benkő M.Sc., Ph.D. András Birinyi M.Sc., Ph.D. Ms. Zsuzsanna Birkó M.Sc., Ph.D. Gergely Buglyó M.D., Ph.D. Ms. Gabriella Czifra M.Sc., Ph.D. Ms. Krisztina Deák-Pocsai M.Sc., Ph.D. Ms. Beatrix Dienes M.Sc., Ph.D. Ms. Nóra Dobrosi M.Sc., Ph.D. János Fodor M.Sc., Ph.D. Botond Gaál M.Sc., Ph.D. Ms. Mónika Gönczi M.Sc., Ph.D. Ms. Krisztina Holló M.Sc., Ph.D. Balázs Horváth M.D.,Ph.D. Ms. Judit Keserű M.Sc., Ph.D. Kornél Kistamás M.Sc., Ph.D. Ms. Adrienn Kovács 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. Attila Oláh M.Sc., Ph.D. Ms. Melinda Paholcsek M.Sc., Ph.D. Balázs Pál M.D.,Ph.D. Ms. Éva Rác M.Sc., Ph.D.

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

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	György Panyi M.D., Ph.D., D.Sc.
Study Advisor	Attila Jenei M.Sc., Ph.D. (BMC II) Zoltán Varga M.Sc., Ph.D., D.Sc. (BMC I)
Lecturer	Zsolt Bacsó M.D., Ph.D. Péter Hajdu M.Sc., Ph.D. Tamás Kovács M.D., Ph.D. László Mátyus M.D., Ph.D., D.Sc. Ms. Enikő Nizsalóczki M.Sc., Ph.D. György Panyi M.D., Ph.D., D.Sc. Ferenc Papp M.Sc., Ph.D. G. Tibor Szántó M.Sc., Ph.D. János Szöllősi M.Sc., Ph.D., D.Sc., M.H.A.Sc. Zoltán Varga M.Sc., Ph.D., D.Sc. Ms. Florina Zákány M.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.
-----------------	-------------------------------

CHAPTER 6

Course Coordinator	Ms. Csilla Csontos 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. Péter Bay M.Sc., Ph.D., D.Sc. Bálint Bécsi M.Sc., Ph.D.
	Ms. Anita Boratkó M.Sc., Ph.D.
	Ms. Csilla Csontos 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.D., L.D.S., 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.
Professor Emeritus	Miklós Antal M.D., Ph.D., D.Sc. Ms. Klára Matesz 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.
Assistant Professor	Ms. Róza Zákány M.D., Ph.D. Ms. Tímea Bácskai M.Sc., Ph.D. Botond Gaál M.Sc., Ph.D. Zoltán Hegyi M.Sc., Ph.D. 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.
Assistant Lecturer	Ms. Angelika Varga M.Sc., Ph.D. Ms. Ildikó Wéber M.Sc., Ph.D. Ms. Ildikó Papp M.Sc., Ph.D. Roland Takács M.Sc., Ph.D.
PhD Student	Ms. Éva Kókai M.Sc. Zsolt Kocsis M.D. Bence Patrik Kovács M.D. Vince Szegeczki M.D.
Postgraduate Lecturer	Ms. Krisztina Hegedűs M.Sc. Ms. Annamária Kenyeres M.Sc. Ms. Gréta Kis M.Sc.
Junior Scientific Officer	Ms. Klaudia Dócs M.Sc., Ph.D.

	László Ducza M.Sc.
	Ms. Andrea Gajtkó M.Sc.
	Tibor Hajdú M.D.
	Ms. Éva Katona M.Sc.
	Ms. Csilla Szűcs M.Sc.
	Ms. Rita Varga M.Sc.
	Ms. Judit Vágó M.Sc.
Invited Lecturer	Tamás Papp M.D., Ph.D.
Course Director	Tamás Juhász M.Sc., Ph.D. (Macroscopic Anatomy)
	Zoltán Mészár M.Sc., Ph.D. (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. Tímea Bácskai 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 Tózsér M.Sc., Ph.D., D.Sc.
Full Professor	Ms. Éva Csősz M.Sc., Ph.D. László Nagy M.D., Ph.D., M.H.A.Sc.
Professor Emeritus	László Fésüs M.D., Ph.D., D.Sc., M.H.A.Sc.
Associate Professor	Zoltán Balajthy M.Sc., Ph.D. László Bálint Bálint M.D., Ph.D. Endre Barta M.Sc., Ph.D. Zsolt Sarang M.Sc., Ph.D.
	Ms. Beáta Scholtz M.Sc., Ph.D. István Szatmári M.Sc., Ph.D. Lóránt Székvölgyi M.Sc., Ph.D.
Senior Research Fellow	András Mádi M.Sc., Ph.D.
Assistant Professor	Róbert Király M.Sc., Ph.D.

	Endre Károly Kristóf M.D., Ph.D.
	Mohamed Mahdi M.D., Ph.D.
	János Mótyán M.Sc., Ph.D.
Research Fellow	Ms. Szilvia Tőkés M.Sc., Ph.D.
	Pál Krisztián Bene M.Sc., Ph.D.
	Gergő Kalló M.Sc., Ph.D.
	Gergely Nagy M.Sc., Ph.D.
	Szilárd Póliska M.Sc., Ph.D.
	András Szabó M.Sc., Ph.D.
Junior Research Fellow	Ms. Mária Szatmári-Tóth M.Sc., Ph.D.
	Viktor Ambrus M.Sc.
	Ms. Dóra Bojcsuk M.Sc., Ph.D.
	Ms. Zsuzsa Csobán-Szabó M.Sc.
	Ms. Mária Golda M.Sc., Ph.D.
	Gyula Hoffka M.Sc.
	Károly Jambrovics M.Sc., Ph.D.
	Richárd Tamás Linkner M.Sc.
	Márió Miczi M.Sc.
	Ms. Vanda Toldi M.Sc.
	Petros Tzerpos M.Sc.
PhD Student	Kumar Ajneesh M.Sc.
	Ms. Maysaa Adil Ali M.Sc.
	Ms. Aya Shamal Abdullah Almuffti M.Sc.
	Ms. Bianka Csaholczi M.Sc.
	Ms. Apolka Domokos M.Sc.
	Ms. Nokhoijav Erdenetsetseg M.D.
	Ms. Chahra Fareh M.Sc.
	Ms. Andrea Guba M.Sc.
	Ms. Lilla Hornyák M.D.
	Ms. Irene Wanjiru Kiarie M.Sc.
	Ms. Zsuzsanna Kolostyák M.D.
	Balázs Tibor Kunkli M.Sc.
	Gontse Mabuse Moagi M.Sc.
	Ms. Tarban Nastaran M.Sc.
	Ms. Orsolya Pálné Szén M.Sc.

	János Rózsa M.Sc.
	Ms. Nikolett Szűcs M.Sc.
	Attila Vámos M.Sc.
	Ms. Boglárka Vinnai 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	Péter Attila Jenei M.Sc., Ph.D. László Mátyus M.D., Ph.D., D.Sc. Viktor Péter Nagy M.D., Ph.D., D.Sc. Gábor Szabó M.D., Ph.D., D.Sc. János Szöllősi M.Sc., Ph.D., D.Sc., M.H.A.Sc. György Vereb M.D., Ph.D., D.Sc.
Associate Professor	József Zsolt Bacsó M.D., Ph.D. Ms. Klára Katalin Goda M.Sc., Ph.D. Sándor Zoltán Varga M.Sc., Ph.D., D.Sc.
Senior Research Fellow	Ms. Andrea Dóczy-Bodnár M.Sc., Ph.D.
Assistant Professor	György Vámosi M.Sc., Ph.D. Zsolt Fazekas M.Sc., Ph.D. Béla Péter Hajdu M.Sc., Ph.D. Ferenc Papp M.Sc., Ph.D. G. Tibor Szántó M.Sc., Ph.D. Árpád Szőőr M.D., Ph.D.
Assistant Lecturer	Tamás Kovács M.D., Ph.D. Mrs. Enikő Nizsalóczki M.Sc., Ph.D. Mrs. Florina Zákány M.D.
Research Fellow	Jesus Angel Borrego Terrazas M.Sc., Ph.D. Mrs. Tímea Hajdu M.Sc., Ph.D. Mrs. Éva Hegedüs M.Sc., Ph.D. László Imre M.Sc., Ph.D. Mrs. Éva Korpos-Pintye-Gyuri M.Sc., Ph.D.

	Gábor Mocsár M.Sc., Ph.D.
	Mrs. Ágnes Nagyné Dr. Szabó M.Sc., Ph.D.
	Péter Nánási M.D.
	Mrs. Tímea Szendi-Szatmári M.Sc., Ph.D.
	Ms. Julianna Volkó M.Sc., Ph.D.
Junior Research Fellow	Marco Cozzolino M.Sc.
	István Csomós M.Sc.
	Ádám Kenesei M.Sc.
	István Rebenku M.Sc.
	László Ujlaky-Nagy M.D.
	Ms. Orsolya Vörös M.Sc.
PhD Student	Ms. Ibtissem Benhamza
	Anass Benziane M.Sc.
	Mrs. Ágnes Bihariné Batta M.Sc.
	Ms. Noémi Bilakovics M.Sc.
	Ms. Marianna Csaplár
	Bence Cs. Szabó M.D.
	Ádám Fehér M.D.
	Szabolcs Máté Gaál M.D.
	Bence Gergely M.Sc.
	Ms. Vivien Jusstus M.Sc.
	Biwott Kipchumba M.Sc.
	József Kormos M.Sc.
	Mrs. Algirmaa Lkhamkhuu M.Sc.
	Ms. Ghofrane Medyouni M.Sc.
	Muhammed Umair Naseem M.Sc.
	Lőrinc Nagy M.Sc.
	Ms. Zsuzsanna Ritter M.Sc.
	Ms. Pialy Sen M.Sc.
	Ms. Tayde Gabriela Serrano Cano M.Sc.
	Mrs. Kashmala Shakeel M.Sc.
	Máté Szabó M.D.
	Ms. Zsófia Szabó M.Sc.
	Ms. Gabriella Tóth M.Sc.
Educational manager	Mrs. Enikő Nizsalóczki M.Sc., Ph.D.

Visiting Lecturer

László Bene M.Sc., Ph.D.

Sándor Buglyó M.Sc., Ph.D.

János Nagy M.Sc., Ph.D.

Pál Pap M.Sc., Ph.D.

Core Facility Manager

Gábor Mocsár M.Sc., 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>

Associate Professor, Head of Division

Sándor Zoltán Varga M.Sc., Ph.D., D.Sc.

Educational manager

Mrs. Enikő Nizsalóczki M.Sc., Ph.D.

Academic Advisor

G. Tibor Szántó 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

Viktor Péter Nagy M.D., Ph.D., D.Sc.

Educational manager

Mrs. Enikő Nizsalóczki M.Sc., Ph.D.

Academic Advisor

Tamás Kovács M.D., 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.

Educational manager

Mrs. Enikő Nizsalóczki M.Sc., Ph.D.

Academic Advisor

Ms. Árpád Szöőr M.D., Ph.D.

DEPARTMENT OF BEHAVIOURAL SCIENCES

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-594

Web: aok.unideb.hu

Full Professor, Head of Department

Ms. Karolina Kósa M.D., M.Sc., Ph.D.

Full Professor

Ákos Münnich M.A., Ph.D.

Titular Professor

Antal Bugán M.A., Ph.D.

Associate Professor

Attila Bánfalvi M.A., Ph.D., C.Sc.

Assistant Professor

János Kristóf Bodnár M.A., Ph.D.

Sándor Kőműves M.A., Ph.D.

Assistant Lecturer	Ms. Judit Molnár M.A., Ph.D.
	Balázs Fábíán M.Sc., Ph.D.
	Ms. Zita Fekete M.A.
	Ms. Márta Füzi M.D.
	Ms. Beáta Kovács-Tóth M.A.
PhD Student	Ms. Szabina Péter Ph.D.
	Máté Dolhai M.Sc.
	Péter Grebely M.Sc.
	László Módis M.D.
	Barnabás Oláh M.Sc.
Intern	Mátyás Osváth M.Sc.
	Ms. Alexandra Szikszai M.Sc.
	Ms. Lilla Stella Bogdán M.Sc.
	Ms. Lilla Bernadett Bokor M.Sc.
	Ms. Gréta Dezső M.Sc.
	Ms. Rebeka Anna Ivancsó M.Sc.
	Ms. Cintia Katona M.Sc.
	Ms. Flóra Kenyhercz M.Sc., Ph.D.
	Róbert Krébesz M.Sc.
	Ms. Dóra Kata Ötvös M.Sc.
	Bence Rádi M.Sc.
	Ms. Sándor Alexandra M.Sc., Ph.D.
	Ms. Márta Vincze M.Sc.
Dávid Vincze M.Sc.	
Invited Lecturer	Bence Döbrössy M.A.
	Attila Bánfalvi M.A., Ph.D., C.Sc. (3rd year Medical Anthropology)
Academic Advisor	János Kristóf Bodnár M.A., Ph.D. (3rd year Bioethics, 4th year Bioethics)
	Ms. Karolina Kósa M.D., M.Sc., Ph.D. (1st year Basics of Behavioural Sciences, Communication Skills, 4th year Behavioural Medicine, 4-5th year Behavioural Science Final Exam)
	Sándor Kőműves M.A., Ph.D. (3rd year Medical Sociology)
	Ms. Judit Molnár M.A., Ph.D.

(3rd year Medical Psychology,
Pharmaceutical Psychology)

DEPARTMENT OF PUBLIC HEALTH AND EPIDEMIOLOGY

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

Full Professor, Head of Department	János Sándor M.D., Ph.D.
Full Professor	Ms. Róza Ádány M.D., Ph.D., D.Sc. Ms. Margit Balázs M.Sc., Ph.D., D.Sc.
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. Árpád Czifra M.D., Ph.D. Ms. Judit Diószegi M.D., Ph.D. Ms. Szilvia Fialat M.D., Ph.D. Károly Nagy Ph.D. László Pál Ph.D. Ms. Orsolya Varga M.D., Ph.D. habil.
Assistant Lecturer	Tibor Jenei Ms. Nóra Kovács M.Sc., Ph.D. Gábor Rác M.D. Ferenc Vincze M.Sc., Ph.D.
Assistant Research Fellow	Szabolcs Lovas M.Sc.
PhD Student	Ms. Gabriella Péntzes M.Sc., Ph.D. Ms. Daria Al Khaiyat M.Sc. Bayu Bekele Begashaw M.Sc. Kasabji Feras M.Sc. Ms. Nayla Gomaa Nasr Mohammed M.Sc. Ms. Nour Mahrouseh M.Sc. Mohammed Merzah M.Sc. Ms. Kurshed Ali Abbas Mohammad M.Sc. Ms. Teuta Muhollari M.Sc. Ms. Shewaye Natae M.Sc. Ms. Diana Wangeshi Njuguna M.Sc. Vikas Patel M.Sc. Ms. Petra Selejó M.Sc. Carlos Alexandre Soares Andrade

	Roba Argaw Tessema M.Sc.
	Ms. Jargalsaikhan Undraa M.Sc.
	Ms. Anna Viktória Varga M.Sc.
	Ms. Diana Wanghesi Njuguna M.Sc.
	Ms. Rahul Wasnik M.Sc.
Hungarian Academy of Sciences University of Debrecen Public Health Research Group Fellow	Ms. Llanaj Erand M.Sc., Ph.D.
	Ms. Krisztina Jámbor M.Sc.
	Ms. Viktória Koroknai M.Sc., Ph.D.
	Werissa Abebe Nardos M.Sc., Ph.D.
	Péter Pikó M.Sc., Ph.D.
	István Szász M.Sc., Ph.D.
Academic Advisor	Ms. Szilvia Fialat M.D., Ph.D.
	Sándor Szűcs M.Sc., Ph.D.

DEPARTMENT OF FORENSIC MEDICINE

Egyetem tér 1., Debrecen, 4032, Tel: +36-52-255-865

E-mail: igazsagugy@med.unideb.hu; , Web: <http://forensic.unideb.hu>

Associate Professor	László Herczeg M.D., Ph.D.
Senior Lecturer	Péter Gergely M.D., Ph.D.
Assistant Lecturer	Ms. Beáta Ágnes Borsay M.D.
	Ms. Barbara Dóra Halasi M.D.
	Kálmán Rác M.D.
	Csaba Turzó M.D.
Resident	Zoltán Hendrik M.D.
Toxicologist	János Posta
Psychiatrist	Ms. Enikő Bartók M.D.
	Ms. Erika Tar M.D.
Academic Advisor	Kálmán Rác M.D.

DEPARTMENT OF HUMAN GENETICS

Egyetem tér 1., Debrecen, 4032, Tel: +36-52-416-531

E-mail: humangenetics@med.unideb.hu, Web: <https://humangenetics.unideb.hu>

Full Professor, Head of Department	István Balogh M.Sc., Ph.D., D.Sc.
BMC Coordinator	András Penyige M.Sc., Ph.D.
Professor Emeritus	Sándor Biró M.Sc., Ph.D., D.Sc.

Associate Professor	András Penyige M.Sc., Ph.D.
Assistant Professor	Ms. Zsuzsanna Birkó M.Sc., Ph.D. Gergely Buglyó M.D., Ph.D.
	Ms. Judit Keserű M.Sc., Ph.D.
	Ms. Beáta Soltész M.Sc., Ph.D. Lajos Széles M.Sc., Ph.D.
	Ms. Melinda Szilágyi-Bónizs M.Sc., Ph.D.
Assistant Lecturer	Ms. Krisztina Szirák M.Sc., Ph.D.
Junior Research Fellow	Ms. Éva Márton M.Sc., Ph.D.
PhD Student	Ms. Ádám Csók M.Sc. Ms. Dóra Anikó Géczi M.Sc. Ms. Hamidreza Mianesaz M.Sc. Ms. Nikolett Németh M.Sc. Ms. Alexandra Edit Varga M.Sc.
Academic Advisor of Molecular Biology MSc	Ms. Krisztina Szirák M.Sc., Ph.D.
Academic Advisor for 1st year medical and dental students	Ms. Judit Keserű M.Sc., Ph.D.
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

Full Professor, Head of Department	Attila Bácsi M.Sc., Ph.D., D.Sc.
Associate Professor	Gábor Konecz M.Sc., Ph.D. Árpád Lányi M.Sc., Ph.D.
Assistant Professor	Ms. Tünde Fekete M.Sc., Ph.D. Ms. Johanna Mihály M.Sc., Ph.D. Attila Szöllősi M.D., Ph.D.
Assistant Lecturer	Ms. Anett Türk-Mázló M.Sc., Ph.D. Ms. Aliz Varga M.Sc., Ph.D.
Research Fellow	Péter Gogolák M.Sc., Ph.D. György Hajas M.Sc., Ph.D.
	Ms. Kitti Pázmándi M.Sc., Ph.D.
Research Assistant	Ms. Gabriella Béke M.Sc., Ph.D. Ms. Adrienn Gyöngyösi M.Sc., Ph.D.

	Ms. Judit Kállai M.Sc.
	Ms. Zsófia Péntzes M.Sc.
	Ms. Márta Tóth M.Sc.
PhD Student	Ms. Dorottya Horváth M.Sc.
	Ms. Alexandra Lendvai M.Sc.
	Szabolcs Muzsai M.Sc.
Academic Advisor	Attila Szöllősi M.D., 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 Kappelmayr M.D., Ph.D., D.Sc.
Full Professor, Head of Division of Clinical Genetics	István Balogh M.Sc., Ph.D., D.Sc.
Full Professor	Péter Antal-Szalmás M.D., Ph.D.
Associate Professor	Harjit Pal Bhattoa M.D., Ph.D.
	Ms. Zsuzsa Hevessy M.D., Ph.D.
	Béla Nagy Jr. M.D., Ph.D.
Assistant Professor	Sándor Baráth M.Sc., Ph.D.
	Ms. Adrienne Kerényi M.D., Ph.D.
	Ms. Katalin Koczok M.D.
	Zoltán András Mezei M.D., Ph.D.
	Ms. Anikó Ujfalusi M.D., Ph.D.
Assistant Lecturer	Ms. Beáta Bessenyei M.Sc., Ph.D.
	Gergely Ivády M.D.
	Ms. Bettina Kárai M.D.
	Gábor Nagy M.D.
Research Fellow	Zsolt Fejes M.Sc., Ph.D.
	Ms. Ágnes Mosolygó-Lukács M.Sc., Ph.D.
	Ms. Beáta Tóth M.Sc., Ph.D.
PhD Student	Ms. Safoura Ghalamkari M.Sc.
	Ms. Harriet Ghansah M.Sc.
	Ms. Marianna Pócsi M.Sc.
	Parvind Singh M.Sc.
Lecturer	Ms. Sarolta Füzi-Demeter M.D.
Resident	Ms. Anita Bartha-Tatár M.D.

	Ms. Lilla Rita Szabó M.D. Gábor Tóth M.D.
Academic Advisor	Ms. Adrienne Kerényi M.D., 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. Zsuzsa Bagoly M.D., Dr. habil., Ph.D. Ms. Éva Katona M.Sc., Ph.D. habil.
Senior Research Fellow	Amir Houshang Shemirani M.D., Ph.D.
Assistant Professor	Ms. Krisztina Péntes-Daku M.Sc., Ph.D.
Assistant Lecturer	Ms. Réka Gindele M.Sc., Ph.D.
Research Fellow	Gábor Balogh M.Sc., Ph.D.
Junior Research Fellow	Ms. Réka Bogáti M.Sc. Rita Angéla Kálmándi M.Sc., Ph.D.
PhD Student	Ms. Boglárka Hurják M.Sc. Ms. Linda Lóczi M.Sc. Ms. Tünde Miklós M.D. Ms. Dóra Pituk M.Sc. Ms. Farzaneh Sadeghi M.D. Ms. Laura Somodi M.Sc. Ms. Marianna Speker M.Sc.
External Tutor	Ms. Éva Ajzner M.D., Dr. habil., Ph.D. Béla Tóth M.Sc., Ph.D.
Academic Advisor	Ms. Éva Katona M.Sc., Ph.D. habil.

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

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

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	Péter Bay M.Sc., Ph.D., D.Sc. Viktor Dombrádi M.Sc., Ph.D., D.Sc. Ferenc Erdódi M.Sc., Ph.D., D.Sc.
Professor Emeritus	Pál Gergely M.Sc., Ph.D., D.Sc., M.H.A.Sc.
Associate Professor	Ms. Beáta Lontay M.Sc., Ph.D. Ms. Karen Uray M.Sc., Ph.D.
Assistant Professor	Ms. Edina Bakondi M.Sc., Ph.D. Ms. Anita Boratkó M.Sc., Ph.D. Tibor Docsa M.Sc., Ph.D. Csaba Hegedűs M.D., L.D.S., Ph.D. Ms. Edit Kapitányiné Mikó M.Sc., Ph.D. Ms. Andrea Kiss M.Sc., Ph.D. Endre Kókai M.Sc., Ph.D. Ms. Katalin Kovács M.Sc., Ph.D. Ms. Krisztina Tar M.Sc., Ph.D.
Research Fellow	Bálint Bécsi M.Sc., Ph.D. Máté Ágoston Demény M.D., Ph.D. Zoltán Kónya M.Sc., Ph.D. Ms. Zsuzsanna Polgár M.Sc., Ph.D. Ms. Adrienn Sipos M.Sc., Ph.D. Ms. Magdolna Szántó D.Pharm., Ph.D. Ms. Emese Tóth M.Sc.
PhD Student	Ms. Dóra Antal M.Sc. Ms. Katalin Berta M.Sc. Márton Fonódi M.Sc. Ms. Ilka Keller M.D. Patrik Bence Kovács M.Sc. Ms. Boglárka Rauch M.Sc. Ms. Szandra Schwarcz M.Sc. Ms. Dóra Szeőcs M.Sc. Ms. Zsófia Thalwieser M.Sc.

	Gyula Ujlaki M.Sc.
	Ádám Ungvári M.Sc.
Invited Lecturer	Ms. Ilona Farkas M.Sc., Ph.D.
	Béla Tóth M.Sc., Ph.D.
Academic Advisor	Ms. Anita Boratkó M.Sc., Ph.D. (Msc. in Molecular Biology)
	Ms. Katalin Kovács M.Sc., Ph.D. (General Medicine and Dentistry)

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 M.D., Ph.D., D.Sc.
Full Professor	László Majoros M.D., Ph.D.
Professor Emeritus	Lajos Gergely M.D., D.Sc.
Associate Professor	György Veress M.Sc., Ph.D.
Assistant Professor	Ms. Eszter Csoma M.Sc., Ph.D.
	Ms. Zsuzsanna Dombrádi M.Sc., Ph.D.
	Renátó Kovács M.Sc., Ph.D.
	Ms. Brigitta László M.Sc., Ph.D.
	Ms. Anita Szalmás M.Sc., Ph.D.
Assistant Lecturer	Ms. Eszter Gyöngyösi M.Sc., Ph.D.
PhD Student	Dávid Balázs M.Sc.
	Ms. Noémi Balla M.Sc.
	Zsolt Barnabás Éles M.Sc.
	Ms. Krisztina Jeles M.Sc.
	Ms. Leila Rahmani M.Sc.
Biologist	Bence Balázs M.Sc.
	Ms. Aliz Bozó M.Sc., Ph.D.
	Ms. Ágnes Jakab M.Sc., Ph.D.
	Ms. Melinda Katona M.Sc.
	Ms. Fruzsina Kovács M.Sc.
	Ms. Fruzsina Nagy M.Sc., Ph.D.
	Zoltán Tóth M.Sc.
Specialist	Ms. Evelin Bukta M.D.
	Ms. Anita Kozák M.D.

Academic Advisor of Faculty of Medicine	György Veress M.Sc., Ph.D.
Academic Advisor of Faculty of Dentistry	György Veress M.Sc., Ph.D.
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.
Professor Emeritus	Péter Molnár M.D., D.Sc. Zoltán Nemes M.D., D.Sc.
Assistant Lecturer	Lukács Baráth M.D. Ms. Judit Bedekovics M.D., Ph.D. László Bidiga M.D. Yi-Che Chang Chien M.D. Tamás Csonka M.D. Zoltán Hendrik M.D. Csaba Molnár M.D. Ms. Sarolta Molnár M.D. Ms. Brigitta Orlik M.D. Sándor Csaba Szász M.D. László Tóth M.D., Ph.D. habil.
Resident	Ms. Vanda Aranyi M.D. Ms. Lídia Balázs M.D.
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.
Full Professor	Béla Juhász D.Pharm., Dr. habil., Ph.D. Róbert Pórszász M.D., Dr. habil., MBA, Ph.D.
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.

Senior Research Fellow	József Szentmiklósi M.D., Ph.D.
Assistant Professor	József Németh M.Sc., Ph.D. Ms. Rita Kiss M.D., Ph.D. Attila Megyeri M.D., Ph.D.
Assistant Lecturer	Ms. Ágnes Cseppentő M.D. Ms. Diána Kovács M.Sc., Ph.D. Balázs Varga D.Pharm., Ph.D.
Research Fellow	Ms. Zsuzsanna Gál M.Sc., Ph.D.
PhD Student	Ms. Mariann Bombicz D.Pharm. Ms. Beáta Lelesz M.Sc., Ph.D. Dániel Priksz D.Pharm.
Nutricionist	Ms. Katalin Szabó M.Sc.
Chemist	Lajos Veress M.Sc.
Junior Lecturer	Ms. Mariann Bombicz D.Pharm. Ms. Andrea Kurucz M.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.
Full Professor	Tamás Bányász M.D., Ph.D., D.Sc.
Associate Professor	Ms. Szilvia Benkő M.Sc., Ph.D. Balázs Pál M.D., Ph.D. Norbert Szentandrassy M.D., Ph.D.
Senior Research Fellow	Ms. Beatrix Dienes M.Sc., Ph.D. Péter Szentesi M.Sc., Ph.D.
Assistant Professor	Balázs Horváth M.D., Ph.D. Attila Oláh M.D., Ph.D.

	Ms. Mónika Szentandrásyné Gönczi M.Sc., Ph.D.
	István Balázs Tóth M.Sc., Ph.D.
Research Fellow	Ms. Gabriella Czifra M.Sc., Ph.D.
	Ms. Krisztina Deák-Pocsai M.Sc., Ph.D.
	Ms. Nóra Dobrosi M.Sc., Ph.D.
	János Fodor M.Sc., Ph.D.
	Ms. Erika Herczeg-Lisztes M.Sc., Ph.D.
	Ms. Mónika Sztretye M.Sc., Ph.D.
	Ms. Andrea Telek-Haberberger M.D., Ph.D.
Junior Research Fellow	Ms. Dorottya Ádám M.Sc.
	Ms. Adrienn Kovács M.Sc., Ph.D.
PhD Student	Ahmad Alatshan M.Sc.
	József Arany M.Sc.
	Eduárd Bíró M.Sc.
	Ms. Andrea Csemer M.Sc.
	Csaba Dienes D.Pharm.
	Ms. Nyamkhuu Ganbat M.Sc.
	Martin Hanyicska M.Sc.
	Zsigmond Kovács M.D.
	Árpád Kunka M.D.
	Ms. Baneen Imad Abdualameer Maamrah M.Sc.
	Ms. Zsuzsa Magyar M.Sc.
	Márk Racskó M.Sc.
	Zsolt Raduly D.Pharm.
	Zoltán Singlár M.Sc.
	László Szabó M.Sc.
	Ms. Ivett Gabriella Szabó M.Sc.
External Lecturer	Gáspár Bánfalvi Ph.D., D.Sc. (Professor Emeritus)

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.
Full Professor	Ms. Csilla Molnár M.D., Ph.D.
Associate Professor	Ms. Judit Hallay M.D., Ph.D.
Assistant Professor	Ákos Fábián M.D., Ph.D.
	György Koszta M.D., Ph.D.
	Zsolt Oláh M.D., Ph.D.
	Ms. Adrienn Pongrácz M.D., Ph.D.
	Péter Siró M.D., Ph.D.
	Béla Tankó M.D., Ph.D.
	Tamás Végh M.D., Ph.D.
Assistant Lecturer	Ms. Judit Gyulaházi M.D., Ph.D.
Resident	Dániel Andrászkó M.D.
	Ms. Boglárka Balla M.D.
	Ms. Sarah Uchechi Choko M.D.
	Zoltán Csernyák M.D.
	Csaba Csipkés M.D.
	Ms. Marianna Fedor M.D.
	Ms. Réka Gulya M.D.
	Ms. Fariba Javdani M.D.
	Ms. Veronika Kovács M.D.
	Péter Luterán M.D.
	Ms. Dorottya Szántó M.D.
Senior Consultant	Ms. Gabriella Szűcs M.D., Ph.D., D.Sc.
Specialist	László Asztalos M.D., Ph.D.
	Ms. Krisztina Béczy M.D.
	Ms. Gyöngyi Békési M.D.
	Ms. Mariann Berhész M.D.
	Ferenc Bodnár M.D.
	Ms. Emese Csoba M.D.

Ms. Marina Czurkó M.D.
Róbert Duris M.D.
Ms. Edit Éberhardt M.D.
Ms. Irén Erdei M.D.
Ms. Orsolya Farkas M.D.
Ms. Andrea Fodor M.D.
Ms. Babett Fodor M.D.
Ms. Judit Gál M.D.
Zoltán Gyöngyösi M.D.
Endre Hajdu M.D.
Ms. Zsuzsa Jakab M.D.
Ms. Enikő Jánvári M.D.
Ms. Lenke Jenei Kluch M.D.
Ms. Marianna Juhász M.D.
Ms. Zsuzsanna Kovács M.D.
István László M.D.
István Máté M.D.
Dániel Nagy M.D.
György Nagy M.D.
Ms. Réka Nemes M.D.
Ms. Erzsébet Németh M.D.
Ms. Lívía Orosz M.D.
Ms. Tünde Palatka M.D.
Balázs Pálóczi M.D.
Ms. Enikő Papp M.D.
Lóránd Csaba Papp M.D.
Ms. Éva Simon M.D.
Gábor Sira M.D.
Tamás Sotkovszki M.D.
Zoltán Szabó-Maák M.D.
Ms. Katalin Szamos M.D.
Ms. Katalin Szatmári M.D.
Szilárd Szatmári M.D., Ph.D.
Ms. Ildikó Szűcs M.D.
Gergely Takács M.D.

	Béla Takács M.D.
	Ms. Adrienn Timkó M.D.
	Ms. Magdolna Váradi M.D.
	Dávid Richárd Varga M.D.
	Ms. Györgyi Vass M.D.
	Ms. Andrea Vencel M.D.
	András Zudor 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

E-mail: szivsebeszet.titkarsag@med.unideb.hu

Associate Professor, Head of Division	Tamás Szerafin M.D., Ph.D.
Assistant Lecturer	Péter Csizmadia M.D.
	Tamás Debreceni M.D.
	Ms. Andrea Molnár M.D., Ph.D.
Chief Physician	Ambrus Horváth M.D.
Clinical Assistant	Tamás Maros M.D.
	Lehel Palotás M.D.
	István Szentkirályi M.D.
Candidate Clinical Assistant	Ákos Attila Berczi M.D.
	Gergely Ditrói M.D.
Resident	Ákos Mandzák M.D.

Division of Cardiology

Móricz Zs. krt. 22., Debrecen, 4032, Tel: +36-52-255-928

E-mail: kardiologia@med.unideb.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.
	Dániel Czuriga 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.
	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.
	Ms. Nóra Homoródi M.D., Ph.D.
	Attila Kertész M.D., Ph.D.
	Rudolf Kolozsvári M.D., Ph.D.
	Ms. Ildikó Rácz 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.
	Csaba Jenei M.D.
	Ms. Alexandra Kiss M.D., Ph.D.
	Bertalan Kracsó M.D.
	László Nagy M.D.
	Ferenc Ruzsnavszky M.D., Ph.D.
	László Tibor Nagy M.D.
	Sándor Sipka M.D., Ph.D.
	Gábor Szabó M.D., Ph.D.
Cardiologist	Ms. Ágnes Balogh M.D., Ph.D.
	László Balogh M.D.
	Ms. Edit Fiák M.D.
	Ferenc Győry M.D.
	Ms. Judit Kecskés M.D.
	Gábor Kolodzey M.D.
	Csaba Kun M.D.
	Ms. Edina Nagy-Baló M.D., Ph.D.
	Ms. Andrea Péter M.D.
	Ms. Ágnes Orsolya Rácz M.D.

	Gábor Sándorfi M.D.
	Ms. Krisztina Mária Szabó M.D.
	Ms. Andrea Szegedi M.D.
	Miklós Szokol M.D.
	István Varga M.D.
PhD Student	Ádám Illési M.D.
	Ms. Vivien Rácz M.D.
	Ms. Lilla Szuromi M.D.
	Ms. Anna Tóth M.D.
Resident	István Tibor Altorjay M.D.
	Szabolcs Gaál M.D.
	Géza Horváth M.D.
	Árpád Kovács M.D., Ph.D.
	Ms. Anita Kurczina M.D.
	Ms. Andrea Kurucz M.D.
	Ms. Krisztina Medvés-Váczi M.D., Ph.D.
	Ms. Tímea Bianka Papp M.D.
	Ms. Niké Posta M.D.
	Arnold Ráduly M.D.
	Ms. Orsolya Tímár M.D., Ph.D.
	Ms. Szilvia Újfalusi M.D.
	Ms. Réka Urbancsek M.D.
Educational Advisor	Dániel Czuriga M.D., Ph.D.

Division of Clinical Physiology

Móricz Zs. út. 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.
Associate Professor	Miklós Fagyas M.D., Ph.D.
Assistant Lecturer	Ms. Beáta Bódi M.Sc., Ph.D.
	Ms. Viktória Csató M.Sc., Ph.D.
Research Assistant	Azeem Jalil Umar Muhammad M.D.
PhD Student	Ms. Enikő Edit Enyedi M.Sc.
	Ms. Fruzsina Sárkány M.D.

	Attila Ádám Szabó M.D.
Laboratory Assistant	Ms. Ivetta Mányiné Siket
	Ms. Blanka Szőke B.Sc.
Secretariat	Ms. Krisztina Kass
Administrator	Ms. Zsófia Pólik M.Sc.
	Ms. Regina Szamosi M.Sc.
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 Division, Associate Professor	György Trencsényi M.Sc., Ph.D.
Full Professor	Ervin Berényi M.D., Ph.D.
Professor Emeritus	László Galuska M.D., D.Sc.
	Lajos Trón M.Sc., Ph.D., D.Sc.
Associate Professor	Miklós Emri M.Sc., Ph.D.
	Ms. Ildikó Garai M.D., Ph.D.
Senior Research Fellow	László Balkay M.Sc., Ph.D.
	István Kertész M.Sc., Ph.D.
Assistant Professor	István Hajdu M.Sc., Ph.D.
	István Józai M.Sc., Ph.D.
Assistant Lecturer	Ms. Noémi Dénes M.Sc., Ph.D.
Research Fellow	Gábor Opposits M.Sc., Ph.D.
	Dezső Szikra M.Sc., Ph.D.
Junior Research Fellow	Ms. Adrienn Kis M.Sc., Ph.D.
PhD Student	Ms. Viktória Arató D.Pharm.
	Ms. Lilla Egeresi M.Sc.
	Ms. Barbara Gyuricza M.Sc.
	Ms. Piroska Kallós-Balogh M.Sc.
	Ms. Ibolya Kálmán-Szabó M.Sc.

	Ms. Mariann Nagy M.Sc. Dániel Szücs M.Sc. Norman Félix Vas M.Sc.
Resident	Ms. Anna Rebeka Kovács M.D. Iván Gábor Nagy M.D.
Chemist	Ms. Anikó Fekete M.Sc., Ph.D. Ms. Viktória Forgács M.Sc. Ms. Tünde Miklovicz M.Sc. Ms. Enikő Németh Várhalminé M.Sc. Ms. Judit Péliné Szabó M.Sc. Norbert Pótári M.Sc. Béla Rubleczy M.Sc.
Pharmacist	Ms. Zsuzsanna Ésik D.Pharm. Gergely Farkasinszky D.Pharm.
Specialist	Zoltán Barta M.D. Bence Farkas M.D. Ms. Zita Képes M.D., Ph.D. Iván Mihovk M.D. Márton Mikó M.D.
Invited Lecturer	Sándor Kristóf Barna M.D., Ph.D.
Invited Lecturer, Associate Professor (ret.)	József Varga M.Sc., Ph.D.
Scientific Advisor	László Balkay M.Sc., Ph.D.
Academic Advisor	István Hajdu 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.
College Associate Professor	Ms. Réka Révészné Tóth M.Sc., Ph.D.
Assistant Professor	Ms. Ivett Belán M.D. Ms. Klára Benkő M.D. Béla Clemens M.D. Ms. Veronika Deczkiné Gaál M.D. Gábor Endes M.D. Ms. Zsófia Fülesdi M.D.

	Ms. Tímea Gajda M.D.
	Ms. Edina Kósik M.D.
	Ms. Lilla Ladányi M.D.
	Gábor Lakatos M.D.
	Ádám Leskó 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.
	Tamás Papp M.D., Ph.D.
	Ms. Éva Pásztor M.D.
	Attila Mátyás Petró M.D.
	Máté Sik M.D.
	Ms. Judit Tóth M.D.
	Ms. Anita Tresó M.D.
	Ms. Enikő Verebi M.D.
Assistant Lecturer	Ms. Teréz Nyesténé Nagy M.D., B.Sc.
Research Fellow	Ms. Marianna Nagy M.Sc.
	Ms. Szilvia Rác M.Sc.
PhD Student	Gergő Veres
Clinical Assistant	Ms. Tímea Balla M.D.
	Ms. Melinda Bán M.D.
	Ms. Péter Károlyi M.D.
	Márton Oláh M.D.
	Bence Gábor Papp M.D.
	Bence Pelyvás M.D.
	Mustafa Sayed-Ahmad M.D.
	Ms. Annamária Silye M.D.
	Ms. Nikoletta Vasas M.D.
Resident	János Bencze M.D.
	Ms. Ivett Deák M.D.

	András Dubnicz M.D.
	Máté Filep M.D.
	Ms. Péter Ihnáth M.D.
	Ms. Fanni Jakab M.D.
	Ms. Rebeka Kádár M.D.
	Ms. Kincső Kovács M.D.
	Ms. Bettina Kurtán M.D.
	Róbert Rostás M.D.
	Mohamed Sayed-Ahmad M.D.
Molecular Biologist	Ms. Eszter László
Academic Advisor	Ms. Éva Pásztor M.D.

DEPARTMENT OF CLINICAL ONCOLOGY
Nagyerdei krt. 98, Debrecen, 4032, Tel: +36-52-255-840
E-mail: onkologia.klinika@med.unideb.hu

Associate Professor, Head of Department	Péter Árkosy M.D., Ph.D. habil.
Assistant Professor	Ms. Csilla András M.D., Ph.D. habil.
	Ms. Anita Árokszállási M.D., Ph.D.
	Ms. Andrea Gonda M.D., Ph.D.
	Ms. Borbála Kiss M.D., Ph.D.
	Ms. Éva Szekanecz M.D., Ph.D.
Technical Lecturer	Ms. Adrienn Jenei Ph.D.
Chief Physician	Ms. Judit Tóth M.D.
Clinical Specialist	Ms. Éva Bajusz M.D.
	Ms. Andrea Bakó 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.
	József Virga M.D., Ph.D.
Resident	Ms. Csilla Ambrus M.D.
	Ms. Ágnes Lénárt M.D.
	Ms. Enikő Sebestyén M.D.
	Ms. Kitti Szuna M.D.

Academic Advisor Ms. Csilla András M.D., Ph.D. habil.
Senior Research Scientist Iván Uray M.D., Ph.D.

DEPARTMENT OF ONCORADIOLOGY

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-393

Full Professor, Head of Department Árpád Kovács M.D., Ph.D. habil.
Clinical Specialist Ms. Mária Besenyői M.D.
Ms. Emese Csiki M.D.
Ádám Dér M.D.
Ms. Erika Szántó M.D.
Resident Márton Barabás M.D.
Ms. Zsuzsanna Barta M.D.
Kristóf Gál M.D.
Ms. Dóra Solymosi M.D.
Imre Törő M.D.
Psychologist Ms. Judit Magyar
Physicist István Balogh
Gergely Hócza
Attila Kovács M.D.
Mihály Simon

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. Andrea Szegedi M.D., Ph.D., D.Sc.
Clinical Chief Physician, Head of Unit of Zoltán Péter M.D.
Burns and Dermatologic Surgery
Full Professor István Juhász M.D., Ph.D., C.Sc.
Ms. Éva Remenyik M.D., Ph.D., D.Sc.
Full Professor, Head of Division of Human István Juhász M.D., Ph.D., C.Sc.
Surgery and Operative Techniques
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.

Assistant Professor	Dániel Törőcsik M.D., Ph.D.
Assistant Lecturer	Krisztián Gáspár M.D., Ph.D.
	Ms. Emese Gellén M.D., Ph.D.
	Ms. Irina Sawhney M.D.
	Imre Lőrinc Szabó M.D.
Clinical Assistant	Ms. Tünde Várvolgyi M.D.
	Ms. Csilla Csehely M.D.
	Ms. Irén Erdei M.D.
	Ms. Lenke Jenei Kluch M.D.
	Ms. Lilla Pogácsás M.D.
	Ms. Krisztina Steuer-Hajdu M.D.
	Ms. Zita Szentkereszty-Kovács M.D.
	Imre Veres M.D.
Candidate Clinical Assistant	Ms. Zita Zatik M.D.
	Ms. Lilla Soltész M.D.
	Ms. Ágnes Tósaki M.D.
	Ms. Beatrix Ványai M.D.
Resident	Ms. Ráhel Orsolya Varga M.D.
	Ms. Hanka Sarolta Kiss M.D.
	Ms. Réka Palatka M.D.
Academic Advisor of Faculty of Medicine	Krisztián Gáspár 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: +36-52-411-717/53516

E-mail: ujvarosy.dora@gmail.com

Full Professor, Head of Department	Zoltán Szabó M.D., Ph.D.
Associate Professor	István Lőrincz M.D., Ph.D.
	Sándor Somodi M.D., Ph.D.
Assistant Professor	Zoltán Vincze M.D., Ph.D.
Emeritus	Péter Kovács M.D., D.Sc.
Assistant Lecturer	Imre Juhász M.D.
	Tamás Ötvös M.D.
	Ms. Dóra Ujvárosy M.D.
Resident	Árpád Badics M.D.

	Ms. Éva Gerzsenyi M.D.
	Ms. Anett Guba M.D.
	Ms. Ildikó Hamza M.D.
	Ms. Lilla Kovács M.D.
	Márk Molnár M.D.
	Tamás Orosz M.D.
	Ms. Annamária Ridzig M.D.
	Ms. Veronika Sebestyén M.D.
	László Szabó M.D.
	Ferenc Szász M.D.
	Ms. Fanni Takács M.D.
	Ms. Lilla Végh M.D.
Specialist	Ms. Enikő Jánvári M.D.
	Ms. Janka Juhász M.D.
	Ms. Nóra Kovács M.Sc., Ph.D.
	Ms. Gergely Lőrincz M.D.
	Ms. Mária Németh M.D.
	Ms. Pálma Tímea Szabó M.D.
Invited Lecturer	Zoltán Szatmári M.D.
Education Officer, Contact Person	Ms. Dóra Ujvárosy M.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.
Full Professor	Pál Soltész M.D., Ph.D., D.Sc.
Professor Emeritus	Gyula Bakó M.D., Ph.D., D.Sc.
	Zoltán Boda M.D., Ph.D., D.Sc.
	Miklós Udvardy M.D., Ph.D., D.Sc.
Associate Professor	Zoltán Csiki M.D., Ph.D.
Assistant Professor	Ms. Katalin Ágnes Veres M.D., Ph.D.
Chief Physician	Ms. Edit Szomják M.D.
PhD Student	Kristóf Gál M.D.
Clinical Specialist	Ms. Adrienn Dr. Vargáné Szabó M.D.
	Sándor Halmi M.D.
	Ms. Melinda Nánásy-Vass M.D.

	Ervin Szocska M.D.
Resident	Ms. Bálint Soós M.D.
	Bence Tóth M.D.
Education Officer, Contact Person	Péter Fülöp M.D., Ph.D. habil. (Building "A")
	Ms. Melinda Nagy-Vincze M.D., Ph.D. (Building "C")
	László Váróczy M.D., Ph.D. habil. (Building "B")

Division of Clinical Immunology

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

Associate Professor, Head of Division	Ms. Tünde Tarr M.D., Ph.D. habil.
Professor Emerita	Ms. Edit Bodolay M.D., Ph.D., D.Sc.
Professor Emeritus	Sándor Sipka M.D., Ph.D., D.Sc.
Associate Professor	János Gaál Dr. habil., Ph.D.
	Zoltán Griger M.D., Ph.D. habil.
	Ms. Antónia Szántó M.D., Ph.D. habil.
Assistant Professor	Ms. Ildikó Fanny Horváth M.D., Ph.D.
	Ms. Gyöngyike Emese Majai M.D., Ph.D.
	Gábor Papp M.D., Ph.D.
	Ms. Éva Zöld M.D., Ph.D.
Assistant Lecturer	Ms. Melinda Nagy-Vincze M.D., Ph.D.
Research Fellow	Ms. Ágnes Gyetvai M.Sc., Ph.D.
	Ms. Krisztina Szabó M.Sc., Ph.D.
PhD Student	István Fedor M.D.
Clinical Specialist	Ms. Zsófia Aradi M.D.
	Ms. Nikolett Farmasi M.D.
	Ms. Gabriella Herczeg M.D.
	Ms. Nikolett Nagy M.D.
Registrar	Ms. Regina Gréta Papp M.D.
	Ms. Bianka Perge M.D.
	Ms. Katalin Tillinger-Szabó M.D.
Resident	Tibor Béldi M.D.
	Ms. Adrienn Faller M.D.

	Ms. Kincsó Mezei M.D.
	Ms. Viktória Orosz M.D.
	Ms. Bálint Soós M.D.
	Ms. Dorottya Szinay M.D.
	Bence Tóth M.D.
	Ms. Anett Vincze M.D.
Educational Advisor	Ms. Melinda Nagy-Vincze M.D., Ph.D.

Division of Endocrinology

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

E-mail: oktatas@belklinika.com

Full Professor, Head of Division	Endre Nagy M.D., Ph.D., D.Sc.
Associate Professor	Miklós Bodor M.D., Ph.D.
Assistant professor	Ms. Eszter Berta M.D., Ph.D.
	Ms. Henrietta Dér M.D., Ph.D.
	Ms. Annamária Erdei M.D., Ph.D.
	Ms. Annamária Gazdag M.D., Ph.D.
Research Fellow	Ms. Erika Csanádiné Galgóczi M.Sc., Ph.D.
PhD Student	Ms. Sára Bak-Csiha
	Ms. Fruzsina Réka Papp
Clinical Assistant	Ms. Andrea Gázsó M.D.
	Ms. Lívía Sira M.D.
	Ms. Noémi Zsíros M.D., Ph.D.
Biologist	Ms. Mónika Lestárné Katkó M.Sc., Ph.D.

Division of Gastroenterology

Nagyerdei krt. 98., Debrecen, 4012, Tel: +36 52 411-717 / 55098

E-mail: gasztroenterologia.titkarsag@med.unideb.hu, Web:

<https://klinikaikozpont.unideb.hu/introduction-gastroenterology-clinic>

Full Professor, Head of Division	Ms. Mária Papp M.D., Ph.D., D.Sc.
Full Professor	István Altorjay M.D., Ph.D., D.Sc.
	István Tornai M.D., Ph.D. habil.
Associate Professor	Károly Palatka M.D., Ph.D. habil.
Assistant Professor	Tamás Bubán M.D.
	Ms. Zsuzsa Vitális M.D., Ph.D.
Assistant Lecturer	Sándor Kacska M.D.
Research Fellow	Ms. Anikó Csillag M.Sc., Ph.D.

Assistant Research Fellow	Dávid Tornai M.D., Ph.D.
Chief Consultant	Csaba Várvolgyi M.D.
Clinical Specialist	Endre Zoltán Balogh M.D.
	Ms. Zsuzsa Bianka Élthes M.D.
	András Áron Jakab M.D.
	Tamás Janka M.D.
	Ms. Eszter Pályu M.D., Ph.D.
	Ms. Nóra Sipeki M.D., Ph.D.
Resident	Ms. Krisztina Eszter Fehér M.D.
	Ms. Lilla Séber-Juhász 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., D.Sc.
	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.
	Ádám Jóna M.D., Ph.D.
	Ferenc Magyar M.D., Ph.D.
	Gyula Reményi M.D., Ph.D.
	Ms. Ágota Schlammadinger M.D., Ph.D.
	Ms. Zsófia Simon M.D., Ph.D.
Assistant Lecturer	Ms. Edit Páyer M.D.
	Ms. Zita Radnay M.D.
	Róbert Szász M.D.
Research Fellow	Ms. Marianna Szarvas
Clinical Specialist	Ms. Anna Kenyeres M.D.
	Ms. Szilvia Lovas M.D.
	Ms. Gabriella Mezei M.D.
	Ms. Renáta Nyilas M.D.

	Ms. Ildikó Pál M.D. László Imre Pinczés M.D.
	Ms. Katalin Rázsó M.D.
	Ms. Lilla Sebestyén M.D.
Registrar	Ms. Adrienn Márton M.D.
Resident	Ms. Réka Ráhel Bicskó M.D. Ms. Fanni Borics M.D. Ms. Boglárka Dobó M.D. Ms. Katalin Farkas M.D. Ms. Annamária Edit Gál M.D. Ms. Evelin Kiss M.D. Omar Obajed Al-Ali M.D.
	Ms. Nóra Obajed-Al Ali M.D. Ms. Roxana Szabó M.D. Péter Pambó Vekszler M.D. Bálint Virga M.D. István Virga 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: oktatas@belklinika.com, Web: elearning.med.unideb.hu

Full Professor, Head of Division	György Paragh M.D., Ph.D., D.Sc.
Full Professor	Ms. Mariann Harangi M.D., Ph.D. habil. Dénes Páll M.D., Ph.D., D.Sc.
Associate Professor	Zoltán Balogh M.D., Ph.D. habil. Péter Fülöp M.D., Ph.D. habil. Miklós Káplár M.D., Ph.D. habil.
	Ms. Éva Katona M.Sc., Ph.D. habil.
Assistant Professor	Szabolcs Lengyel M.D., Ph.D. Ferenc Sztanek M.D., Ph.D.
Assistant Lecturer	Tamás Köbling M.D., Ph.D.
Research Fellow	Zsolt Karányi M.Sc.
	Ms. Hajnalka Lőrincz M.Sc., Ph.D.
Clinical Assistant	Ms. Regina Esze M.D. Ms. Krisztina Gaál M.D., Ph.D.

	Ms. Réka Szentimrei M.D.
Resident	Ms. Bíborka Nádró M.D.

Division of Nephrology

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

E-mail: oktatas@belklinika.com

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.
Assistant Lecturer	Gergely Becs M.D., Ph.D.
Clinical Assistant	Ms. Réka P. Szabó M.D., Ph.D.
	Thomas Ben M.D.
	Ms. Ibolya File M.D.
	Dávid Hutkai M.D.
	Ms. Csilla Markóth M.D.
Resident	Ms. Zita Váradi M.D.
	Bálint Velkey M.D.
	Ms. Barbara Coghi M.D.
	Balázs Ujhelyi M.D.

Division of Rheumatology

Móricz Zsigmond krt. 22., 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., D.Sc.
Associate Professor	Ms. Szilvia Szamosi M.D.
Assistant Professor	Ms. Nóra Bodnár M.D., Ph.D.
Assistant Lecturer	Levente Bodoki M.D., Ph.D.
	Ms. Zsófia Pethő M.D.
	Ms. Edit Végh M.D.
Clinical Specialist	Ms. Ágnes Horváth M.D.
	Ms. Boglárka Soós M.D.
Resident	Ms. Zsuzsanna Gyetkó M.D.
	Attila Hamar M.D.
	Zsolt Molnár M.D.
	Ms. Rebeka Szelkó-Falcsik M.D.

Ms. Dóra Tari 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

Full Professor, 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.
Professor Emeritus	István Fekete M.D., Ph.D.
Associate Professor	Ms. Judit Boczán M.D., Ph.D.
	Ms. Tünde Csépany M.D., Ph.D.
	Ms. Klára Edit Fekete M.D., Ph.D.
Assistant Professor	Norbert Kozák M.D., Ph.D.
Assistant Lecturer	Tamás Árokszállási M.D.
	Ms. Krisztina Csapó M.D.
	Ms. Katalin Réka Czuriga-Kovács M.D., Ph.D.
	Ms. Lilla Rác M.D.
	Ms. Katalin Judit Szabó M.D., Ph.D.
Clinical Assistant	Ms. Krisztina Szonja Bábel M.D.
	Ms. Eszter Balogh M.D.
	Richárd Csabalik M.D.
	Ms. Tünde Erdélyi M.D.
	Ms. Aletta Andrea Harman M.D.
	Máté Héja M.D.
	Gergely Hofgárt M.D.
	Ms. Kitti Bernadett Kovács M.D., Ph.D.
	Tibor Csaba Rab M.D.
	Ms. Dóra Sulina M.D.
	István Szegedi M.D., Ph.D.
Candidate Clinical Assistant	Ms. Melinda Altorjay M.D.
	Ms. Alexandra Berki M.D.
	Ms. Lilla Hudák M.D.
	Márk Kozák M.D.
	Ms. Zsófia Mészáros M.D.
Resident	Péter Árvai M.D.
	Viktor Bencs M.D.
	Ms. Fanni Potvorszki M.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.
Clinical Chief Physician	József Dobai M.D.
Assistant Professor	Gábor Fekete M.D., Ph.D.
Assistant Lecturer	Gábor Hutóczki M.D., Ph.D.
Clinical Physician	Péter Ruszthi M.D. Rahmani Mohammad Tayeb M.D. Emanuel Gutema M.D.
Resident	Márk Borzási M.D.
Registrar	Dávid Horsai M.D. Ms. Dorottya Juhász M.D. Nándor Orosz M.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

Associate Professor, Head of Department	Zoárd Krasznai M.D., Ph.D.
Full Professor	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. Zoltán Tóth M.D., Ph.D., D.Sc.
Associate Professor	Ádám Balogh M.D., Ph.D., D.Sc. (retired) Attila Jakab M.D., Ph.D. habil. Tamás Szilveszter Kovács M.D., Ph.D. Rudolf Lampé M.D., Ph.D. habil.
Assistant Professor	Ms. Olga Török M.D., Ph.D. habil. Tamás Deli M.D., Ph.D. Bence Kozma M.D., Ph.D. Csaba Móré M.D., Ph.D. László Orosz M.D., Ph.D.

	Tamás Spy M.D., Ph.D.
	Pter Trk M.D., Ph.D. habil.
Assistant Lecturer	Ms. Szilvia Vad M.D., Ph.D.
	Pter Darag M.D.
	Balzs Erddi M.D.
	Jnos Lukcs M.D.
	Szabolcs Molnr M.D., Ph.D.
	Gerg Orosz M.D.
Clinical Assistant	Levente Barna M.D.
	Ms. Szilvia Csehely M.D.
	Pter Damjanovich M.D.
	Zsolt Farkas M.D.
	Ms. gnes Kvr M.D.
	Ms. Eszter Maka M.D.
	Ms. Mnika Orosz M.D.
	Jashanjeet Singh M.D.
	Attila Sipos M.D., Ph.D.
Resident	Ms. Judit Szke M.D.
	Balzs Ditri M.D.
	Ms. Erzsbet Koroknai M.D.
	Kristf Kovcs M.D.
	Ms. Nra Krasnynszki M.D.
	Ms. Luca Lukcs M.D.
	Ms. Orsolya Matolay M.D.
	Ms. Olga Stercel M.D.
	Zoltn Tndor M.D.
	Ms. Eszter Lilla Tth M.D.
	Ms. Beta Vida M.D.
Psychologist	Ms. Zsuzsa Trk M.A., Ph.D.
Biologist	Ms. Zsuzsanna Buczk M.Sc.
	Ms. Ildik Zsupn M.Sc.
Academic Advisor (IV-VI. Years)	Balzs Erddi M.D.
	Tams Szilveszter Kovcs M.D., Ph.D.

DEPARTMENT OF OPHTHALMOLOGY

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

E-mail: szemklinika@med.unideb.hu, Web: <http://szemklinika.unideb.hu/>

Head of Department, Associate Professor	Ms. Mariann Fodor M.D., Dr. habil., Ph.D.
Full Professor	László Módis M.D., Ph.D., D.Sc.
Professor Emeritus	András Berta M.D., Ph.D., D.Sc.
Associate Professor	Ms. Valéria Nagy M.D., Ph.D.
	Ms. Lili Takács M.D., Ph.D.
Assistant Professor	Ms. Beáta Kettesy M.D., Ph.D.
	Bence Lajos Kolozsvári M.D., Ph.D.
	Ms. Annamária Nagy M.D., Ph.D.
	Ms. Zita Steiber M.D., Ph.D.
	Ms. Bernadett Ujhelyi M.D., Ph.D.
Assistant Lecturer	Ms. Anikó Rentka M.D., Ph.D.
	Ms. Éva Surányi M.D., Ph.D.
Chief Physician	Attila Vajas M.D.
Clinical Specialist	Ms. Beáta Bajdik M.D.
	Szabolcs Balla (M.D)
	Ms. Erika Papp M.D.
	Ms. Dorottya Polyák-Pásztor M.D., Ph.D.
	Ms. Lilla Simon M.D.
	Ms. Noémi Széll M.D., Ph.D.
	Ms. Eszter Zöld M.D.
Resident	Ms. Zsuzsa Réka Dömötör M.D.
	Ms. Zsuzsa Zsófia Flaskó M.D.
	János ifj. Aranyosi M.D.
	Ms. Orsolya Pásztor M.D.
Academic Advisor	Ms. Éva Surányi M.D., Ph.D.

DEPARTMENT OF ORTHOPEDIC SURGERY

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-815

E-mail: szcsenge@med.unideb.hu, Web: ortopedia.med.unideb.hu

Full Professor, Head of Department	Zoltán Csernátony M.D., Ph.D., D.Sc.
Master Lecturer	Tamás Bazsó M.D.

Professor Emeritus	Zoltán Karácsonyi M.D. János Rigó M.D., Ph.D.
Assistant Professor	Kálmán Szepesi M.D., Ph.D., D.Sc. János Szabó M.D., Ph.D.
Assistant Lecturer	Ms. Csenge Szeverényi M.D., Ph.D. Zsolt Hunya M.D.
Clinical Assistant	Henrik Rybaltovszki M.D. Márton József Séber M.D. István Soltész M.D. Dániel Szabó M.D.
Resident	Konrád Ökrös M.D.
Educational Advisor	Ms. Csenge Szeverényi M.D., Ph.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	Judit Szilvássy M.D., Ph.D. habil.
Associate Professor	László Tóth M.D., Ph.D. habil.
Assistant Professor	Tamás Batta M.D., Ph.D. Szilárd Gyula Rezes M.D., Ph.D.
Assistant Lecturer	Ms. Gyöngyi Bertalan M.D. Balázs József Jászberényi M.D. Dávid Kovács M.D. Zoltán Papp M.D.
Candidate Clinical Assistant	Ms. Erika Pászti M.D. Ms. Zsuzsanna Piros M.D. Ms. Anna Bódi M.D. Sándor Gergő Elek M.D. Ms. Anna Orsolya Flaskó M.D. Kristóf Dániel Kispál M.D. Gábor Lakatos M.D.
Resident	Márton Bácsi M.D. Ms. Hanna Pekár M.D. András Szilágyi M.D.
Academic Advisor	Szilárd Gyula Rezes 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

Associate Professor, Head of Department	Tamás Szabó M.D., Ph.D.
Full Professor	Csongor Kiss M.D., Ph.D., D.Sc. Ms. Ilma Korponay-Szabó M.D., Ph.D., D.Sc.
	Ms. Beáta Erika Nagy M.A., Ph.D.
Associate Professor	Ms. Rita Káposzta M.D., Ph.D. Gábor Mogyorósy M.D., Ph.D. Ms. Éva Nemes M.D., Ph.D. István Szegedi M.D., Ph.D.
Assistant Professor	Ms. Andrea Berkes M.D., Ph.D. Ms. Enikő Felszeghy M.D., Ph.D. Ms. Katalin Szakszon M.D., Ph.D.
Senior Lecturer	Ms. Andrea Nagy M.D.
Assistant Lecturer	Ms. Erika Bálega M.D. Zsolt Bene M.D. Ms. Zsuzsanna Gaál M.D., Ph.D. Ms. Éva Juhász M.D. Ms. Ágnes Papp M.D. László Sasi Szabó M.D.
Research Assistant	Ms. Katalin Megyesán (permanently away)
Clinical Assistant	Ms. Zsanett Bara M.D. Ms. Mónika Bessenyei M.D. Ms. Erika Biró M.D. Csaba Erdész M.D. Ms. Boglárka Fehér M.D. Ms. Anita Grabicza M.D. Péter Juhász M.D. Ms. Orsolya Kadenczki M.D. Ms. Ágnes Kiléber M.D. Ms. Melinda Kiss-Vojtkó M.D. Ms. Veronika Kovács M.D. Ms. Erzsébet Ilona Lakatos M.D. Ms. Ágnes Magyar M.D.

Resident

Ms. Gabriella Merő M.D.
 Ms. Barbara Mikhárdiné Cseke M.D.
 Ms. Eszter Mraeskóné Kovács M.D.
 (permanently away)
 Ms. Klára Nagy-Erdei M.D.
 Ms. Tímea Kincső Nagyné Zoltán M.D.
 Ms. Helga Perényi M.D.
 (permanently away)
 Miklós Petrás M.D., Ph.D.
 Zsolt Reiger M.D.
 Ms. Boglárka Schvarckopf M.D.
 Ms. Orsolya Somodi M.D.
 (permanently away)
 Ms. Vivien Stercel M.D.
 Ms. Brigitta Sveda M.D.
 Levente Szabó M.D.
 Ms. Edit Szikszay M.D.
 Ms. Petra Varga M.D.
 Ms. Zsuzsa Zele M.D.
 (permanently away)
 Ms. Anett Agócs M.D.
 Ms. Marie Al-Muhanna M.D.
 (permanently away)
 Ms. Flóra Ambrus M.D.
 Ms. Renáta Baloghné Hudák M.D.
 (permanently away)
 Ms. Zsófia Barkaszi-Szabó M.D.
 (permanently away)
 Ms. Eszter Anna Bartha M.D.
 Ms. Ágnes Bodnár M.D.
 Ms. Flóra Bodnár M.D.
 (permanently away)
 Ms. Beáta Bujdosó M.D.
 Ms. Angéla Czibere-Váradí M.D.
 Ms. Ildikó Dán M.D.
 Ms. Ágnes Deák M.D.
 (permanently away)
 Ms. Fruzsina Erdős-Molnár M.D.

- Gábor Fehér M.D.
- Ms. Judit Lenke Frankó M.D.
(permanently away)
- Ms. Boglárka Gréz Balázsné Dankó M.D.
- Ms. Brigitta Hermann-Tóth M.D.
- Ms. Marietta Hutkainé Incze M.D.
- Ms. Lilla Illésy-Macsi M.D.
- Ms. Bettina Juhász M.D.
- Ms. Flóra Juhász-Ujhelyi M.D.
(permanently away)
- Ms. Andrea Katona M.D.
- Ms. Edit Kecskés M.D.
- Ms. Patricia Kerek M.D.
- Ms. Emese Csenge Kiss M.D.
- Ms. Mariann Márki M.D.
- Ms. Renáta Molnár M.D.
- Ms. Brigitta Dóra Nagy M.D.
(permanently away)
- Gergő Nagy M.D.
- Ms. Anita Oroszné Szücs M.D.
- Tibor Pál M.D.
- Ms. Zsófia Pék-Bodnár M.D.
(permanently away)
- Ms. Krisztina Plásztánné Kovács M.D.
(permanently away)
- Ádám Radványi M.D.
- Ms. Szabina Révész M.D.
- Ms. Fanni Rüdiger M.D.
- Ms. Dóra Schnémann M.D.
(permanently away)
- Ádám Antal Simon M.D.
- Ms. Vanda Soltész M.D.
(permanently away)
- Ms. Kinga Szabó M.D.
- Ms. Zita Szarka M.D.
- Ms. Eszter Szólláth M.D.
- Ms. Dóra Szücs-Farkas M.D.

	Ms. Zsanett Tári M.D.
	Ms. Anita Vadász M.D.
	Gábor Varga M.D.
	Bence Zonda M.D.
Psychologist	Ms. Emese Zsigrai M.D.
	Ms. Emma Bezgédi
	Péter Boris
	Ms. Brigitta Munkácsi M.Sc.
	Ms. Erika Tizedes
Academic Advisor	Ms. Éva Juhász M.D.
	Csongor Kiss M.D., Ph.D., D.Sc.
	Gábor Mogyorósy M.D., Ph.D.

DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION

Bartók Béla út 2-26., Debrecen, 4031, Tel: +36 52 255-942

E-mail: orfmt@med.unideb.hu, Web: <https://rehabilitacio.unideb.hu/>

Head of Department, Associate Professor	Zoltán Jenei M.D., Ph.D.
Head of Clinic	Zoltán Jenei M.D., Ph.D.
PhD Student	Ms. Alexandra Balázsne Pádár M.Sc.
	Ms. Judit Horváth M.D.
	Ms. Enikő Király M.Sc.
	István Dezső Szigyártó M.D.
	Ms. Tünde Szilágyiné Lakatos M.Sc.
Clinical Specialist	Ms. Ágnes Bajusz-Leny M.D.
	Ms. Tímea Góczy M.D.
	Ms. Judit Horváth M.D.
	Ms. Alice Nagy M.D.
	István Dezső Szigyártó M.D.
Resident	Ms. Liliána Csizmadia M.D.
	Ms. Dorottya Hadházi M.D.
	Ms. Márta Jánószky M.D.
	Ms. Anita Mester M.D., Ph.D.
	Ms. Imelda Rác-Simon M.D.
Neuro-psychologist	Ms. Györgyi Lente M.Sc.
Psychologist	Ms. Adrienn Földi M.Sc.
	Ms. Zsuzsanna Nagyidai M.Sc.

Speech Therapist	Ms. Enikő Tóth M.Sc. Ms. Nelli Faragó M.A. Ms. Zsuzsanna Mile M.A.
Physiotherapist	Ms. Laura Balázs M.A. Ms. Kitti Berkes-Boros M.A. Ms. Zsuzsa Bodnár M.A. Ms. Beáta Bódor M.A. Ms. Flóra Demjén M.A. Ms. Zsófia Erdeiné Oláh M.A. Ms. Bella Facsar M.A. Ms. Kira Gyarmati-Kosztolányi M.A. Ms. Kinga Vivien Győr M.A. Ms. Enikő Király M.Sc. Ms. Gyöngyi Kocsi-Lévai M.A. Ms. Enikő Konkoly M.A. Ms. Anna Kövérné Kurta M.A. Ms. Anna Laczkó M.A. Ms. Gyöngyi Menyhártné Varga M.A. Ms. Katalin Páll-Nagy M.A. Ms. Virág Sándor M.A. Ms. Éva Anna Szabados M.A. Ms. Dorottya Szanyi M.A. Ms. Szabina Szegedi-Nagy M.A. Ms. Adrienn Széll-Tímár M.A. Ms. Tünde Szilágyiné Lakatos M.Sc. Ms. Mariann Takács M.A. Ms. Evelin Varga M.A.
Rehabilitation expert	Ms. Zsófia Erdeiné Oláh M.A. Ms. Dorottya Szanyi M.A. Ms. Tünde Szilágyiné Lakatos M.Sc.
Social Worker	Ms. Beáta Irinyi M.Sc.
IT Specialist	Ms. Beáta Alíz Dézsi M.Sc.
Social Educator	Ms. Szilvia Baksa M.A.
College Degree Nurse	Ms. Istvánné Bacsó B.Sc. Ms. Angéla Balan B.Sc., M.A.

	Ms. Beáta Komócsinné Bujdosó M.A.
	Ms. Krisztina Róthné Kabai B.Sc.
	Ms. Szabolcsné Vékony B.Sc.
Occupational therapist	Ms. Beáta Komócsinné Bujdosó M.A.
	Ms. Béláné Smajda

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.
Assistant Lecturer	Ms. Theodóra Glaub M.D. Gábor Andrásy M.D.
	Ms. Edina Cserép M.D. Attila Kovács M.D. Csaba Móri E. M.D.
Clinical Assistant	Szabolcs Garbóczy M.D. Balázs Jeges M.D.
	Ms. Erzsébet Magyar M.D. Bence Szerdahelyi M.D.
Psychologist	Ms. Katalin Tolvay M.D. Ms. Éva Gasparik M.A. Ms. Lili Kövér M.A. Ms. Emese Kulcsár M.A. Ms. Ella Molnár M.A. Ms. Annamária Pusztai Ph.D. Ms. Petra Tischler M.A. Ms. Zsanett Usztics M.Sc.
Academic Advisor	Ms. Anita Fortunyák M.Sc.

DEPARTMENT OF PULMONOLOGY

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

Full Professor, Head of Department	József Balla M.D., Ph.D., D.Sc.
Assistant Professor	Imre Varga M.D., Ph.D. Attila Vaskó M.D.
Assistant Lecturer	Ms. Andrea Fodor M.D.

	Tamás Kardos M.D.
	Ms. Angéla Mikáczó M.D.
	Ms. Anna Sárközi M.D.
Chief Physician	László Brugós M.D., Ph.D.
Clinical Assistant	Susil Joe Isaac M.D.
	Attila Lieber M.D.
	Attila Makai M.D.
	Ms. Zsuzsanna Orosz M.D., Ph.D.
	Ms. Zsuzsa Papp M.D.
	Ms. Ildikó Szűcs M.D.
Candidate Clinical Assistant	Miklós Kukuly M.D.
	Ms. Judit Maklári M.D.
	Ms. Regina Szabó-Szűcs M.D.
Resident	Ms. Viktória Dudás M.D.
	Ms. Boglárka Ágota Kántor M.D.
	Tamás Kovács M.D.
	Ms. Boglárka Ágnes Valkó 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.unideb.hu>

Associate Professor, Head of Department	Dezső Tóth M.D., Ph.D. habil.
Head of Division of Organ Transplantation	Balázs Nemes M.D., Ph.D.
Full Professor	László Damjanovich M.D., Ph.D., D.Sc.
Consultant Surgeon	Zsolt Kanyári M.D.
	Csaba Zsigmond Tóth M.D., Ph.D.
Professor Emeritus	Géza Lukács M.D., Ph.D., D.Sc.
	Péter Sápy M.D., Ph.D., D.Sc.
Associate Professor	Balázs Nemes M.D., Ph.D.
	Zsolt Szentkereszty M.D., Ph.D.
	István Takács M.D., Ph.D.
	Miklós Tanyi M.D., Ph.D.
	Dezső Tóth M.D., Ph.D. habil.
Assistant Professor	Attila Enyedi M.D.
	Roland Fedor M.D., Ph.D.

	Ferenc Győry M.D.
	Csaba Kósa M.D.
	László Orosz M.D., Ph.D.
	Gergely Zádori M.D., Ph.D.
Assistant Lecturer	Tamás Dinya M.D.
	Dávid Kovács M.D.
	János Pószán M.D.
	Zsolt Varga
Clinical Assistant	Ms. Mónika Andrási M.D.
	Ms. Klaudia Balog M.D.
	Csaba Bánfi M.D.
	János Deák M.D.
	Máté Farkas M.D.
	Tamás Felföldi M.D.
	Gergely Kóder M.D.
	Péter Kolozsi M.D.
	Ms. Krisztina Litauszky M.D.
	Gábor Mudriczki M.D.
	Péter Ferenc Nagy M.D.
	Csaba Ötvös M.D.
	Zsolt Susán M.D.
	Csongor Váradi M.D.
Resident	Gergő Beke M.D.
	Ms. Gyöngyi Bernscherer M.D.
	Ms. Dorina Bodnár M.D.
	Gábor Ditrói M.D.
	Balázs Gergely M.D.
	Gergő Haba M.D.
	Lóránt Illésy M.D.
	Gergő Kincses M.D.
	Dániel Mátyási M.D.
	Ms. Kitti Nagy M.D.
	Gergő Rác M.D.
	Zoltán Szalai M.D.
Academic Advisor	Tamás Dinya M.D.

DEPARTMENT OF UROLOGY

Nagyerdei krt. 98., Debrecen, 4032, Tel: +36-52-255-256

E-mail: drabik.gyula@med.unideb.hu, 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	Csaba Berczi M.D., Ph.D.
	Antal Farkas M.D., Ph.D.
Assistant Lecturer	Gyula Drabik M.D.
	Ms. Zoltán Kiss M.D.
	Krisztián Szegedi M.D.
Chief Physician	László Lőrincz M.D.
Clinical Specialist	Mihály Murányi M.D.
	Dániel Varga M.D.
Clinical Assistant	Ms. Alexandra Barkóczi M.D.
	János Dócs M.D.
	Tamás Somogyi M.D.
Responsible for Educational Matters	Gyula Drabik M.D.

CHAPTER 9 OTHER DEPARTMENTS

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. Katalin Rozman M.A.
Teacher	Ms. Annamária Balóné Jóna M.A.
	Ms. Szilvia Erdeiné Gergely M.A.
	Ms. Marianna Fodor M.A.
	Ms. Ildikó Gerő M.A.
	Ms. Mariann Gulyásné Sztítás M.A.
	Ms. Judit Kovács, M.A.
	Ms. Mónika Krasznai M.A.
	Ms. Zsuzsa Lívía Mezei M.A.
	László Répás M.A.
	Benjamin Schutz M.A.
Academic Advisor	Ms. Annamária Balóné Jóna M.A.

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.

DEENK LIFE SCIENCES LIBRARY

Egyetem tér 1., Debrecen, 4032, Tel: +36-52-518-610

E-mail: info@lib.unideb.hu, Web: <https://lib.unideb.hu/en>

Director Libraries	Ms. Gyöngyi Karácsony M.Sc.
Associate Director of User Insight and Communications	Leonárd Petró M.A.
Reference Services	Ms. Edit Görögh M.Sc., Ph.D.
Education and Research Support Department	Ms. Judit Éva Fazekas-Paragh M.Sc.

CHAPTER 10 UNIVERSITY CALENDAR

UNIVERSITY CALENDAR FOR DENTISTRY PROGRAM 2022/2023 ACADEMIC YEAR

CRASH COURSE OF HUNGARIAN LANGUAGE: August 22-September 02, 2022

OPENING CEREMONY: September 04, 2022

1st SEMESTER

REGISTRATION WEEK: August 29-September 04, 2022

Year	Course	Examination Period
Basic Medicine Course	September 05 – December 09, 2022 (14 weeks)	December 12, 2022 – January 27, 2023 (7 weeks)
1st year Dentistry 2nd year Dentistry 3rd year Dentistry 4th year Dentistry 5th year Dentistry	September 05 – December 09, 2022 (14 weeks)	December 12, 2022– January 27, 2023 (7 weeks)

2nd SEMESTER

REGISTRATION WEEK: January 30-February 05, 2023

Year	Course	Examination Period
Basic Medicine Course	February 06 – May 12, 2023 (14 weeks)	May 15 – June 09, 2023 (4 weeks)
Basic Medicine Course II.	January 09-June 16, 2023 (23 weeks)	June 19-July 07, 2023 (3 weeks)
1st year Dentistry 2nd year Dentistry 3rd year Dentistry 4th year Dentistry	February 06 – May 12, 2023 (14 weeks)	May 15 – June 30, 2023 (7 weeks)
5th year Dentistry	February 06 – April 28, 2023 (12 weeks)	May 02 – June 09, 2023 (6 weeks)
Written final exam		June 2023

SUMMER PRACTICE

Year	Dates in 2023
1st-2nd year Dentistry: dentist assistant	July 03 – July 28, 2023 or July 31 – August 25, 2023 (4 weeks)
3rd year Dentistry:	July 03 – July 14, 2023 or

UNIVERSITY CALENDAR

extraction	July 17 – July 28, 2023 or July 31-August 11 or August 14-August 25, 2023 (2 weeks)
4th year Dentistry: complex	July 03 – July 28, 2023 or July 31 – August 25, 2023 (4 weeks)
Graduation Ceremony	June 09-July 02, 2023

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 excess 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.

CHAPTER 11

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

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

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

DEGREE REQUIREMENTS

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

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

CHAPTER 12

ACADEMIC PROGRAM FOR THE BASIC MEDICINE COURSE

Basic Medicine Course (BMC, Premedical Studies)

Duration of studies: 1 year (2 semesters)

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

Class Behavior

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

Requirements

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

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

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

ACADEMIC PROGRAM FOR THE BASIC MEDICINE COURSE

Exam exemptions and bonus point policy are to improve the students' performance on SCTs and give them a chance to get exemption of the FE (described below) even with SCT scores lower than 40% in the first semester. Exact details of the exemption of ESE:

- one's average score of the three best first semester SCTs is at least 60%, AND
- (s)he successfully completed all the SCTs at least with 40% score, AND
- (s)he has a maximum of 3 seminar absences for each subject in the first semester.

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

- the average score of the six best SCTs (out of 8) of the two semesters is at least 60%, AND
- passed all the SCTs with at least 40%, AND
- (s)he has a maximum of 3 seminar absences for each subject per semester.

OR

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

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

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

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

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

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

Absence for any reason counts as 0%.

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

Subject: **INTRODUCTION TO BIOLOGY I.**

Year, Semester: Basic Medicine Course, 1st

Number of teaching hours:

Lecture: **56**

Seminar: **28**

1st week:

Lecture:

The chemistry of life 1

Proteins, carbohydrates and lipids 1.

Proteins, carbohydrates and lipids 2.

Proteins, carbohydrates and lipids 3.

2nd week:

Lecture:

Proteins, carbohydrates and lipids 4.

Nucleic acids

Cells: the working units of life 1. Prokaryotes*

Cells: the working units of life 2.

3rd week:

Lecture:

Cells: the working units of life 3.

Cells: the working units of life 4.

Cells: the working units of life 5.

Cell membranes 1.

4th week:

Lecture:

Cell membranes 2.

Cell membranes 3.

Cell membranes 4.

Energy, enzymes and metabolism 1.

5th week:

Lecture:

Energy, enzymes and metabolism 2.

Energy, enzymes and metabolism 3.

Energy, enzymes and metabolism 4.

Pathways that harvest chemical energy 1.

6th week:

Lecture:

Pathways that harvest chemical energy 2

Pathways that harvest chemical energy 3.

Pathways that harvest chemical energy 4.

Pathways that harvest chemical energy 5.

7th week:

Lecture:

Cellular signaling and communication 1.

Cellular signaling and communication 2.

Cell cycle and cell division 1.

Cell cycle and cell division 2.

8th week:

Lecture:

Cell cycle and cell division 2.

Cell cycle and cell division 2.

Inheritance, genes and chromosomes 1.

Inheritance, genes and chromosomes 2.

9th week:

Lecture:

Inheritance, genes and chromosomes 3.

Inheritance, genes and chromosomes 4.

Inheritance, genes and chromosomes 5.

Inheritance, genes and chromosomes 6.

10th week:

Lecture:

Inheritance, genes and chromosomes /Pop. Gen 7

DNA and its role in heredity 1.

DNA and its role in heredity 2.

DNA and its role in heredity 3.

11th week:

Lecture:

From DNA to protein: gene expression 1.

From DNA to protein: gene expression 2.

From DNA to protein: gene expression 3.

From DNA to protein: gene expression 4.

12th week:

Lecture:

From DNA to protein: gene expression 4.

From DNA to protein: gene expression 5.
Gene mutation and molecular medicine 1.
Gene mutation and molecular medicine 2.

13th week:

Lecture:

Gene mutation and molecular medicine 3.
Gene mutation and molecular medicine 4.
Regulation of gene expression 1. (Prokaryotic reg.)
Regulation of gene expression 2. (Eukaryotic

reg.)

14th week:

Lecture:

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

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

Subject: INTRODUCTION TO BIOLOGY II.

Year, Semester: Basic Medicine Course, 2nd

Number of teaching hours:

Lecture: **42**

Seminar: **28**

1st week:

Lecture:

Tissues, Organs and Organ Systems 1.
Tissues, Organs and Organ Systems 2.
Tissues, Organs and Organ Systems 3.

Natural Defenses against Disease 2.
Natural Defenses against Disease 3.
Nutrition, Digestion and Absorption 1.

2nd week:

Lecture:

Homeostasis and cellular physiology.
Temperature Regulation.
Blood, a fluid tissue 1.

6th week:

Lecture:

Nutrition, Digestion and Absorption 2.
Nutrition, Digestion and Absorption 3.
Nutrition, Digestion and Absorption 4.

3rd week:

Lecture:

Blood, a fluid tissue 2.
Circulation 1.
Circulation 2.

7th week:

Lecture:

Respiratory system 1.
Respiratory system 2.
Salt and Water Balance and Nitrogen Excretion 1.

4th week:

Lecture:

Circulation 3.
Circulation 4. The lymphatic system.
Natural Defenses against Disease 1.

8th week:

Lecture:

Salt and Water Balance and Nitrogen Excretion 2.
Hormones 1.
Hormones 2.

5th week:

Lecture:

9th week:

Lecture:

Hormones 3.
Hormones 4.

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Hormones 5.

10th week:

Lecture:

Neurons and Nervous system 1.

Neurons and Nervous system 2.

Neurons and Nervous system 3.

11th week:

Lecture:

Neurons and Nervous system 4.

Neurons and Nervous system 5.

Sensory systems 1.

12th week:

Lecture:

Sensory systems 2.

Musculoskeletal Systems 1.

Musculoskeletal Systems 2.

13th week:

Lecture:

Musculoskeletal Systems 3.

Reproduction and Development 1.

Reproduction and Development 2.

14th week:

Lecture:

Reproduction and Development 3.

Reproduction and Development 4.

Contact person: Dr. Norbert Szentandrásy, 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.

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.

4th week:

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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 Young's, shear and bulk modulus. Density and pressure. Variation of pressure with depth. Pressure measurements.

9th week:

Lecture:

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

10th week:

Lecture:

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

Energy in thermal processes. Heat and internal energy.

11th week:

Lecture:

Specific heat. Calorimetry. Latent heat and phase change. The first law of thermodynamics. The second law of thermodynamics. Entropy. Refrigerators and heat pumps.

12th week:

Lecture:

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

13th week:

Lecture:

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

14th week:

Lecture:

Interactive seminar and preparation for the ESE.

Contact person: Dr. Zoltán Varga, Associate Professor, Department of Biophysics

Recommended book: Serway-Vuille: College Physics, Brooks/Cole

Subject: **INTRODUCTION TO PHYSICS II.**

Year, Semester: Basic Medicine Course, 2nd

Number of teaching hours:

Lecture: **56**

Seminar: **28**

1st week:

Lecture:

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

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

2nd week:

Lecture:

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. Torque on current loop and electric motors. Magnetic field of a long straight wire and Ampere's law. Magnetic field

6th week:

Lecture:

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

7th week:

Lecture:

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

8th week:

Lecture:

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

9th week:

Lecture:

Lenses and mirrors. Flat mirrors. Images formed by spherical mirrors. Thin lenses. Images formed by lenses. Lens aberrations.

10th week:

Lecture:

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

11th week:

Lecture:

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

12th week:

Lecture:

Atomic physics. Early model of the atom. Quantum mechanics and the hydrogen atom. The spin magnetic quantum numbers. Lasers and holography.

13th week:

Lecture:

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

14th week:

Lecture:

Preparation for the final exam.

Contact person: Dr. György Panyi, Full Professor, Department of Biophysics

Recommended book: Serway-Vuille: College Physics, Brooks/Cole

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

Year, Semester: Basic Medicine Course, 1st

Number of teaching hours:

Lecture: **56**
Seminar: **28**

1st week:

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

2nd week:

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

3rd week:

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

4th week:

Lecture:
Summary of general chemistry 1
Test #1

5th week:

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

6th week:

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

7th week:

Lecture:

VSEPR and valence bond theory
Intermolecular forces

8th week:

Lecture:
Summary of general chemistry 2
Test #2

9th week:

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

10th week:

Lecture:
Solutions. Electrolytes and nonelectrolytes
Chemical equilibrium

11th week:

Lecture:
Summary of general chemistry 3
Test #3

12th week:

Lecture:
Acids and bases 1
Acids and bases 2

13th week:

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

14th week:

Lecture:
Summary of general chemistry 4
Test #4

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

Year, Semester: Basic Medicine Course, 2nd

Number of teaching hours:

Lecture: **56**

Seminar: **28**

1st week: Lecture: The main-group elements. s-, p-, d-block metals Nonmetals: hydrogen, halogens and noble gases	Alcohols and phenols Ethers, thioethers.
2nd week: Lecture: Nonmetals: oxygen and sulfur Nonmetals: nitrogen, phosphorus and carbon	9th week: Lecture: Organic sulfur compounds Aldehydes, ketones and quinones
3rd week: Lecture: Test #5 Covalent bonding in organic compounds. Classification of organic compounds	10th week: Lecture: Nitrogen containing organic compounds: aliphatic amines Nitrogen containing organic compounds: heterocyclic nitrogen compounds. Amines of biological importance
4th week: Lecture: Alkanes. Nomenclature and isomerism of alkanes Reactions of alkanes. Cycloalkanes	11th week: Lecture: Summary of organic chemistry 2 Test #7
5th week: Lecture: Unsaturated hydrocarbons Aromatic compound: structure and properties	12th week: Lecture: Carboxylic acids Substituted carboxylic acids. Carboxylic acid derivatives: esters and amides
6th week: Lecture: Heteroaromatic compounds. Reactions of benzene and its derivatives Organic halogen compounds	13th week: Lecture: Carboxylic acid derivatives: halides and anhydrides; salts and detergents Stereochemistry
7th week: Lecture: Summary of organic chemistry 1 Test #6	14th week: Lecture: Summary of organic chemistry 3 Test #8
8th week: Lecture:	

Contact person: Dr. Endre Kókai, Department of Medical Chemistry

Recommended books: McMurry, Fay: Chemistry (7th edition)

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

Subject: **HUNGARIAN LANGUAGE FOR BMC STUDENTS**

Year, Semester: Basic Medicine Course 2nd

Number of teaching hours:

Practical: **36**

1st week:

Practical: 1. lecke, 2. lecke I. rész

2nd week:

Practical: 2. lecke II. rész

3rd week:

Practical: 3. lecke

4th week:

Practical: 4. lecke, 5. lecke I. rész

5th week:

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

6th week:

Practical: 6. lecke II. rész, 7. lecke

(Összefoglaló) + midterm test

Self Control Test

7th week:

Practical: 8. lecke

8th week:

Practical: 9. lecke

9th week:

Practical: 10. lecke

10th week:

Practical: 11. lecke, 12. lecke

11th week:

Practical: 13. lecke

12th week:

Practical: 14. lecke (Összefoglalás) + end term test

Oral exam

Reading materials:

Gerő Ildikó-Kovács Judit: Színesen magyarul.

2017.

CHAPTER 13

ACADEMIC PROGRAM FOR THE SHORT BASIC MEDICINE COURSE

Intensive Basic Medicine Course (Intensive BMC, Premedical Studies)

Duration of studies: 1 semester

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

Class Behavior

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

Requirements

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

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

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

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

- the average score of the five best SCTs (out of 6) is at least 60%, AND
- passed all the SCTs with at least 40%, AND

ACADEMIC PROGRAM FOR THE SHORT BASIC MEDICINE COURSE

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

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

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

Students who could not meet the above described conditions for exemption must sit for the FE from the whole material of the course.

The participation shall be preceded by ID confirmation (i.e. student's card, passport or driving license) before all forms of tests. Self Control Tests, End of Semester Exams, and Final Exams will be assessed as follows.

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

Absence for any reason counts as 0%.

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

Subject: **INTRODUCTION TO BIOLOGY**

Year, Semester: Intensive Basic Medicine Course

Number of teaching hours:

Lecture: **92**

Seminar: **92**

1st week:**Lecture:** Small molecules and the chemistry of life 1.

Small molecules and the chemistry of life 2.

Proteins, carbohydrates and lipids 1.

Proteins, carbohydrates and lipids 2.

2nd week:

Lecture: Proteins, carbohydrates and lipids 3.

Nucleic acids and the origin of life.

Cells: the working units of life 1.

Cells: the working units of life 2.

3rd week:

Lecture: Cells: the working units of life 3.

Cells: the working units of life 4.

Bacterial cell structure

Cell membranes 1.

4th week:

Lecture: Cell membranes 2.

Cell membranes 3.

Energy, enzymes and metabolism 1.

Energy, enzymes and metabolism 2.

5th week:

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

6th week:

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

7th week:

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

8th week:

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

9th week:

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

10th week:

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

11th week:

Lecture: Regulation of gene expression 1.
 Regulation of gene expression 2.
 Regulation of gene expression 3.
 Regulation of gene expression 4.

12th week:

Lecture: The cellular signaling and communication 1.
 The cellular signaling and communication 2.

The mechanism of evolution 1.
 The mechanism of evolution 2.

13th week:

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

14th week:

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

15th week:

Lecture: Circulation 1-3. Lymphatic system.

16th week:

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

17th week:

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

18th week:

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

19th week:

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

20th week:

Lecture: Neurons and Nervous system 2-5.

21st week:

Lecture: Sensory systems 1-2.
 Effectors: Musculoskeletal Systems 1-2.

22nd week:

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

23rd week:

Lecture: Self Control Test

Academic advisors: Dr. András Penyige, Department of Human Genetics
Dr. Norbert Szentandrassy, 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 Young's modulus, shear and bulk modulus. Density and pressure. Variation of pressure with depth. Pressure measurements. Buoyant forces and Archimedes's principle.

9th week:

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

10th week:

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

11th week:

Lecture 21-22: The second law of

thermodynamics. Entropy. Refrigerators and heat pumps. Elastic potential energy. Hook's law. Simple harmonic motion. Motion of a pendulum.

12th week:

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

13th week:

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

14th week:

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

15th week:

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

16th week:

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

17th week:

Lecture 34-35: Magnetism. Magnetic field. Earth's magnetic field. Magnetic force on current

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

18th week:

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

19th week:

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

20th week:

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

21st week:

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

23rd week

Lecture 44-45: Quantum physics. Blackbody radiation, photoelectric effect, generation of X-ray.

Some properties of the nuclei. Binding energy. Radioactivity, the decay processes. Medical application of radioactivity.

Academic advisor: Dr. Attila Jenei, Department of Biophysics and Cell Biology

Recommended book: Serway, Vuille: College Physics (11th edition)

ACADEMIC PROGRAM FOR THE SHORT BASIC MEDICINE COURSE

Subject: **INTRODUCTION TO MEDICAL CHEMISTRY**

Year, Semester: Intensive Basic Medicine Course

Number of teaching hours:

Lecture: 92

Seminar: 92

1st week:

Lecture:

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

2nd week:

Lecture:

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

3rd week:

Lecture:

Atomic, molecular and molar mass relationships
Percent composition and empirical/molecular formulas. Chemical equations, stoichiometry

4th week:

Lecture:

Summary of general chemistry 1
Test #1

5th week:

Lecture:

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

6th week:

Lecture:

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

7th week:

Lecture:

VSEPR and valence bond theory
Intermolecular forces

8th week:

Lecture:

The gaseous state
Liquid and solid state, phase changes. The chemistry of water

9th week:

Lecture:

Solutions. Electrolytes and nonelectrolytes
Summary of general chemistry 2

Test #2

10th week:

Lecture:

Chemical equilibrium
Acids and bases 1

11th week:

Lecture:

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

12th week:

Lecture:

Redox reactions. Activity series of the elements.
Galvanic cells
Summary of general chemistry 3
Test #3

13th week:

Lecture:

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

14th week:

Lecture:

Nonmetals: oxygen and sulfur
Nonmetals: nitrogen, phosphorus and carbon

15th week:

Lecture:

Covalent bonding in organic compounds.
Classification of organic compounds.

Alkanes. Nomenclature and isomerism of alkanes Reactions of alkanes. Cycloalkanes	Lecture: Summary of organic chemistry 2
16th week: Lecture: Unsaturated hydrocarbons Summary of organic chemistry 1 Test #4	Test #5 Nitrogen containing organic compounds 1: aliphatic amines
17th week: Lecture: Aromatic compounds: structure and properties Heteroaromatic compounds. Reactions of benzene and its derivatives	21st week: Lecture: Nitrogen containing organic compounds 2: heterocyclic nitrogen compounds. Amines of biological importance Carboxylic acids
18th week: Lecture: Organic halogen compounds Alcohols and phenols	22nd week: Lecture: Substituted carboxylic acids. Carboxylic acid derivatives 1: esters and amides Carboxylic acid derivatives 2: halides and anhydrides; salts and detergents
19th week: Lecture: Ethers, thioethers. Organic sulfur compounds Aldehydes, ketones and quinones	23rd week: Lecture: Stereochemistry Summary of organic chemistry 3
20th week:	Test #6

Contact person: Dr. Krisztina Tar, Department of Medical Chemistry

Recommended books: McMurry, Fay: Chemistry (7th edition)

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

CHAPTER 14

ACADEMIC PROGRAM FOR CREDIT SYSTEM

ACADEMIC PROGRAM FOR CREDIT SYSTEM

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

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

The general principles of the credit system are the following:

1. Students can be given their degree if, having met other criteria as well, they have collected 300 credits during their studies. Considering the recommended curriculum, this can be achieved in five years.
2. According to the credit regulations, students should obtain an average of 30 credits in each semester.
3. The criterion of obtaining 1 credit is to spend 30 hours (including both contact and non-contact hours) studying the given subject.
4. Credit(s) can only be obtained if students pass the exam of the given subject.
5. Students accumulate the required amount of credits by passing exams on compulsory, required elective and freely chosen subjects. Completion of every single compulsory credit course is one of the essential prerequisites of getting a degree. Courses belonging to the required elective courses are closely related to the basic subjects, but the information provided here is more detailed, and includes material not dealt with in the frame of the compulsory courses. Students do not need to

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

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

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

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

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

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

11. The diploma work is worth 20 credits.

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

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

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

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

We very much hope that this system of training will contribute to the successful completion of your studies.

We wish you good luck with your university studies.

Compulsory courses for the 1. year

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

Compulsory courses for the 1. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Cell Biology Lecture	FOSEJ09D2	28	28		ESE*	4	None
2	Cell Biology Practical	FOSEJ10D2			20	AW5	2	None
2	First aid and reanimation	FOELS06D2	6		15	AW5	1	None
2	Hungarian Language I/2.	FOHUN02D2-K1			28	AW5	2	Hungarian Crash Course, 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	28		FE	6	Cell Biology Lecture, Oral Anatomy, Histology and Embryology I. Lecture
1	Oral Anatomy, Histology and Embryology II. Practical	FOANA18D3			56	AW5	4	Cell Biology Lecture, Oral Anatomy, Histology and Embryology I. Lecture

Compulsory courses for the 2. year

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

Compulsory courses for the 3. year

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

Compulsory courses for the 3. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	3rd year Summer Practice for Dentistry Students	FO_NYGY_3RD YEAR			60	SIGN	0	has to be completed before the 4th year, Oral Surgery Propedeutics has to be completed
2	Basic Surgical Techniques	FOMUT05D6-K1	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	Dosimetry, Radiation Health Effects	FODOZ02D6		24		ESE	2	
2	Introduction to Dental Radiology	FORAD04D6	18	23		ESE	3	Biophysics Lecture, General Pathology, Oral Biology
2	Introduction to Prosthodontics IV.: Propedeutics of Fixed Prosthodontics	FOFPO35D52	14		37	FE	2	Introduction to Prosthodontics III.: Propedeutics of Total and Partial Removable Dentures; Odontotechnology I., Odontotechn. II. exam has to be completed before
2	Medical Hungarian II.	FOHUN06D6			28	FE	2	Medical Hungarian I.
2	Medical Psychology	FOPSZ12D6	10		10	ESE	2	Basics of Behavioural Sciences
2	Odontotechnology II.	FOFPO37D52	10		37	AW5	2	Introd. to Prosthodontics III.: Propedeutics of Total and Partial Removable Dentures, Odontotechnology I.
2	Oral Surgery Propedeutics	FOSZS02D6	14		28	ESE	2	Oral Anatomy, Histology and Embryology II. Lecture, Biochemistry II., Odontology
2	Organ and Oral Pathology	FOPAT12D6	50	14	14	FE	5	General Pathology
2	Periodontology Propedeutics II.	FOPAR12D6	2		15	AW5	1	Periodontology Propedeutics I.
2	Restorative Dentistry Propedeutics II. (Endodontics)	FOEND02D6	14		56	ESE	4	Restorative Dentistry Propedeutics I. (Cariology), Oral Biology

Compulsory courses for the 4. year

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

CHAPTER 14

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

Compulsory courses for the 4. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Complex Dentistry II.	FOKOMP04D8	5		105	AW5	7	Complex Dentistry I., Dosimetry, Radiation Health Effects, Introduction to Dental Radiology
2	Complex summer practice for dental student	FO_NYGY_COMPLEX			120	SIGN	0	has to be completed before the 5th year
2	Dental Pharmacology II.	FOGYO08D8	28	14		FE	3	Dental Pharmacology I.
2	Digital Dentistry	FODIF02D9	14		14	AW5	2	Introduction to Prosthodontics IV.: Propedeutics of Fixed Prosthodontics, Introduction to Dental Radiology
2	Emergency Medicine	FOOXY06D8	22		22	ESE*	2	Organ and Oral Pathology, First Aid and Reanimation
2	Internal Medicine II.	FOBEL20D8	28		28	FE	3	Internal Medicine I.
2	Oral Surgery II.	FOSZS16D8	14		10	ESE	1	Oral surgery I.
2	Orthodontics II.	FOFSZ02D8	15	1	15	FE	2	Orthodontics I.
2	Pediatric Dentistry Propedeutics	FOGYF10D8		5	10	ESE	1	Preventive Dentistry II., Orthodontics I.
2	Periodontology II.	FOPAR20D8	14		10	ESE	2	Periodontology I.
2	Prosthetic Dentistry II.	FOFPO22D8	14		10	ESE	2	Prosthetic Dentistry I.
2	Restorative Dentistry II. (Endodontics)	FOKON10D8	14		10	ESE	2	Restorative Dentistry I. (Cariology)

Compulsory courses for the 5. year

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

Compulsory courses for the 5. year

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

Required elective courses for the 1. year

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

Required elective courses for the 1. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
2	Computer Science	FOINF46D1			28	AW5	2	None
2	Latin Language	FOLAT44D2			28	AW5	2	None
2	Medical Genetics	FOGEN04D2	30		26	AW5	2	None
2	Medical Genomics	FOGEN44D2	12		2	AW5	2	None
2	Understanding medical problems through experiments	AOOBP43T2			30	AW5	3	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	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			28	AW5	2	Dental Physiology I. Lecture
2	Selected topics in Cell Biology	FOG157403-K1	24			AW5	2	
2	The regulatory role of the cell membrane in physiological and pathological conditions	FOSEM42D4	20			AW5	2	Dental Physiology I. Lecture

Required elective courses for the 3. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Cariology elective I. (Fundamentals of Cariology)	FOCAR43D5		14		AW5	1	Odontology, Introduction to Prosthodontics I.: Dental Materials, Introduction to Prosthodontics II.: Introduction to the Fixed Prosthodontics
1	Medical Anthropology	FOANT44D6	15			AW5	2	Basics of Behavioural Sciences
1	Molecular Mechanism of diseases concerning great population	AOG167605	25			AW5	2	Biochemistry II. Lecture

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 I. (Cariology), Introduction to Prosthodontics IV.: Propedeutics and Technology of Total and Partial Removable Dentures
2	Clinical Gerontology	FOKLG44D6	30			AW5	3	Dental Physiology II., Immunology
2	Clinical Physiology	FOKFI08D6	14	20		AW5	2	General Pathology, Dental Physiology II.
2	Clinicopathologic cases demonstration	FOKLP42D6	20			AW5	2	General Pathology
2	Medical Sociology	FOSZO04D6	8	7		ESE	2	None
2	Oralpathologic cases demonstration	FOORP42D6	20			AW5	2	General Pathology

Required elective courses for the 4. year

Sem	Subjects	Neptun code	L	S	P	Exam	Crd	Prerequisites of taking the subject
1	Behavioural Medicine	FOMAG43D7	10			AW5	1	Medical Psychology
1	Endodontics elective I.	FOENDE42D8		14		AW5	1	Restorative Dentistry Propedeutics II (End.), Preventive Dentistry I.
1	Esthetic Dentistry	FOEPO42D6		14		AW5	1	Prosthetic Dentistry II.
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				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	Periodontology elective I.	FOPAR42D8	14			AW5	1	Periodontology I.
2	Special problems of cardiovascular and respiratory pharmacology for dentistry students	FOKER02D8	18			AW5	2	None
2	Surgical care of developmental disorders of the maxillofacial region Oral Surgery Elective II.	FOSSE42D8-K1	15			AW5	1	None
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 in Prosthetic Dentistry	FOCBCTD11		12		AW5	1	Introduction to Dental Radiology, Oral Surgery III., Prosthetic Dentistry III.
2	Pediatric Dentistry Elective	FOGFE44D9		12		AW5	1	Pediatric Dentistry I.
2	Praxis management	FOPRA42D10	12			AW5	1	Prosthetic Dentistry III., Restorative Dentistry III. (Cariology and Endodontics)
2	Thesis consultation IV.	FODIP48D10		75		AW5	5	None

Freely Chosen Courses

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Department of Biomaterials and Prosthetic Dentistry	Advanced Dental Materials	FOADM01D10	1	1	14	AW5	Complex Dentistry II.	
Department of Biomaterials and Prosthetic Dentistry	Molecular Biological Research Methods in Dentistry	FOMBRD04	1	2	14	AW5	Molecular Biology	
Department of Biomaterials and Prosthetic Dentistry	Tissue Engineering and Regeneration in Dentistry	FOSZOVTE RV02	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 - Basics of Oral Implantology	
Department of Anatomy, Histology and Embryology	Investigation of the embryonic cell-and tissue differentiation	AOG1011003	2	1	26	AW5	Oral Anatomy, Histology, Embriology I., Cell Biology, Molecular Biology, Biophysics	Róza Zákány M.D., Ph.D.
Department of 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 Behavioural Sciences	Inborn Sociality - Socialized Individuality: A New Concept	AOG358902-K8	2	-	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences	The Basic Problems of Medicine	AOG358601	1	1	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Department of Behavioural Sciences	Madness and Psychiatry (Philosophical Approach)	AOG359602	1	2	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.

ACADEMIC PROGRAM FOR CREDIT SYSTEM

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Department of Behavioural Sciences	Theory of Psychoanalysis and Its Influence on the Concept of Human Being in Medicine	AOG359501-K8	1	1	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Department of Behavioural Sciences	Psychic Trauma	AOG351110-2-K1	1	2	20	AW5	None	Attila Bánfalvi M.A., Ph.D., C.Sc.
Department of Behavioural Sciences	Theoretical and Methodological Questions of Patient Satisfaction Studies	AOG359308	1	2	15	AW5	None	Bence Döbrössy M.A.
Department of Behavioural Sciences	Yoga and Meditation I.	AOG351200-1-K1	1	1	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Behavioural Sciences	Intercultural Health Care	AOG351160-5-K1	2	2	30	AW5	None	Bence Döbrössy M.A.
Department of Behavioural Sciences	Yoga and Meditation II.	AOG351040-1-K1	2	-	30	AW5	None	Péter Molnár M.D., D.Sc.
Department of Biochemistry and Molecular Biology	Biochemistry of Apoptosis	AOG167406	1	-	20	AW5	Biochemistry II.	Zsuzsa Szondy M.D., Ph.D., D.Sc.
Department of Biochemistry and Molecular Biology	Retroviral Biochemistry	AOG167506	1	2	20	AW5	Molecular Biology	József Tözsér M.Sc., Ph.D., D.Sc.
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-K1	2	2	28	AW5	Hungarian Crash Course	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective General I.	AOG268901-K1	2	1	28	AW5	Hungarian Crash Course	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective - Medical I.	AOG26108A-1-K1	2	1	28	AW5	Completion of Hungarian Language III/2 or Medical Hungarian II Final exam	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective - Medical II.	AOG26108A-2-K1	2	2	28	AW5	Hungarian Language Elective Medical I.	Katalin Rozman M.A.

CHAPTER 14

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Department of Foreign Languages	Latin Medical Terminology I.	AOG261100 2	1	1-2	28	AW5	Rozman Katalin	
Department of Foreign Languages	Elective Hungarian for Dentistry Students	FOHUNELE CT01	2	1-2	28	AW5	Medical Hungarian II.	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective General III.	AOG269203	2	1	28	AW5	Hungarian Language I/2.	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective General IV.	AOG269304	2	2	28	AW5	Hungarian Language II/1.	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective General V.	AOG269605	2	1	28	AW5	Hungarian Language II/2.	Katalin Rozman M.A.
Department of Foreign Languages	Hungarian Language Elective General VI.	AOG269706	2	2	28	AW5	Hungarian Language III/1., Medical Hungarian I.	Katalin Rozman M.A.
Department of Internal Medicine	Inflammatory bowel diseases: clinical, therapeutical and immunological aspects	AOG148709	1	1	16	AW5	Internal Medicine I.	Zoltán Csiki M.D., Ph.D.
Department of Medical Microbiology	Tumor viruses and oncogenes	AOG427804	1	2	12	AW5	Dental Microbiology	György Veress M.Sc., Ph.D.
Department of Medical Microbiology	Interpretive Clinical Bacteriology and Virology	AOG428108	1	2	14	AW5	Dental Microbiology	József Kónya M.D., Ph.D., D.Sc.
Department of Medical Microbiology	Introduction to Medical Mycology	AOG421020 7	1	1-2	14	AW5	Dental Microbiology	László Majoros M.D., Ph.D.
Department of Medical Microbiology	Clinical Mycology	AOG421010 7	1	1-2	12	AW5	Dental Microbiology	László Majoros M.D., Ph.D.
Department of Medical Microbiology	Antimicrobial agents in dentistry	AOG429120 6	1	1	12	AW5	successful first semester exam of Medical Microbiology	László Majoros M.D., Ph.D.
Department of Pathology	Neurodegenerativ diseases	AOG457207	1	1	20	AW5	Pathology II.	Péter Molnár M.D., D.Sc.
Department of Pediatric and Preventive Dentistry	Dental developmental and structural diseases and their treatments	FOFEJLREL L02	1	1	15	AW5	Orthodontics II., Preventive Dentistry II.	Judit Nemes D.M.D., Ph.D.

ACADEMIC PROGRAM FOR CREDIT SYSTEM

Department	Subject	Neptun code	Crd	Sem	Hours	Exam	Prerequisites of taking the subject	Coordinator
Department of Pediatric and Preventive Dentistry	Trauma management in childhood and in adolescence	FOTRAMA N02	1	1	15	AW5	Orthodontics II., Preventive Dentistry II.	Judit Nemes D.M.D., Ph.D.
Department of Pulmonology	Asthma bronchiale	AOG587707	1	1	8	AW5	Pathology II.	László Brugós M.D., Ph.D.
Department of Pulmonology	Lung cancer	AOG587607	1	1	10	AW5	Pathology II.	Andrea Fodor M.D.
Division of Biophysics	Physical foundations of biophysics	AOG157303	1	1	24	AW5	None	Péter Hajdu M.Sc., Ph.D.
Division of Cardiology	Echocardiography	AOG317307	1	1	18	AW5	Internal Medicine I., Clinical Physiology	Ida Hegedűs M.D., Ph.D.
Division of Cell Biology	Selected Topics in Cell Biology	FOG157403-K1	2	2	24	AW5	Cell Biology	
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.

CHAPTER 15

SUMMER PRACTICE

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

Objectives of the practice: to get acquainted with the tasks of the dental nurse

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

The practice can be fulfilled either after the 1st or after the 2nd year in any dental surgery in Hungary or abroad.

A certificate about fulfilling the practice is necessary, signed by the summer-practice tutor.

Dento-alveolar summer practice for *3rd year students*

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

Complex summer practice for 4th year dental students

Prerequisites:

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

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

- Anamnestic data
- Patient examination
- Inspection

- Palpation
- Percussion
- Dental status
- Diagnosis
- Treatment plan
- Carry out basic treatment procedures
- Local anaesthesia
- Theoretical knowledge and manual abilities in the fields of conservative dentistry and endodontics
- Theoretical fields of crown- and bridgework, indications and contraindications, improving manual abilities; Total and partial dentures: theory and practice, indications and contraindications, clinical and laboratory phases
- Basics in gnathology: 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 Behavioural Sciences

Subject: **BASICS OF BEHAVIOURAL SCIENCES**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Lecture: **20**

1st week:

Lecture: Introduction to Behavioural Sciences

2nd week:

Lecture: Basics of Bioethics

3rd week:

Lecture: Basics of Medical Anthropology

4th week:

Lecture: Basics of Medical Sociology

5th week:

Lecture: Basics of Medical Psychology I.:
Human Development

6th week:

Lecture: Basics of Medical Psychology II.:
Emotions and Motivations

7th week:

Lecture: Basics of Medical Psychology III.:
Learning and Memory

8th week:

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

9th week:

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

10th week:

Lecture: Medical Psychology VI. Psychological
Methods and Research in Psychology

Requirements

Medical psychology course objectives: The aim of the course is to familiarize the students with the most important psychological aspects of health and illness, the psychological characteristic of medical profession as well as the healing/caring process. The main schools of psychology are also introduced. The course is ment 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 Foreign Languages

Subject: **HUNGARIAN CRASH COURSE**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Practical: **36**

1st week:

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

2nd week:

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

Requirements

9.00 - 10.30: language classes

10.30 - 11:00 break

11.00 - 12.30: language classes

Assessment: five grade evaluation (AW5).

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

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

Subject: **HUNGARIAN LANGUAGE I/1.**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Practical: **24**

1st week:

Practical: 1. lecke: Itt az ideje gyakorolni, 2. lecke: Zoli

2nd week:

Practical: 3. lecke: UniBike és a Nagyerdő

3rd week:

Practical: 4. lecke: Debrecenbe utazik a családom

4th week:

Practical: 5. lecke: Panoráma a Nagytemplomból

5th week:

Practical: 6. lecke: Együtt a család Debrecenben

6th week:

Practical: Revision, Mid-term test (written)
Self Control Test (Mid-term test)

7th week:

Practical: 7. lecke: Van ledved moziba menni?

8th week:

Practical: 8. lecke: Megyünk az egyetemre

9th week:

Practical: 9. lecke: Mit csinálsz a Malomparkban?

10th week:

Practical: 10. lecke: Kirándulunk a Hortobágyon, 11. lecke: Ez az utolsó óra?

11th week:

Practical: Revision, End-term test (written)
Self Control Test

12th week:

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

Requirements

Requirements of the course:**Attendance**

Attending language classes is **compulsory**. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum *2 occasions*. In case of more than 2 absences, the signature may be refused. Making up a missed lesson with another group is not allowed.

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

During the semester students must sit for **two written language tests**, and **an oral exam**. If a student is late for the test, he/she is not allowed to take it.

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

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

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

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

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

Coursebook: Fodor, Marianna -Mezei, Zsuzsa Livia: Szívből magyarul

Assignments, audio files, oral exam topics and vocabulary minimum lists can be found on the elearning site of the Department of Foreign Languages (www.elearning.med.unideb.hu).

Department of Medical Chemistry

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: Lecture topics of the week

2nd week:

Lecture: Intermolecular forces. Solutions and colloids

Chemical equilibrium

Seminar: Lecture topics of the week

3rd week:

Lecture: Ionic equilibria. Acids and bases: Acid base equilibria. Bronsted Lowry and Lewis theories

Thermochemistry and thermodynamics

Seminar: Lecture topics of the week

4th week:

Lecture: Chemical kinetics

Electrochemistry. Thermodynamics of redox reactions

Seminar: Lecture topics of the week

5th week:

Lecture: Introduction to organic chemistry. Stereochemistry

Saturated and unsaturated hydrocarbons

Seminar: Lecture topics of the week

6th week:

Lecture: Aromatic hydrocarbons

Organic halogen compounds. Alcohols and phenols

Seminar: Lecture topics of the week

7th week:

Lecture: Aldehydes and ketones and quinones. Ethers. Organic sulfur compounds

Nitrogen containing organic compounds.
Nitrogen containing heterocycles

Seminar: Lecture topics of the week

8th week:

Lecture: Carboxylic acids and carboxylic acid derivatives

Amino acids and peptides

Seminar: Lecture topics of the week

9th week:

Lecture: Proteins (Structure and classification)

Proteins in action. (Function, regulation)

Seminar: Lecture topics of the week

10th week:

Lecture: Carbohydrates

Glycolysis and tricarboxylic acid cycle.
Metabolic regulation

Seminar: Lecture topics of the week

11th week:

Lecture: Lipids

Nucleotides and nucleic acids

Seminar: Lecture topics of the week

12th week:

Lecture: Coordination chemistry. Alkali metals.
Alkaline earth metals

Transition metals: iron, copper, zinc

Seminar: Lecture topics of the week

13th week:

Lecture: Non-metals: oxygen, oxygen-derived reactive intermediates, selenium, halogens

Gaseotransmitters (NO, CO, H₂S) and other inorganic gases of medical relevance (N₂O, NO₂)

Seminar: Lecture topics of the week

14th week:

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

Requirements

The program consists of lectures and seminars. Attendance at the lectures is essential for successful completion of the course. Attendance at seminars is recorded. Students should attend at least 80% of seminars (Max. 6 absences are allowed).

Control tests covering the topics of lectures and seminars will be written during the semester.

Preparation for the tests and exams should be based on the official textbooks, lectures and seminars.

Control tests and final exams will be assessed as follows*:

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

*Percentage values may slightly vary depending on the actual number of questions in the tests/exams.

The final exam consists of a written exam and an oral examination. The written test is composed of

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

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

Subject: **MEDICAL CHEMISTRY PRACTICAL**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Practical: **39**

1st week:

Practical: Laboratory and fire safety instructions
Chemical calculations. Concentration of solutions

Laboratory techniques: laboratory equipments, volumetric apparatus. (Micro)pipetting

2nd week:

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

3rd week:

Practical: Ion exchange chromatography
Paper chromatography: separation of food dyes and separation of amino acids

Gel filtration

4th week:

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

5th week:

Practical: Electrometric pH measurement

6th week:

Practical: Reaction kinetics. Kinetic study of the saponification reaction of ethylacetate (effect of concentration and temperature on the rate)

7th week:

Practical: Qualitative analysis of mono- and disaccharides
Polarimetric analysis of carbohydrates

8th week:

Practical: Enzyme kinetics. Assay of catalase activity

9th week:

Practical: Enzyme kinetics. Assay of glycogen phosphorylase activity

10th week:

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

11th week:

Practical:
Measuring superoxide anion radical production. Assaying superoxide dismutase (SOD) activity

Detection of radical scavenging compounds (antioxidants) with ABTS decolorization assay

12th week:
Practical: Practical exam

Requirements

Attendance at laboratory practices is compulsory and recorded. Students should attend 100% of laboratory practices. Missed and not accepted practices can be made up by the students on the same week or the next week (if the missed lab is still running and the laboratory teacher permits).

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

Department of Operative Dentistry and Endodontics

Subject: **ODONTOLOGY**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **28**

1st week:

Lecture: Human dentitions. Nomenclature.

Definitions

Practical: Introduction to the practical classes.

Description of modelling materials and tools.

Demonstration of the lecture's theme on skulls, dentures and teeth

2nd week:

Lecture: Dental symbolic systems. Losses of the tooth hard tissues

Practical: Carving of upper central permanent incisor from chalk

3rd week:

Lecture: Tooth identifiers. Morphology of the maxilla and mandible

Practical: Carving of lower central permanent incisor from chalk

4th week:

Lecture: Development of teeth

Practical: Carving of upper lateral permanent incisor from wax

5th week:

Lecture: Eruption of teeth, chronology

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

6th week:

Lecture: The permanent maxillary and mandibular incisors and canines

Practical: Modelling of lower and upper canines from plasticine

7th week:

Lecture: The maxillary and mandibular premolars

Practical: Modelling of upper 1st premolar from plasticine

8th week:

Lecture: The permanent maxillary molars

Practical: Carving of lower permanent 1st premolar from chalk

9th week:

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

10th week:

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

11th week:

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

12th week:

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

13th week:

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

14th week:

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

Requirements

Course objectives

The aim of the course: at the end of the 1st semester of 1st year, students need to know the detailed morphology of primary and secondary teeth and the development, histology and anatomy of the surrounding tissues of the teeth.

Short description of the course

Lectures deal with the morphology, histology of the teeth and the surrounding tissues. In the practical hours students modelling and carving teeth and practising the tooth identification on real permanent teeth.

Requirements for signing the lecture book:

The practices start and finish in accordance with the timetable, arriving late is not allowed.

Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.

Missed classes cannot be more than 1 out of the total practice classes.

A certification is required for any absences which has to be handed to the leader of the practice course.

Missed classes cannot be made up for.

At the end of each practical, students work are evaluated with a grade.

The practice grades impact on the outcome of the end of semester exam.

Examination: at the end of the semester (ESE).

Materials for exam preparation: official lecture book, lectures and materials of the practicals.

Course exemption

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

Requirements for taking the subject:---

Division of Biomathematics

Subject: **BIOSTATISTICS**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Seminar: **28**

1st week:

Lecture: 1. Introduction. Math introduction, functions. Set theory.

2nd week:

Lecture: 2. Conditional probability and its clinical implications. Marginalization, Bayes's theorem. Independent events.

3. Descriptive statistics (measures of central tendency and spread; percentile, quartile). Histograms, box and whisker plot.

Seminar: Conditional probability, Bayes's theorem, Independent events.

3rd week:

Lecture: 4. Distributions of random variables (discrete, continuous). Binomial and Poisson distributions

Seminar: Descriptive statistics.

4th week:

Lecture: 5. Normal distribution and standard normal distribution.

Seminar: Characterization of discrete distributions; graphical representation. Binomial and Poisson distributions.

5th week:

Lecture: 6. Sampling, representative sample, unbiased estimation. Central limit theorem. Standard error of the mean.

Seminar: Normal distribution and standard normal distribution,

6th week:

Lecture: 7. Introduction to hypothesis testing, null and alternative hypothesis, level of significance, type I and type II errors. p value. z-test, one sample t-test.

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

7th week:

Lecture: 8. Statistical tests (paired and unpaired t-test, F test).

Seminar: Hypothesis testing, z-test, one sample t-test.

8th week:

Lecture: 9. Diagnostic methods with a statistical approach. ROC curve. Analysis of discrete random variables. Chi-squared test.

Epidemiologic investigations: relative risk, odds ratio. Kaplan-Meier curve.

Seminar: Statistical tests (paired and unpaired t-test, F test).

9th week:

Lecture: 10. Summary

Seminar: Diagnostic methods with a statistical approach. Chi-squared test. Epidemiologic investigations: relative risk, odds ratio; Kaplan-Meier curve.

10th week:
Seminar: Summary

Requirements

1. Aim of the course:

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

2. Short description of the course:

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

3. Type of the exam:

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

4. Requirements for the Biostatistics course:

4.1. Lectures, seminars:

Attendance to lectures is not mandatory but strongly recommended. At the end of the lectures students write an electronic test of up to 5 minutes three times at the end of the lecture containing true-false questions, multiple choice questions, etc., related to the topics of the given/actual lecture for earning bonus points.

Seminars will be held for each group separately. During seminars the lecture topics will be discussed in more detail and sample problems will be solved. Attendance to seminars is mandatory. During the semester on three of the seminars students write a test for earning bonus points. Bonus points earned by the tests written both in the lectures and seminars are added to the test result of part B of the final exam and/or the course test (only to part B, see section 4.3).

Students who complete the colloquium at the end of the second semester as part of the examination course will not be entitled to the bonus points, even if they have already completed the course and have a valid signature (see section 4.3).

4.2. Conditions for signing the lecture book:

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

4.3. Grade-offering course test and exam:

Students will write a grade-offering course test between weeks 12-13. The structure of this test will be identical to that of the final exam.

Usually exams will be held once a week during the exam period. The exam is written.

Structure of the grade-offering test and the final exam:

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

Evaluation of the grade offering test and the final exam:

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

If a student passes part A (i.e. the score is larger than or equal to 75%) on an exam or the grade-offering course test, the result is valid for his/her subsequent exam chances, i.e. it does not have to be retaken.

- If the result of part A is less than 75%, part B is not evaluated

If the student passes part A, bonus points are added to the score of part B (max 100 points). Based on this final score the following grades are offered:

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

Evaluation of the grade-offering test and the final exam is identical.

A grade of 2 or better achieved on the grade-offering test is valid for the final exam.

The bonus points earned by tests written in the lectures and seminars and the exemption from retaking part A of the exam are only valid for the course in which they have been achieved, i.e. they are not valid for repeated courses or exam courses.

5. Reading materials:

·Educational material published on the eLearning platform of the course can be downloaded as pdf format (elearning.med.unideb.hu – Department of Biophysics and Cell Biology/English Courses/1st semester/Biostatistics – AOBIST02T1)

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

6. Exemptions:

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

7. Information for repeaters:

For repeaters the attendance on seminars is not compulsory. Students repeating the course are subject to the same rules and requirements as those taking the course for the first time.

8. 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.

Division of Biophysics

Subject: **BIOPHYSICS LECTURE**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Lecture: **26**

Seminar: **26**

1st week:

Lecture: 1. Introduction. Electromagnetic waves, the properties of light (interference, photoelectric effect, photon theory). Matter waves. Thermal radiation.

2. Generation and absorption of X-ray, X-ray crystallography.

Seminar: Introduction

2nd week:

Lecture: 3. Molecular spectra, Jablonski diagram, fluorescence, fluorescence applications. 4. Sedimentation and electrophoresis. Mass spectrometry.

Seminar: Material related to Lectures 1 and 2.

3rd week:

Lecture: 5. Optics, optical microscopy, electron microscopy.

6. Lasers and their application in biology and medicine.

Seminar: Material related to lectures 3 and 4.

4th week:

Lecture: 7. Physical properties of sound, ultrasound. Doppler effect. Medical and biological applications of ultrasound.

8. Nuclear physics. Nuclear binding energy, radioactivity, law of radioactive decay, radioactive series.

Seminar: Material related to lectures 5-6.

5th week:

Lecture: 9. Features of nuclear radiation and its interaction with absorbing material. Detection of radiation.

10. Radiation biophysics: target theory, direct and indirect action of radiation. Dosimetry. Biological effects of radiation.

Seminar: Material related to lectures 7 and 8.

6th week:

Lecture: 11. Experimental, diagnostic and therapeutic application of isotopes. Accelerators.

12. Basic principles of nuclear magnetic resonance, NMR spectroscopy in biology and medicine.

Seminar: Material related to lectures 9-10.

7th week:

Lecture: 13. Principles of tomographic methods. X-ray absorption CT. PET.

14. Magnetic resonance imaging (MRI). Gamma camera, SPECT.

Seminar: Material related to lectures 11 and 12.

8th week:

Lecture: 15. Chemical potential. Brownian motion. Diffusion at the molecular level, statistical interpretation. Fick's laws. Osmosis.
16. The structure of biological membranes. Membrane transport.

Seminar: Material related to lectures 13 and 14.

9th week:

Lecture: 17. Thermodynamic equilibrium potentials (Nernst, Donnan). Diffusion potential, Goldman-Hodgkin-Katz equation.
18. Resting potential, action potential, and electrical excitability. Measurement of membrane potential.

Seminar: Material related to lectures 15 and 16.

10th week:

Lecture: 19. Resting potential, action potential, and electrical excitability. Measurement of membrane potential.
20. Ion channels (gating, selectivity), the "patch clamp" technique.

Seminar: Material related to lectures 17 and 18.

11th week:

Lecture: 21. The physical background of ECG and EEG.

22. Fluid mechanics, blood circulation.

Seminar: Material related to lectures 19 and 20.

12th week:

Lecture: 23. Biomechanics.

24. Fluid mechanics, blood circulation.

Seminar: Material related to lectures 21 and 22.

13th week:

Lecture: 25. Biophysics of respiration.

26. Flow cytometry. Confocal laser scanning microscopy.

Seminar: Material related to lectures 23 and 24.

14th week:

Lecture: 27. Modern microscopic techniques (atomic force microscopy, super resolution microscopy). (not compulsory)

28. Research in the Institute. (not compulsory)

Requirements

Subject: BIOPHYSICS LECTURE

Year, Semester: 1st year/1st semester

Number of teaching hours:

Lecture: 26

Seminar: 26

Subject code: FOBIF05T1

ECTS Credit: 3

Department: Department of Biophysics and Cell Biology, Biophysics Division

Semester recommended to take: 1st year 1st semester.

Semester for the regular course: 1st.

Prerequisites of the course: No prerequisites.

Course coordinator: Prof. Dr. Péter Nagy

Study advisor: Dr. Tamás Kovács

Teaching staff: Prof. Dr. Péter Nagy and the members of the Department

Educational manager: Dr. Enikő Nizsalóczki

E-mail: biophysedu@med.unideb.hu

Office hours: The location and time of office hours are posted on the website.

Aim of the course:

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

Short description of the course:

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

Structure of the course:

Introduction to natural sciences (e.g. basic principles of atomic and nuclear physics)

Medical physics (e.g. physical principles of diagnostic and therapeutic procedures)

Molecular biophysics (e.g. diffusion, membrane biophysics)

Organ biophysics (e.g. vision, hearing, circulation)

Compulsory reading:

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

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

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

Requirements

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

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

- Students may sign up for one short interactive presentation during the semester about the topic of the seminar (5-10 minutes; max. 2 students/seminar). The talks are graded on a scale of 0-3. This grade counts toward the bonus points earned during the semester. One student may sign up for

one presentation. The grade of the presentation cannot be improved. The topic list, the requirements and the criteria for evaluation are posted on the web page of the Department on the first week of the semester.

- On each seminar (except for the 1st one) students will write a short electronic test about the topic of the seminar. Taking this electronic test is only possible with the installed tablets available in the seminar room, i.e., students cannot take the test with their own devices. The test on a certain week can only be taken once. During the semester, 13 such tests will be written, and the average of the best 10 quizzes will be calculated (Q_{ave}), based on which students will be given bonus points according to the following table:

- o 10p – $Q_{ave} \geq 90\%$

- o 9p – $90\% > Q_{ave} \geq 80\%$

- o 8p – $80\% > Q_{ave} \geq 70\%$

- o 7p – $70\% > Q_{ave} \geq 60\%$

- o 6p – $60\% > Q_{ave} \geq 50\%$

- o 5p – $50\% > Q_{ave} \geq 40\%$

- o 4p – $40\% > Q_{ave} \geq 30\%$

If a student makes up for a missed seminar with another group, taking the seminar quiz is not guaranteed, it is subject to the availability of tablets installed in the seminar room.

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

4. Conditions for the signature:

- * 7 or fewer absences from seminars;

- * Biophysics Practical course is completed successfully (i.e. the student passed the course).

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

Based on the written self-control tests students may obtain the following bonus points and exceptions from the final exam:

(i) if X_{ave} is at least 66 points, the student is exempted from part I of the Biophysics final exam (minimum requirement questions, see point 6);

(ii) according to X_{ave} students may earn SCT bonus points counted to the FE result are as follows:

X_{ave} – SCT bonus points

0-34.99 – 0p

35-49.99 – 5p

50-54.99 – 6p

55-60.99 – 7p

61-65.99 – 8p

66-72.99 – 9p

73-78.99 – 10p

79 and above – 11p

85 and above – see point iii below

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

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

The FE consists of 2 parts:

Part I – Minimum requirement questions. It consists of a written quiz of 20 minimum requirement questions. One must pass this part to have the written test (part II.) evaluated. Minimum requirement questions and the answers thereto are provided on the website of the Department in the 1st week of the semester. 16 out of 20 have to be answered correctly in order to pass this part. Exemption from this part of the FE is discussed in point 5. This part is evaluated as pass or fail, once passed it is valid for further exam chances (B- or C-chance) of the FE. The result of the minimum requirement questions is not counted into the result of the written test (part II. of the FE).

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

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

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

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

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

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

7. Rules for the usage of calculators during self-control tests and the final examination: In order to ensure a fair evaluation, to avoid disturbances in the testing room, and to protect the

security of the test material the following types of calculators are NOT permitted:

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

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

8. Information for repeaters:

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

9. Information for Exam Course students:

Only those students may register for the exam course:

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

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

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

For further information, check the web site of the Department (<https://biophys.med.unideb.hu/>) and the link to the Moodle (e-Learning) within.

Subject: **BIOPHYSICS PRACTICAL**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Practical: **16**

3rd week:

Practical: Measurement of Nuclear Radiation and Determination of Attenuation Coefficient.

4th week:

Practical: Measurement of Nuclear Radiation and Determination of Attenuation Coefficient.

5th week:

Practical: Light Microscopy and Fluorescence Microscopy.

6th week:

Practical: Light Microscopy and Fluorescence Microscopy.

7th week:

Practical: Optical Measurements.

8th week:

Practical: Optical Measurements.

9th week:

Practical: Computer Tomography Modelling and Blood Pressure Measurement.

10th week:

Practical: Computer Tomography Modelling and Blood Pressure Measurement.

13th week:

Practical: Spare lab.

14th week:

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

Requirements

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

Semester recommended for taking the subject: 1st year, 1st semester

Semester for the regular course: 1st

Prerequisites of the course: No prerequisites

Course coordinator: Dr. Andrea Dóczy-Bodnár

Coordinator of Practicals: Dr. Zsolt Fazekas

Educational manager: Dr. Enikő Nizsalóczki (e-mail: biophysedu@med.unideb.hu)

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

2. Structure of the course:

-Introduction to the practicals

-Completion of labs

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

4. Recommended reading:

-Medical Biophysics (3rd edition, Editors: S. Damjanovich, J. Fidy, J. Szöllösi, Medicina, Budapest, 2019, ISBN: 978-963-226-127-0)

-Biophysics laboratory manual

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

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

7. Requirements:

7/1. Attendance to labs and recording all results in a separate logbook are compulsory. Students may attend the practicals according to their group assignment only. Students write a short quiz before each lab topic. The quiz is composed of true/false, multiple choice and simple calculation problems. At least 2.5 of 5 points (Quiz Grade, QG) must be earned in this test in order to be eligible for doing the lab. Ineligible students are not allowed to attend the given lab according to their timelab. The lab will be considered as a missed one, and the student must make it up (after passing the test) according to 7/4.

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

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

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

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

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

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

8. Information for repeaters:

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

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

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

-Students who completed all the labs and passed the lab exam will receive exemption from repeating them upon request. Such exemption requests have to be submitted online through the eLearning page of the course by the end of week 2.

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

9. Exam course: No exam course is available.

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

Department of Anatomy, Histology and Embryology

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. 1. 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 1. 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. 1. 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.

Embriology: SELF CONTROL

Self Control Test

Requirements

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

Rules of examinations:**Evaluation of the midterm examinations:**

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

0 – 59% = 1 (fail)

60 – 69% = 2 (pass)

70 – 79% = 3 (satisfactory)

80 – 89% = 4 (good)

90 – 100% = 5 (excellent)

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

End semester examination:

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

Oral part

Anatomy (two topics – two marks):

- a1. upper and lower limb
- a2. skull

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

Written part

Embryology (one mark): e1

Histology (two marks):

h1: microtechnic, epithelial tissue, connective tissue

h2: adipose tissue, cartilage, bone, bone formation muscle tissue, blood vessels, red bone marrow, blood and development of its formed elements.

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

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

$$\text{ESE mark} = (a1+a2+h1+h2+e1)/5$$

or

$$\text{ESE mark} = (a1+h1+h2+e1)/4 \text{ in case of an "Anatomy Bonus"}$$

In case of failing the oral or written part both parts have to be repeated in the next chance. The oral or written part is considered to be a „fail” if any of the topics of the given part is a „fail”.

The Practical Bonus is valid on all three („A”, „B” and „C”) chances.

Bonuses earned in previous years can also be used. If the student decides to take the practical exam in this semester than the new bonuses will be considered.

Improvement

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

Registration and postponement: Through the NEPTUN system.

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

Subject: ORAL ANATOMY, HISTOLOGY AND EMBRYOLOGY I. PRACTICAL

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Practical: **28**

1st week:

Practical: Anatomy:Anatomy of the upper limb I.

Anatomical terminology, planes and directions. Bones and joints of the upper limb.

2nd week:

Practical: Anatomy:Anatomy of the upper limb II.

Superficial veins, pulse points. Anatomical basis of blood pressure measurement. Cutaneous innervation. Lymphatic drainage.

3rd week:

Practical: Anatomy: Anatomy of the upper limb III.

Thoracohumeral- and spinohumeral muscles. Axillary fossa: brachial plexus, axillary a.v., axillary lymph nodes. Anterior region of arm, scapular region, deltoid region. Posterior region of arm. Cubital fossa. Anterior and posterior regions of forearm. Volar and dorsal carpal regions, carpal tunnel, Guyon's tunnel.

4th week:

Practical: Anatomy:Anatomy of the lower limb I.

Bones, ligaments and position of the pelvic

girdle. Bones and joints of the lower limb. Arches of foot.

5th week:

Practical: Anatomy: Anatomy of the lower limb II.

Superficial veins, pulse points, cutaneous innervation and lymphatic drainage of the upper limb.

6th week:

Practical: Anatomy: Anatomy of the lower limb III.

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

7th week:

Practical: Anatomy: Anatomy of the skull.

Classification of the skull. Connections between

bones of the skull: sutures, gomphosis, cartilaginous connections. Neurocranium I. Frontal bone. Parietal bone. Occipital bone.

8th week:

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

9th week:

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

10th week:

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

Mandible. Hyoid bone.

11th week:

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

12th week:

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

13th week:

Practical: Anatomy:Revision.

14th week:

Practical: Anatomy: Practical examination.

Requirements

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

Rules of the End Semester Examination (ESE)

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

0 - 59 % = 1 (fail)

60 - 69 % = 2 (pass)

70 - 79 % = 3 (satisfactory)

80 - 89 % = 4 (good)

90 - 100 % = 5 (excellent)

In case the result of the ESE is 4 (good) or 5 (excellent) the student will earn a "Anatomy Bonus" for the Final Examination of the "Oral Anatomy, Histology and Embryology – I. Lectures" course. In case the student fails the ESE, the exam can be repeated once in the last week of the semester and once in the exam period. Improvement of the ESE's mark is not allowed.

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

Department of Biochemistry and Molecular Biology

Subject: **MOLECULAR BIOLOGY LECTURE**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **42**

Seminar: **14**

1st week:

Lecture: Introduction to Molecular Biology.

The structure-function relationship of proteins I.

Protein structure levels. Domains and subunits.

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

2nd week:

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

3rd week:

Lecture: The genetic code. Codons, anticodons. Structure and function of tRNAs and the ribosome. Protein synthesis. The open reading frame. Steps of translation (protein synthesis): initiation, formation of the peptide-bond, elongation and termination. Antibiotics. Antiviral effect of interferon.

Protein maturation. Assisted protein folding and its enzymes and chaperons. Misfolding: protein

aggregation diseases. Protein targeting.

4th week:

Lecture: Isolation and characterization of proteins. Various techniques for separation and purification: altering the ionic strength and pH, chromatography, electrophoretic methods. Determining the amino acid composition, amino acid sequence and higher order structure of proteins.

Immunological techniques. The structure of immunoglobulins. Production of antibodies: polyclonal and monoclonal antibodies. Examples of analytical techniques using antibodies: ELISA, immunohistochemistry, immunofluorescence, confocal microscopy, western blotting.

Posttranslational modifications. Glycosylation, phosphorylation. Protein kinases and phosphatases. Lipid modifications. Carboxylation and hydroxylation. Modifications by bacterial toxins: cholera toxin.

5th week:

Lecture: Protein degradation and turnover, proteases I-II. Biological function of protein processing. Classification of proteolytic enzymes. Structure and function of serine proteases. Protease inhibitors. Lysosomal and ubiquitin-dependent proteasomal protein degradation.

Proteomics. Methods in proteomics: two-dimensional and other electrophoretic approaches, mass spectrometry. Clinical proteomics, biomarkers.

6th week:

Lecture: DNA and genome. Structure of DNA. The components of the human genome. Structure of human chromosomes. The 1000 genome project.

Genome replication. Initiation, synthesis and termination in prokaryotes and eukaryotes. The replication fork. Synthesis of the leading and lagging strand. Replication of chromosome ends (telomers).

Recombination. Genetic recombination. Main types of DNA recombination. The recombinase enzyme. Phage integration, transposition.

7th week:

Lecture: Mutation and DNA repair. Causes and consequences of mutations. DNA repair mechanisms. Diseases caused by defective DNA repair.

Prokaryotic transcription. Function of the prokaryotic RNA polymerase. Characteristics of transcription factors. Transcriptional activation and inhibition in prokaryotes.

Eukaryotic transcription I. Initiation and elongation in eukaryotes. Characteristics of eukaryotic transcription factors. Transcription regulatory regions and their interactions.

8th week:

Lecture: Eukaryotic transcription II. Chromatin structure and transcription. Post-transcriptional modifications of RNA, splicing. Additional functions of RNAs.

Principles of signal transduction. Receptors, receptors tyrosine kinases, G proteins, nuclear receptors. Secondary messengers. Interactions of signalling pathways.

Molecular biology of viruses I. Classification of viruses. The viral replicative cycle. Viral entry in the cells. Coronaviruses.

Self Control Test**9th week:**

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

relevances.

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

10th week:

Lecture: DNA amplification. Oligonucleotides and their synthesis, hybridization. The polymerase chain reaction (PCR). PCR applications in research and in the clinic.

DNA hybridization and sequencing. Principles of nucleic acid hybridization. Southern blotting. In situ DNA hybridization (FISH, CGH). Principles of DNA sequencing: the chain termination technique and next generation sequencing.

Genome projects.

Analysis of changes in gene expression. DNA binding of transcription factors. Detection and quantification of mRNAs: gene specific and global approaches. Methods for studying promoter activity.

11th week:

Lecture: Big Data in Molecular Biology. What is data science? Big Data in medical sciences: phenotypes and "omics". Databases.

Bioinformatics, genomics, functional genomics. Genome projects.

Protein expression, site-directed mutagenesis. Recombinant protein expression. Expression vectors. Protein expression in prokaryotic and eukaryotic systems. Fusion proteins. Site-directed mutagenesis.

Model organisms I. Comparison of animal models. Murine models of human diseases. Different approaches for mouse genome manipulation.

12th week:

Lecture: Model organisms II. Mouse genome manipulation: classic transgenesis, gene targeting and conditional mutagenesis. Transplantation model systems.

Mikrobiome. The concept of microbiome. Human enterotypes. Fecal transplantation

therapy. Bacterial metabolites. Long-term effects of alterations in the microbiome: the connection with diabetes, psychiatric disorders, ageing, cancer.

Genome editing. Concept and types of genome editing. Small changes, insertions, deletions.

Genome editing techniques and molecular systems: TALEN, zinc finger, CRISPR-Cas9, etc. Therapeutical genome editing, gene therapy.

13th week:

Lecture: Clinical applications of Molecular Biology. Molecular biology techniques in

diagnostics: infectious diseases, molecular characterization of tumors. Therapeutical antibodies, recombinant protein therapeutics.

Immune-activating antibodies in cancer therapy.

Gene therapy, cell therapy. Regenerative medicine, stem cells. Vaccines.

Self Control Test

14th week:

Lecture: Summary

Requirements

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

Required knowledge from Molecular Biology: topics of Molecular Biology presented at the lectures (slides are available at the <https://elearning.med.unideb.hu> 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 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. Participation in all seminars is compulsory (except for the repeaters if they already got a signature previously for the course) and can be missed only with medical proofs. The Department will not collect and verify the medical papers up to three missing seminars, including quarantine periods, as well. In case of more than four absences the Department refuses the signature. In this case the student may ask the Dean for an override, for these requests all medical proofs are necessary. Students can't make up a seminar with another group. Students can earn 10 points by writing seminar tests (see more details in the "Information about seminars" file on the e-learning page of the Department). Seminar points are counted for the offered grade, but can't be added to the written exam points at the end of the semester.

Control tests: Students can write two control tests during the semester from the material of the lectures and seminars.

Both tests are composed of 40 multiple choice test questions (each good answer gets 1.25 points). With the two control tests maximum 2x50 points (all together maximum 100 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 points can be collected by the two control tests of the material of the lectures (2x50 points) and 10 points by the seminar tests. Grades: 2 (pass): 60-69.5 points; 3 (satisfactory): 70-79.5 points, 4 (good): 80-89.5 points and 5 (excellent): 90-110 points.

Students have to decide to accept the offered grade until the beginning of the exam period. Those who decline the offered grade are obliged to take the exam in the exam period. Semester points will be automatically erased of those students, who break the rules of test writing.

Semester exam: Those students who did not collect 60 points during the semester (or didn't accept the offered grade) have to take a written exam in the exam period. The written exam is composed of

40 multiple choice test questions (each good answer gets 2.5 points). By the test maximum 100 points can be collected. 60% (60 points) is needed to get a passing mark, and the grade increases with every 10 points (60-69.5 pass, 70-79.5 satisfactory, 80-89.5 good, 90-100 excellent). If a student fails the “C” written exam, the department provides him/her a chance to prove his/her knowledge in an oral exam in front of an examination committee. If the student passes the oral exam he/she will be given a grade 2 (pass). The department will provide one examination date per week during the exam period.

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

Exemption from the written part of the final “Biochemistry and Molecular Biology” exam: Those students who collect at least 210 points during the three semesters taught by the Department of Biochemistry and Molecular Biology and have at least 55 points from each of the three semesters during the course of their Biochemistry and Molecular Biology studies (Molecular Biology, Biochemistry I., Biochemistry II.) will be exempted from the written part of the Biochemistry and Molecular Biology final exam. Minimum questions of the Biochemistry final exam will also contain basic questions of Molecular Biology.

Please follow the announcements of the department on the e-learning site of the department (<https://elearning.med.unideb.hu>), you can login with your university network ID and password. Specific rules for repeaters regarding the seminars and practices as well can be found on the e-learning site of the Department.

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: perform every laboratory practices and reach at least 60% of the practical points. Practices are not obligatory for repeaters (if they have got a signature previously). Passing the

course “Molecular Biology Practice” is a required condition for obtaining the signature for “Molecular Biology lecture” course.

Students will have two practices: “PCR” and “Study of phosphatases”.

Description of the practices, notebooks and all information about the practices can be found on the e-learning site of the department: <https://elearning.med.unideb.hu>

Students have to do all practices with their own group according to the schedule that is posted on our e-learning site. If someone is absent due to any serious reason, the missing experiment has to be performed with another group, within the three-weeks period of the given practice. Points can't be earned for the make-up practice without medical paper. If a student miss even one practice, the semester of the student can't be signed.

During the practices students have to prepare notebooks. According to the points that are collected by the notebooks, students will get a practice grade. 60% of the points have to be reached for the acceptance of the course.

Grades: 0-5.5 points fail; 6-6.5 points pass; 7-7.5 points satisfactory; 8-8.5 points good; 9-10 points excellent. Students have to be prepared for the practices.

You can read more detailed information about the practices on the e-learning page of the Department (<https://elearning.med.unideb.hu>).

Department of Emergency Medicine

Subject: **FIRST AID AND REANIMATION**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **6**

Practical: **15**

1st week:

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

2nd week:

Lecture: Concept and recognition of unconsciousnes. Symptoms of airway obstruction. Airway management. Recovery position.

3rd week:

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

4th week:

Lecture: Death as a process. Reversibility.

Assessment of vital signs. First aid for burns. Shock.

5th week:

Lecture: Burning; first aid in burning diseases; shock.

Intoxications. Ways of poison can enter the body. First

aid of poisoning with corrosive and non-corrosive

substances. Typical symptoms and recognition of common poisons.

6th week:

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

7th week:

Practical: Practising ventilation without

equipment.

8th week:

Practical: Practising chest compression.

9th week:

Practical: Cardiac arrest care simulation (BLS+AED)

10th week:

Practical: Practical exam (BLS+AED)

11th week:

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

12th week:

Practical:

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

13th week:

Practical:

Test

Self Control Test

Requirements

Condition of signing the Lecture book:

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

Department of Foreign Languages

Subject: **HUNGARIAN LANGUAGE I/2.**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Practical: **28**

1st week:

Practical: Orientáció, 1. Emlékszel?

2nd week:

Practical: 2. Napirend

3rd week:

Practical: 3. Melyik a jobb?

4th week:

Practical: 4. A testem

5th week:

Practical: 5. Beteg vagyok

6th week:

Practical: 6. Ismétlés a tudás anyja

7th week:**Practical:** Revision, Mid-term test (written)**Self Control Test****8th week:****Practical:** 7. A család**9th week:****Practical:** 8. Zumbázni szeretnék!**10th week:****Practical:** 9. Mit csináltál tegnap?**11th week:****Practical:** 10. Hol nyaraltatok?**12th week:****Practical:** 11. Vizsga lesz!**13th week:****Practical:** Revision, End-term test (written)**Self Control Test****14th week:****Practical:** End-term test (oral)**Self Control Test****Requirements****Requirements of the course:****Attendance**

Attending language classes is **compulsory**. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum *2 occasions*. In case of more than 2 absences, the signature may be refused. Making up a missed lesson with another group is not allowed.

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

During the semester students must sit for **two written language tests**, and **an oral exam**. If a student is late for the test, he/she is not allowed to take it.

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

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

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

Final score	Grade
0-59	fail (1)
60-69	pass (2)
70-79	satisfactory (3)

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

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

Coursebook: Györffy, Erzsébet-Mezei, Zsuzsa Livia: *Magyarules*
 assignments, audio files, oral exam topics and vocabulary minimum lists can be found on the elearning site of the Department of Foreign Languages (www.elearning.med.unideb.hu).

Department of Pediatric and Preventive Dentistry

Subject: **PREVENTIVE DENTISTRY I.**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Seminar: **14**

1st week:

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

2nd week:

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

3rd week:

Seminar: The dental plaque (biofilm) and its role in the development of dental diseases.

4th week:

Seminar: Caries: clinical signs and symptoms, diagnostic methods.

5th week:

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

6th week:

Seminar: The role of oral hygiene in prevention of dental diseases.

7th week:

Seminar: Written test.

8th week:

Seminar: The role of nutrition in prevention of dental diseases.

9th week:

Seminar: The role of fluoride in prevention of dental caries.

10th week:

Seminar: Fissure sealing.

11th week:

Seminar: The effect of environmental and iatrogenic factors on oral health.

12th week:

Seminar: Dental health education.

13th week:

Seminar: The measurement of dental caries (caries indices).

14th week:

Seminar: Written test.

Requirements

The aims and objectives of the course:

The goal of the course is to provide the students with both an introductory knowledge of the complexities of assessing and addressing disease and prevention at the individual and population

level and an understanding of the role of the dental profession in promoting and maintaining oral health.

Short description of the course:

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

- Application of the basic sciences in maintaining healthy oral tissues.
- The principles and control of dental diseases.
- The etiology, epidemiology and prevention of dental caries and periodontal diseases.
- Oral hygiene, nutrition and dietary measures, and dental health education as a preventive dental service.
- Fluorides in the control of dental caries and periodontal diseases.

Compulsory reading:

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

Recommended reading:

Limeback H: Comprehensive Preventive Dentistry. Wiley-Blackwell 2012

Assessment:

AW 5 grade

Requirements:

Active participation in the seminars is obligatory.

With acceptable written certificate students may miss 2 seminars (there is no possibility to compensate the missed seminars).

The missed seminars must be certified within 3 working days to the Educational Office by e-mail (fokot@dental.unideb.hu)

Course exemption:

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

Conditions of signing the index:

Two written self-control tests will be held during the semester.

All of the SCTs are obligatory to take and cannot be repeated. The result of the missed SCT is 0%.

Calculation of the grade:

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

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

Prerequisites of taking the subject: Odontology

Division of Cell Biology

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 intracellular 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: intermediate filaments, actin cytoskeleton

Seminar: Material related to lectures 7-8.

6th week:

Lecture: 11. Cell-cell and cell-matrix contacts

12. Cellular energetics, mitochondrion

Seminar: Material related to lectures 9-10.

7th week:

Lecture: 13. Calcium homeostasis

14. Osmo-, volume and pH regulation

Seminar: Material related to lectures 11-12.

8th week:

Lecture: 15. Nucleus, Chromatin

16. Gene modified cells, gene therapy

Seminar: Material related to lectures 13-14.

9th week:

Lecture: 17. Cell division, mechanics of the cell cycle

18. Regulation of the cell cycle

Seminar: Material related to lectures 15-16.

10th week:

Lecture: 19. Cell signaling I. General concepts.

Nuclear receptors. G-protein coupled receptors

20. Cell signaling II. Receptor tyrosine kinases.

The Ras/MAPK, PI3K/Akt and PLC/CaMK pathways

Seminar: Material related to lectures 17-18.

11th week:

Lecture: 21. Cell signaling III. Pathways to the nucleus

22. Cell-cell communication in the nervous and the immune system

Seminar: Material related to lectures 19-20.

12th week:

Lecture: 23. Cell fates. Differentiation.

24. Oncogenes, tumor cells

Seminar: Material related to lectures 21-22.

13th week:

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

14th week:

Lecture: 27. From genes to cell function:
overview of the main regulatory mechanisms
28. Cell motility
Seminar: Material related to lectures 25-26.

Requirements

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

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

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

Material to be studied:

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

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

Recommended: The in depth full-text version of the course material can be found in:

Lodish et al.: MOLECULAR CELL BIOLOGY, 7th edition, W. H. Freeman, 2013, ISBN-13: 978-1-4292-3413-9; Alberts et al.: MOLECULAR BIOLOGY OF THE CELL; 6th edition, Garland Publ. Inc., 2015, ISBN 978-0-8153-4453-7;

The 4th editions of these are also available online:

<http://www.ncbi.nlm.nih.gov/books/NBK21475/>

<http://www.ncbi.nlm.nih.gov/books/NBK21054/>

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

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

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

Type of exam: Final exam

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

Requirements:

1. **Lectures:** Attendance of lectures is indispensable for acquiring the knowledge required to pass, understanding which parts of the material have the highest importance, and finding the proper sources for preparing for the exam.
2. **Seminars:** Seminars serve to discuss the lecture material. Use them well, study the material before the seminar and arrive with your questions. Maximum two absences are permitted. Students must attend the seminars with their assigned study group. Students may sign up for one short interactive presentation during the semester. The teacher will choose the topics/questions on the spot and the presenter is required to explain the topic. This requires the in depth knowledge of all the topics presented at the lectures and studying the relevant textbook chapters. The presentations are graded on a scale of 0-5. This grade counts toward the bonus points earned during the semester.
3. **Labs:** Labs are done under a separate subject code and need to be passed for acquiring a signature in for this course.
4. **Self-control Tests (SCT-s):**
There will also be short online quizzes (SOQ) at the beginning of each seminar, covering all the material that is scheduled for discussion in the given seminar. The best 10 scores of these SOQs will be averaged (SOQave) and converted into bonus points and used when determining offered grades (see 5.4.1).

There will also be two SCT-s (comprised of test and essay questions) during the semester. The dates and topics for SCT-s are announced in the beginning of the semester. 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 tests is not compulsory; tests cannot be made up for, even in the case of a justified absence. Missed tests carry a score of 0.

SCTs are scored on a 0-100% scale, averaged (=SCTave) and this average is used for offering exemptions and bonus points towards the final grade (see 5.2 and 5.4.1.). The scores achieved in the SOQs on weeks 11-14 from an obligatory part of the second SCT in addition to contributing to the SOQ bonus points.

5. Final Exam (written):

5.1. Parts of the Final Exam. The exam is a written exam of two parts (A and B).

Part A of the written test is a minimum level test. It consists of a set of 10 true-or-false questions about basic cell biology knowledge (1 point each) and 5 questions asking for a brief description of basic terms (molecules, concepts). These terms are listed among the key-words published on the subject's website. The answers are scored on a 0-2 scale in increments of 0.5 points. The student has to score 16 or above out of the total 20 points in part A to pass. Below 16 points the grade of the exam is a fail (1) and part B is not marked. For writing Part A, 25 minutes are allocated. A successful passing of Part A (or exemption from writing Part A, see 5.4.2) is valid for B and C exams throughout the given exam period, but not in consecutive semesters.

Part B is a 85 minute complex exam, including short essays (~30% of the total score), fill-in, short answer, multiple choice, relation analysis, sketch-recognition, term-recognition, as well as simple choice and true-or-false questions.

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

1. % result of Part B expressed as points, 100 points maximum. If score on Part B is greater or equal to 50%, the following bonus points are added to the score of Part B:

2. Presentation grade, 5 points maximum

3. Average % result of SCTs (SCTave):

4 points for reaching 30%, +1 for each additional 10% reached, 10 points maximum

Total: 115 points maximum

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

5.3. Assigning grades to exam scores

Part A below 16 points: fail (1)

Exam score (see 5.2.):

below 60 points: fail (1)

60-69.9 points: pass (2)

70-79.9 points: satisfactory (3)

80-89.9 points: good (4)

reaching, and above 90 points: excellent (5)

5.4. Exemptions

5.4.1. For those who achieve SCTave $\geq 50\%$ at the self-control tests, a final grade offering score is calculated as follows:

1. SCTave % expressed as points, 100 points maximum

2. Presentation grade, 5 points maximum

3. Result of short online quizzes (SOQave, of the 10 best % scores).
4 points for reaching 30%, +1 for each additional 10%, reached 10 points maximum
Total: 115 points maximum

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

5.4.2. Those who achieve SCTave $\geq 66\%$ at the self-control tests and do not accept the offered grade calculated as under 5.4.1. and therefore take the final exam, are exempted from Part A of the written final exam during the given semester.

6. Rules for repeating the course

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

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

Subject: **CELL BIOLOGY PRACTICAL**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Practical: **20**

2nd week:

Practical: Preparation for labs

3rd week:

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

4th week:

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

5th week:

Practical: Membrane transport: multidrug
resistance

6th week:

Practical: Membrane transport: multidrug
resistance

7th week:

Practical: Homeostasis: cell viability and death

8th week:

Practical: Homeostasis: cell viability and death

9th week:

Practical: Cell morphology, subcellular
structures: fluorescent visualization

10th week:

Practical: Cell morphology, subcellular structures: fluorescent visualization

11th week:

Practical: Cell signaling and cell division

12th week:

Practical: Cell signaling and cell division

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: 2nd

Prerequisites of the course: No prerequisites.

Teaching staff: Dr. Árpád Szöör and members of the Department

Education manager: Dr. Enikő Nizsalóczki (e-mail: cellbioedu@med.unideb.hu)

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

Material to be studied:

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

Relevant parts of the Cell Biology Lecture course (see there).

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

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

Type of exam: Practical grade

Requirements:

Completing all labs, and writing up the results and their interpretation in a lab log book on the spot is required. Only handwritten, bound lab log books are acceptable. The compulsory preparation for the lab includes writing the aims of the lab and the methods of implementation into the lab logbook before the lab. During the lab a log must be written into the book in a way that allows reproducing the work done. So it must document what the student has actually done, the results obtained (including graphs and color drawings), and their interpretation. The lab tutor will only sign the log upon proper, independent completion of the lab. All labs must be accepted by a valid signature in order to receive the end of term signature.

Labs can only be performed by students who arrive well prepared. This is checked by a ~10 min

test at the beginning of the lab, graded on a scale of 0-5 according to the following table:

Number of correct answers	Test Points (TP)
Less than 5	0
5	1
6	2
7	3
8	4
9-10	5

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

Furthermore, if the student's participation in the lab is not acceptable, the lab tutor will dismiss the student from the lab immediately, and the lab will be considered failed.

TP ≥ 1 are averaged and, after rounding, yield the final practical grade. If the average of the TP is below 1.5, it results in a practical grade 1 (fail). In these cases, a written lab exam can be done for the pass (2) mark before the exam period (covering the topics of all labs).

The practical grade cannot be improved in the exam period.

Since all labs must be accepted in order to receive the end of term signature (and a practical grade), those missing a lab are offered one (1) extra occasion to make up for the missed lab during the remedial week. This offer includes both the cases of writing a lab test of grade 0 earlier, and labs missed because of certified illness. In the latter case, certificates must be filed with the Education coordinator in Office Hours at the earliest possible occasion, so the student can be assigned a remedial lab appointment.

CHAPTER 17

ACADEMIC PROGRAM FOR THE 2ND YEAR

Department of Biomaterials and Prosthetic Dentistry

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

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **28**

1st week:

Lecture: Classification of dental materials.

Practical: Information about the practices, lessons and practice tests in general. Rules and regulations during the practice.

2nd week:

Lecture: Plasters used in dentistry. Thermoplastic materials.

Practical: The trial of plasters and thermoplastic materials.

3rd week:

Lecture: Polymers.

Practical: Mechanical testing of dental polymers.

4th week:

Lecture: Plastics used in dentistry.

Practical: Trial of denture base polymers.

5th week:

Lecture: Dental filling materials.

Practical: The trial of dental filling materials.

6th week:

Lecture: Basics about metals. Metals in dentistry. Mechanical testing in dentistry.

Practical: The presentation of casting of metals .Steps of casting process.

7th week:

Lecture: Dental cements I.

Practical: Practical and theoretical test I

8th week:

Lecture: Dental cements II.

Practical: The trial of dental cements.

9th week:

Lecture: Adhesion in dentistry.

Practical: The trial of adhesion and dental adhesives.

10th week:

Lecture: Impression materials.

Practical: The trial of impression materials.

11th week:

Lecture: Basics about ceramics.

Practical: Application of ceramics in practice. Presentation of technical phases of a ceramic fused to metal process.

12th week:

Lecture: Ceramics and tooth colour in dentistry.

Practical: Tooth colour in practice.

13th week:

Lecture: Biocompatibility, corrosion.

Practical: Practical and theoretical test II

14th week:

Lecture: Secondary materials in prosthetics. Consultation.

Practical: Remedial test.

Requirements

The aim of acquiring the professional content of the subject: The aim of course is to introduce students to dental materials and their properties.

Brief course programme: There is a wide spectrum of materials frequently used in dentistry. Therefore, dentists have many options to select materials for every situation and problem. In order to choose the most optimal solution, it is important to be well acquainted with the physical, chemical, and biological behavior of professional materials. The practical lessons provide the possibility to test different materials and to measure their important physical and chemical properties.

Competences: During the course, the students will receive a summary of the materials they come into contact with during their dental activities. You can get to know the physico-chemical parameters, advantages and disadvantages of the materials used in dentistry, and acquire theoretical and practical knowledge about the manipulation, handling and use of dental materials.

Requirements:

The lectures are at the time and place according to the class hours, their visit is not obligatory, but it is recommended. Practical self-control tests will be held before each practices. The aim of the practical self-control tests is to evaluate the students' basic knowledge of the actual weekly topic. The evaluation of a practical self-control test can be 'accepted' or 'not-accepted'. A missed practice means 'not-accepted' practical self-control test. If the amount of the 'not-accepted' practical self-control tests exceeds 3, the signature will be refused automatically. During the practices wearing a lab coat is compulsory. Conditions of exemption (to repeaters and other special cases): Students who already have been given the signature, may request to be exempted from attending the practices. The request have to be submitted in a paper based form or via e-mail to the Biomaterials and Prosthetic Dentistry Department until the end of the first week of the semester.

(demeter.zsofia@dental.unideb.hu) Conditions of signature in the lecture book: The amount of missed practices cannot exceed 3 practices, even if they are certified. All the missed practices must be certified. There is no possibility to compensate for missed practices. Being late for a practice means a missed practice. A missed practice means 'not-accepted' practice automatically, and a 'not-accepted' practical self-control test. All the conditions of signature at Phantom Laboratory Practice is obligatory to get signature in the lecture book.

Assessment:

Oral exam at the end of the semester. Written self-control tests will be held during the semester, according to the time-table at a predefined time and place. Related to the result of these written tests (just 4 or 5) marks will be offered as the final grade of the ESE.

Department of Anatomy, Histology and Embryology

Subject: **ORAL ANATOMY, HISTOLOGY AND EMBRYOLOGY II. LECTURE**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **56**

Seminar: **28**

1st week:

Lecture: General introduction, rules and

requirements. The autonomic nervous system and its regiospecific parts. Topographical

anatomy of the oral and nasal cavities. Anatomy, histology and development of the teeth.

Seminar: Histology: Lip, tongue and salivary glands 1. Lip (HE stain). 2. Tongue (filiform and fungiform papillae) (HE stain). 3. Tongue (circumvallate papillae) (HE stain) 4. Parotid gland (HE stain) 5. Submandibular gland (HE stain) 6. Sublingual gland (PAS + H stain)

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. Lymphatic tissue I. Lymphatic tissue II. Lymphatic tissue III.

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: The hypothalamo-hypophyseal system. Hypophysis and epiphysis. Thyroid gland, parathyroid gland and suprarenal gland. The APUD system.

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: The skin. Heart I. Heart II. Development of the heart

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: Development of the blood vessels. Trachea and lungs. Pleural sac. Development of the respiratory system. Mediastinum. Esophagus.

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: Clinical anatomy of the organs of the thorax. Structure of the abdominal wall. Digestive system-introduction. Development of the primitive gut. Stomach.

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: Small intestines. Large intestine. Histology of the stomach and the intestines. Pancreas. Liver I.

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: Liver II. Portal system. Peritoneum. Lesser sac of the peritoneum. Development of the peritoneum and intestines. Separation of the body cavities.

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: Retroperitoneum. Macroscopic anatomy of the kidneys. Structure of the kidneys and urinary system. Development of the urinary system. Clinical anatomy of the abdominal cavity.

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: Topographical anatomy of the wall of the pelvis and perineal region. Male genital organs: testis and epididymis. Ductus deferens, spermatic cord, seminal vesicle, prostate, scrotum. Penis. Mechanism of erection.

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: Female genital organs: the ovary.

Anatomy of the uterine tube and the uterus. Broad ligament. Vagina. Attachment and peritoneal relations of the uterus. Female external genital organs. Structure of the uterus and uterine tube.

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: Menstrual cycle and its endocrine regulation. Implantation. The pregnant uterus, placenta I. Placenta II., fetal circulation.. Development of the genital organs. Subdivision of the cloaca.

Seminar: Histology: Urogenital system-part three 1. Uterus-proliferative stage (HE stain) 2. Uterus-secretory stage (HE stain) 3. Placenta (HE stain) 4. Demonstration: Pregnant uterus (HE stain) 5. Overview: Fetal circulation.

14th week:

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

Seminar: Histology: SELF CONTROL- Respiratory system, digestive system, urogenital system.

Self Control Test

Requirements

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

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

Midterm examinations:

Midterm examinations (Self Control Tests) are conducted with the MOODLE system in the time of the Histology Seminars and cover the topics of lectures and seminars of the semester, and include

relevant material from official textbooks. The two midterm examinations will cover the following topics:

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

Histology 2: Histology of the respiratory, digestive and urogenital systems.

Evaluation of the midterm examinations:

Midterm examinations will be evaluated with points. Based on the sum of the points the student may earn 1 “Histology Bonus”.

15 – 20 points= 1 Histology Bonus

0 – 14 points= no Histology Bonus

Final examination (at the end of the 1st semester):

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

Part 1 – Anatomy + systems embryology (in the Dissecting Room; 3 topics /a1-a3/ from different regions of the human body with the continuous aid of anatomical preparations, and one more systems embryology topic /e1/).

If the student has a 4 (good) or 5 (excellent) mark from the “Oral Anatomy, Histology and Embryology – II. Practical” course (earned 1 or 2 “Anatomy Bonus”) the examiner will ask two topics (in case of 1 Anatomy Bonus) or only one topic (in case of 2 Anatomy Bonuses) on the exam. The topic(s) not asked will be chosen randomly: the student picks (a) number(s) between 1 and 3. The embryology topic cannot be excluded. The “Anatomy Bonus” can be used on both “A”, “B” and “C” chance exams. If the student fails any of the topics the examiner will not ask the remaining topics and the exam will be terminated.

Part 2-Histology (In the Histology seminar rooms; 2 histology slides /h1-h2/ and 1 general embryology /e2/ topic).

If the student earned a Histology Bonus during the semester the examiner will ask one slide on the exam. The slide not asked will be chosen randomly: the student picks a number between 1 and 2. The embryology topic cannot be excluded. The “Histology Bonus” can be used on both “A”, “B” and “C” chance exams. If the student fails any of the topics the examiner will not ask the remaining topics and the exam will be terminated.

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

Calculation of the mark for the final examination:

The mark of the final examination is the average of all the marks earned during the exam (rounded up from x.5 to the nearest integer).

The topics not asked because of Bonuses will not be part of the calculation.

Example 1-(no Anatomy or Histology Bonuses)

Final mark = $(a1+a2+a3+h1+h2+e1+e2)/7$

Example 2-(2 Anatomy Bonuses and 1 Histology Bonus)

Final mark = $(a1+h1+e1+e2)/4$

On a “B” or “C” chance exam, or in case of improvement, the student has to redo both parts (Part 1 and 2) of the Final examination.

Improvement:

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

Registration for the examination:

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

Subject: **ORAL ANATOMY, HISTOLOGY AND EMBRYOLOGY II. PRACTICAL**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Practical: **56**

1st week:**Practical: Anatomy of the Head and Neck**

1A: Surface anatomy of the head and neck. Orientation points on the head and neck: regions, muscular triangles, palpation of bony landmarks and viscera. Cutaneous nerves and blood vessels of the face, head and neck (pulse points).

1B: Parotidomasseteric region. Parotid gland, borders of parotid bed. Structures passing through the parotid gland and its autonomic innervation. Parotid duct. **Posterior triangle:** borders, fasciae. Course of the subclavian artery and vein. Supraclavicular part of the brachial plexus; cervical plexus.

2nd week:**Practical: Anatomy of the Head and Neck**

2A: Infratemporal fossa: borders, contents. **Pterygopalatine fossa:** borders, connections, contents. **Carotid triangle:** borders, carotid pulse point.

2B: Oral cavity. Structure, blood supply and innervation of the palate, faucial isthmus, floor, bucca and the tongue. Blood supply and innervation of teeth and gingiva. Salivary ducts. **Submandibular triangle** and its connections to the sublingual region; lateral lingual groove. Anatomy and autonomic innervation of the

sublingual and submandibular glands.

3rd week:**Practical: Anatomy of the Head and Neck**

3A: Larynx: cartilages, muscles and movements, cavity and function. Blood supply, innervation and lymphatic drainage. Palpation of larynx.

Scalenotracheal fossa: borders and contents.

Thyroid gland.

3B: Pharynx: wall and cavity, connections, blood supply, lymphatic drainage and innervation. Tonsils. **Nuchal region:** borders, muscles and nerves. Suboccipital trigone.

4th week:**Practical: Anatomy of the Head and Neck**

4A: Nasal cavity: walls and connections, blood supply, innervation and lymph drainage. Paranasal sinuses. **Parapharyngeal- and retropharyngeal spaces.** Discussion of radiographs.

4B: Revision of the Skull I. Bones and cavities of facial skeleton. Temporomandibular joint. Anatomy of the teeth and gingiva.

5th week:**Practical: Anatomy of the Head and Neck**

5A: Revision of the Skull II. Bones of neurocranium. Internal- and external cranial

base.

5B: Clinical cases. Nasal cavity and paranasal sinuses: septum deviation; nasal CSF discharge (rhinorrhea); rhinitis; nose bleeding (epistaxis); sinusitis; relation of premolars and molars to maxillary sinus; variations in the anatomy of sinuses. Oral cavity: sublingual absorption of drugs; tumors of lips and tongue; lingual frenulum; embryological variations of the thyroid gland; viral infection of parotid (mumps); salivary stone; lesion of facial nerve; cyanosis; dislocation of TMJ; torticollis; infection in cervical compartments; subclavian venous line; air embolism of external jugular vein; ligation of external carotid artery.

6th week:

Practical: Anatomy of the Head and Neck (6A); Anatomy of the Thorax (6B)

6A: Revision

6B: Axial skeleton: structure and muscles of vertebral column. Thoracic wall. Bones and joints, muscles, blood vessels and lymphatic drainage of the thoracic wall. Respiratory muscles and -movements. **Breast. Compartments of mediastinum.**

7th week:

Practical: Anatomy of the Thorax

7A: Superior mediastinum. Heart I. Structure of pericardium, sinuses. Surfaces and blood vessels of the heart.

7B: Heart II. Fibrous skeleton of heart, chambers, valves and wall of the heart. Conduction system. Plain chest radiograph.

8th week:

Practical: Anatomy of the Thorax

8A: Lungs. Structure of the respiratory tract. Structure and syntopy of lungs. Blood supply, innervation and lymphatic drainage of the lungs. **Esophagus.**

8B: Posterior mediastinum.

9th week:

Practical: Anatomy of the Thorax (9A); Anatomy of the Abdomen (9B)

9A: Revision.

9B: Regions of the abdominal cavity. Structure,

innervation, blood supply of abdominal wall. Inguinal canal. **Peritoneum** and abdominal situs demonstration. **Diaphragm.**

10th week:

Practical: Anatomy of the Abdomen

10A: Abdominal viscera I. Anatomy, syntopy and lymphatic drainage of stomach, pancreas, liver, gall bladder and common bile duct, spleen, small and large intestine, vermiform appendix.

10B: Abdominal viscera II. Arteries and veins of abdominal organs: stomach, pancreas, liver and gall bladder, spleen, small- and large intestine. Portal vein and porto-caval anastomoses. Autonomic innervation of GI tract.

11th week:

Practical: Anatomy of the Abdomen

11A: Retroperitoneum: compartments and contents. Kidneys: position, capsules, syntopy, structure. Renal artery and vein. Ureter. Lumbar plexus. Sympathetic trunk. Adrenal gland. Abdominal aorta and inferior vena cava.

11B: Revision.

12th week:

Practical: Anatomy of the Pelvis

12A: Structure of pelvic floor. Perineum.

Relation of female and male pelvic organs to pelvic floor and peritoneum. Female and male urogenital regions.

12B: Pelvic viscera I. Rectum. Urinary bladder, urethra (male, female). Male internal genital organs: testis, epididymis and their coverings. Vas deferens, seminal vesicle, prostate. Anal region.

13th week:

Practical: Anatomy of the Pelvis

13A: Pelvic viscera II. Female internal genital organs: ovary, Fallopian tube. Uterus and its supporting and suspending structures. Vagina. Umbilical cord and placenta.

13B: Connective tissue spaces and fasciae in the pelvis. Internal iliac artery and vein. Sacral plexus. Autonomic innervation and lymph drainage of pelvic viscera.

14th week:

Practical: A-B: Practical Examination

Requirements

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

Rules of the End Semester Examination (ESE)

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

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

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

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

Department of Biochemistry and Molecular Biology

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 mitochondrial 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 sphingolipids and phospholipids

8th week:

Lecture: The mevalonate metabolic pathway. Synthesis of cholesterol. Cholesterol transport in the body. The LDL receptor and its gene. Excretion of cholesterol. Biochemical

explanation of elevated blood cholesterol levels.

Self Control Test**9th week:**

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

10th week:

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

11th week:

Lecture: Degradation and synthesis of proline. Degradation and synthesis of arginine and ornithine, their precursor functions: NO, creatine, polyamines. Aspartate and asparagine degradation and synthesis in the oxaloacetate pathway. Degradation of amino acids in the succinyl-CoA pathway. The vitamin requirements and enzyme deficiencies in the

propionyl CoA succinyl CoA conversion. Degradation of isoleucine and valine, related enzyme deficiencies. Comparison of leucine degradation with the degradation of isoleucine and valine. Degradation of lysine and tryptophane, their precursor functions. Carnitine synthesis. Degradation of phenylalanine and tyrosine, related enzyme deficiencies and precursor functions. Synthesis and degradation of catecholamines.

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

Required knowledge from Biochemistry I.: topics of metabolism presented at the lectures (slides will be uploaded to the <https://elearning.med.unideb.hu> website before the lectures, 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 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 materials of the lectures of the previous week will be discussed.

Participation in all seminars is compulsory and can be missed only with medical proofs. The Department will not collect and verify the medical papers up to three missing seminars, including quarantine periods, as well. In case of more than three absences the Department refuses the signature. In this case the student may ask the Dean for an override, for these requests all medical proofs are necessary. Students can't make up a seminar with another group. Students can earn 10 points by writing seminar tests (see more details in the "Information about seminars" file on the e-learning page of the Department). Seminar points are counted for the offered grade, but can't be added to the written exam points at the end of the semester.

Control tests: Students can write two control tests during the semester from the material of the lectures and seminars.

Both tests are composed of 40 single- and multiple choice test questions (each good answer gets 1.25 points). With the two control tests maximum 2x50 points (all together maximum 100 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 points can be collected by the two control tests of the material of the lectures (2x50 points) and 10 points by the seminar tests. Grades: 2 (pass): 60-69.5 points; 3 (satisfactory): 70-79.5 points, 4 (good): 80-89.5 points and 5 (excellent): 90-110 points.

Students have to decide to accept the offered grade until the beginning of the exam period. Those who decline the offered grade are obliged to take the exam in the exam period. Semester points will be automatically erased of those students, who break the rules of test writing.

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

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

Scores of the exams will be counted into the point collecting system if they are better than the scores collected by the control tests.

Please follow the announcements of the department about the control tests, exams and other current information on the e-learning page of the Department (<https://elearning.med.unideb.hu>, login with your university network ID and password). Specific rules for repeaters regarding the seminars and practices as well can be found on the Departments e-learning page.

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: perform every laboratory practices and reach at least 60% of the practical points. Passing the course “Biochemistry I. Practical” is a required condition for obtaining the signature for “Biochemistry I. Lecture”.

Description of the practices, notebooks and all information about the practices can be found on the e-learning site of the department (<https://elearning.med.unideb.hu>).

Students have to do all practices with their own group according to the schedule that is posted on our e-learning site. If someone is absent due to any serious reason, the missing experiment has to be performed with another group, within the three-week period of the given practice. Points can't be earned for the make-up practice without medical paper. If a student miss even one practice the semester of the student can't be signed. During the practices students have to prepare notebooks. Students will be graded based on the points that are collected for the notebooks.

You can read more detailed information about the practices on the e-learning page of the Department (<https://elearning.med.unideb.hu>).

Department of Foreign Languages

Subject: **HUNGARIAN LANGUAGE II/1.**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Practical: **28**

1st week:**Practical:** Tegezés-Önözés**2nd week:****Practical:** Élelmiszerek 1.**3rd week:****Practical:** Élelmiszerek 2.**4th week:****Practical:** Étkezések, étteremben 1.**5th week:****Practical:** Étkezések, étteremben 2.**6th week:****Practical:** Összefoglalás**7th week:****Practical:** Mid-term test (written)**Self Control Test****8th week:****Practical:** A városban 1.**9th week:****Practical:** A városban 2.**10th week:****Practical:** Édes otthon 1.

11th week:**Practical:** Édes otthon 2.**12th week:****Practical:** Összefoglalás**13th week:****Practical:** End-term test (written)**Self Control Test****14th week:****Practical:** End-term test (oral)**Self Control Test****Requirements****Requirements of the course:****Attendance**

Attending language classes is **compulsory**. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum *2 occasions*. In case of more than 2 absences, the signature may be refused. Making up a missed lesson with another group is not allowed.

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

During the semester students must sit for **two written language tests**, and **an oral exam**. If a student is late for the test, he/she is not allowed to take it.

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

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

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

Final score

0-59

60-69

70-79

80-89

90-100

Grade

fail (1)

pass (2)

satisfactory (3)

good (4)

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: Fodor, Marianna-Rozman, Katalin: Beszélék magyarul?! I.

Assignments, audio files, oral exam topics and vocabulary minimum lists can be found on the elearning site of the Department of Foreign Languages (www.elearning.med.unideb.hu).

Department of Physiology

Subject: **DENTAL PHYSIOLOGY I. LECTURE**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **45**

Seminar: **28**

1st week:

Lecture: Introductory remarks

Preparation for laboratory practices

Membrane transport mechanisms

Humoral regulation of cell function I.

2nd week:

Lecture:

Electrical properties of the cell membrane

Mechanisms underlying the action potential.

Electrophysiology of cardiac myocyte

Cardiac electrophysiology, ECG

3rd week:

Lecture: Neuromuscular junction. Synapse The autonomic nerves

Basic receptor function. Skeletal and smooth muscle physiology I.

Basic receptor function. Skeletal and smooth muscle physiology II.

Mechanics and contractility of cardiac myocyte

4th week:

Lecture:

The cardiac cycle

Cardiac mechanics

Autoregulation of cardiac output

Neuroendocrine control of cardiac functions

5th week:

Lecture:

Cardiac work and energetics; cardiac failure

Novel results in cardiac physiology

Principles of hemodynamics

Features of arterial circulation

Self Control Test

6th week:

Lecture:

Microcirculation

Lymphatic circulation, venous circulation

Components of vascular tone

Measurement of intracellular Ca²⁺ concentration

7th week:

Lecture:

Physiology of the body fluids. Homeostasis.

Plasma. Red blood cells.

Jaundice. Blood types.

Hemostasis 1.

8th week:

Lecture:

Hemostasis 2. White blood cells.

Cardiovascular reflexes I.

Cardiovascular reflexes II.

Renal, Humoral and Local Regulation of Circulation

9th week:

Lecture:

Functions of endothelium

Coronary and cerebral circulation

Pulmonary circulation

Splanchnic, cutaneous and skeletal muscle circulation

10th week:**Lecture:**

Mechanics of respiration, work of breathing
 Gas transport in the blood
 Control of breathing
 Exercise physiology

Self Control Test**11th week:****Lecture:** Circulatory shock

Integrated response of the cardiovascular and respiratory system

13th week:**Self Control Test**

Requirements

1. Signature of the semester

Attendance of lectures and seminars is compulsory. The signature of the semester may be refused for the semester in case of more than three absences from the seminars. Completion of a missed seminar with a different group is not possible.

In cases of more than four lecture absences the special advantage is withdrawn (see below).

Each student must attend seminars with the group specified by the Education Office. For continuous updates on all education-related matters, please check the elearning.med.unideb.hu web site (Department of Physiology menu item).

The Dental Physiology I lectures are listed at the elearning.med.unideb.hu web site, too.

2. Evaluation during the semester

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

3. Examination

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

The ESE mark based on the average score of mid-semester tests will be offered if

- one's average score of the three mid-semester tests is above 60%; and
- one's Dental Physiology I. Practical mark is at least satisfactory (3); and
- (s)he has fewer than four 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:

scoremark

0 – 59%- fail

60 – 69%- pass

70 – 79 %- satisfactory

80 – 89%- good
90 – 100%-excellent

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

Subject: **DENTAL PHYSIOLOGY I. PRACTICAL**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Practical: **42**

1st week:

Practical: Introduction

2nd week:

Practical: 1. INVESTIGATION OF THE
CARDIOVASCULAR FUNCTIONS

3rd week:

Practical: SIMULATION OF THE ACTION
POTENTIAL IN THE SQUID AXON

4th week:

Practical: COMPUTER SIMULATION OF
THE FRANK-STRALING-MECHANISM

5th week:

Practical: DETERMINATION OF
PARAMETERS CHARACTERISING THE
RESPIRATORY FUNCTIONS

6th week:

Practical: COMPUTER AIDED
ACQUISITION AND PROCESSING OF
BIOLOGICAL SIGNALS

7th week:

Practical: Remedial lab

8th week:

Practical: EFFECTS OF ELECTROLYTES ON
THE UTERINAL SMOOTH MUSCLE
FUNCTION

9th week:

Practical: INVESTIGATION OF THE
ENDOTHELIAL FUNCTION ON ISOLATED
ARTERIAL RING

10th week:

Practical: COMPUTER SIMULATION OF
THE HUMORAL REGULATION OF
INTESTINAL SMOOTH MUSCLE

11th week:

Practical: Remedial lab

12th week:

Practical: Lab exam

Requirements

1. Signature of the semester

Attendance of laboratory practices is compulsory. The signature of the semester may be refused in case of more than two absences from the practices.

All missed practices must be made up; however this does not reduce the number of absences!

Completion of all topic sheets in the Exercise Book, each verified by the signature of the teacher, is also a precondition of the signature of the semester.

Each student must attend on laboratory practices with the group specified by the Education Office. For continuous updates on all education-related matters, please check the elearning.med.unideb.hu web site (Department of Physiology menu item).

2. Evaluation during the semester

None

3. Examination

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

If the evaluation of the Lab Exam is 'fail' (1) then the Lab Exam can be repeated once during the exam period. There will be only one date for the improvement of the Lab Exam during the exam period.

Improvement of the successful Lab Exam grade is NOT possible during the regular examination period.

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

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

Department of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS II.: INTRODUCTION TO THE FIXED PROSTHODONTICS**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **14**

Practical: **28**

1st week:

Lecture: Basics of gnathology. The connection of gnathology with prosthodontics. Articulators. Basics of mounting of the casts into articulators.

Practical: Discussion about the subject, and the practical work. Examination of the casts and drawing on the casts. Demonstration of wax up.

2nd week:

Lecture: Occlusion and articulation in natural dentition. Occlusal theories related to prosthodontics.

Practical: Wax-up of 34, 35 guiding cusps

3rd week:

Lecture: Jaw relations. Positions of the

mandible.

Practical: Wax-up of 34, 35 supporting cusps

4th week:

Lecture: Mandibular movements

Practical: Wax-up of 36 all cusps

5th week:

Lecture: Introduction into fixed prosthodontics.
Fixed prosthesis

Practical: Wax-up of 14, 15, 16 all cusps

6th week:

Lecture: Instruments used for tooth preparation.
General aspects of tooth preparation.

Practical: Instruments of tooth preparation.
Practice with handpieces. Setting of the mannequin

7th week:

Lecture: Preparation of molars and premolars.

Practical: Tooth preparation. Lower molar.
Silicon index.

8th week:

Lecture: General aspects of tooth preparation
(full veneer crown).

Practical: Tooth preparation. Lower molar.
Silicon index.

9th week:

Lecture: Preparation of incisors and canines.

Practical: Tooth preparation. Lower molar.
Silicon index.

10th week:

Lecture: Preparation mistakes in practice

Practical: Tooth preparation. Lower molar.
Silicon index.

11th week:

Lecture: Clinical phases of crown fabrication I.
history taking, patient examination, study cast.

Practical: Tooth preparation. Upper incisor.
Silicon index.

12th week:

Lecture: Clinical phases of crown fabrication II.
Framework try-in, biscuit probe, cementation.

Practical: Tooth preparation. Upper incisor.
Silicon index.

13th week:

Lecture: Centric relation determination for fixed
prosthesis.

Practical: Tooth preparation. Upper incisor.
Silicon index.

14th week:

Lecture: Consultation

Practical: Tooth preparation. Upper incisor.
Silicon index.

Requirements

The aim of acquiring the professional content of the subject:

The aims of the subject are to introduce students to basics of gnathology and the tooth preparation for single crown restorations.

Brief course programme:

During the course students learn about the basics of gnathology, the occlusal morphology of premolar and molar teeth, the use of articulators, and the basic preparation rules required for single crown restorations.

Competences:

The students will be able to build up the occlusal morphology of molar and premolar teeth and will understand the occlusion theories. The practical work makes students capable of performing the basic tooth preparation for full veneer crowns in preclinical conditions.

Requirements of the subjects:

Lectures and practices according to the timetable of the subject

Active attendance during practices is required.

The amount of absences cannot exceed two practices.

Assessment: End semester exam (ESE), electronic (tablet) test

The exams ('A', 'B' or 'C') held during the exam period are written (tablet) tests.

Oral exam will be held only on the „C” chance exam, in case the student fails the written (tablet) exam.

The grades of the exams, will be calculated as the following:

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

Department of Anatomy, Histology and Embryology

Subject: **NEUROBIOLOGY LECTURE**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **52**

Seminar: **2**

1st week:

Lecture: Macroscopic anatomy of the central nervous system – Introduction I.

Macroscopic anatomy of the central nervous system – Introduction II.

Macroscopic anatomy of the central nervous system – Introduction III.

Macroscopic anatomy of the central nervous system – Introduction IV.

2nd week:

Lecture: Histology of the nervous system – I.

Histology of the nervous system – II.

Structure of the cerebral cortex.

General features of neurons and glial cells.

3rd week:

Lecture: Neuronal excitatory processes, role of ion channels.

Axonal transport: degeneration and regeneration in the central nervous system.

Ultrastructure and molecular architectures of synapses I.

Ultrastructure and molecular architectures of synapses II.

Practical: Histology: I. Peripheral nerve, neuroglia, ganglia, enteral plexus.

4th week:

Lecture: Synaptic function: vesicular release.

Synaptic regulation, pre-, and postsynaptic mechanisms, synaptic plasticity

Basic forms of neuronal interaction in the central nervous system.

Neuronal integration, EEG.

Practical: Histology: II. Cerebellum, thalamus, basal ganglia

5th week:

Lecture: Consultation lecture

Metabolism of the central nervous system – I.

Metabolism of the central nervous system – II.

Development of the central nervous system – neurohistogenesis. Parts of the nervous system

Practical: Histology: III. Cerebral cortex

(neocortex, archicortex)

6th week:

Lecture: Development of the brainstem and spinal cord.
Development of the diencephalon and telencephalon.
Neurogenesis. Neuronal migration
Programmed cell-death, genesis and elimination of synapses

7th week:

Lecture: Sensory functions of the spinal cord; receptors, primary afferents.
The somatosensory system.
The viscerosensory system.
Physiology of sensory functions and skin sensation.

8th week:

Lecture: Pain sensation and itch

Structure of the acoustic and vestibular system I.
Structure of the acoustic and vestibular system II.
Physical basis of sensory functions I. (Wave-actions)

Practical: Histology: IV. Spinal cord, brainstem.

9th week:

Lecture: Mechanisms of hearing and vestibular sensation

Structures of the eye and the retina.

Physical basis of sensory functions – II. (optics)
Retinal mechanisms of vision.

Practical: Histology: Inner ear

10th week:

Lecture: Eye movements, optical reflexes, basic mechanisms of color vision.
Central processing of visual information.
Taste and olfaction I.
Taste and the olfaction II.
Practical: Histology: Eye, palpebra, lacrimal gland

11th week:

Lecture: Somatomotor functions of the spinal cord. The neuromuscular endplate, spinal cord motor apparatus.
Spinal cord reflexes, proprioceptive and nociceptive reflexes.
Role of brainstem is motor coordination.
Roles of the basal ganglia and cerebral cortex in the coordination of movements.

12th week:

Lecture: Vegetative system: peripheral and brainstem vegetative mechanisms.
Hypothalamic functions.

The limbic system.
Monoaminergic system; motivation reward, addiction, regulation of behaviour.

13th week:

Lecture: Sleep, wakefulness, attention, mechanisms of circadian rhythm.
Learning, memory, speech.
New results in neurobiology I.
New results in neurobiology II.

14th week:

Seminar: Discussion of lecture material.

Requirements

In the frame of Neurobiology Lecture Course lectures and seminars of neurohistology and

neurophysiology are held.

It is compulsory to attend seminars. Signature of the semester may be refused in case of more than one absence from neurophysiology seminars or more than two absences from neurohistology seminars.

For the lectures, the actual timetable and venue, as well as the lecture handouts can be found on the following webpage: <https://elearning.med.unideb.hu>.

Neurohistology seminars will be held in the Histology rooms of the Department of Anatomy.

Neurophysiology seminars will be held on the 11th-14th weeks for General Medicine students, at the same time and same venue as the Physiology Seminars. It is compulsory to attend seminars.

Rules of making up the neurohistology seminars are identical with the Anatomy Course I-II.

Courses, whereas completion of neurophysiology seminars with a different group is not possible.

It is obligatory to attend the seminars in the group assigned by the Education Office.

Upon request, students are obliged to present personal ID prior to the practices.

There are no mid-semester exams in the course.

End-semester examination:

The semester is closed by an end-semester exam that consists of all materials of Neurobiology lectures, seminars and practicals. Registration to the exam is only possible with a successfully completed Neurobiology Practical exam.

The exam consists of a written test and an oral part.

For the written test, a total of 60 points and, for the oral exam, maximally 20 points (10+10) can be obtained.

Regarding the oral exam, the main emphasis is on recognizing and identifying macroscopic structures. The student chooses a single pre-combined complex topic which has two questions (questions with a list of related structures are available at: <https://elearning.med.unideb.hu>). The passing limit for each question is 6 points. Should the student fail on one of the questions, the oral exam is terminated and the other question will not be discussed.

Regarding the written test, all topics of the lectures, practicals and recognizing histological specimen will be subjected-the written test will be conducted using the Moodle system.

The final result of the exam is „fail” if either the written test or the oral exam does not reach the 60% passing limit (for the written test: 36 points, for the oral exam: 12 points). The final mark is calculated as the sum of points according to the following scheme:

0 – 59,9% (0-47 points):	fail (1)
60 – 69,9% (48-55 points):	pass (2)
70 – 79,9% (56-63 points):	satisfactory (3)
80 – 89,9% (64-71 points):	good (4)
90 – 100% (72-80 points):	excellent (5)

Provided that one of the two parts of the exam, i.e. either the written test or the oral exam, is NOT successful, at the remedial only the unsuccessful part needs to be completed.

Improvement of the mark is possible during the regular examination period by repeating both the written test and the oral exam while the previous mark will be erased. Both written and oral parts

should be repeated in the improvement exam.

Subject: **NEUROBIOLOGY PRACTICAL**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Practical: **38**

1st week:

Practical: Dissecting Room: Anatomy:
Dissection of the brain – Part I. Demonstration of surface structures of cerebral hemispheres, meninges, cisterns, structure of the calvaria, blood supply of the brain

2nd week:

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

3rd week:

Practical: Dissecting Room:
Anatomy: Dissection of the brain – Part III. Flechsig's cut, basal ganglia, diencephalon, third ventricle

4th week:

Practical: Dissecting Room: Anatomy:
Dissection of the brain – IV. Structures of the brainstem, cerebellar peduncles. Coronal sections of the brain – I.

5th week:

Practical: Dissecting Room: Anatomy:
Dissection of the brain – Part V. Fourth ventricle, rhomboid fossa, circulation of cerebrospinal fluid. Cerebellum.

6th week:

Practical: Dissecting Room: Anatomy:
Dissection of the brain – VI. Coronal sections of the brain – II. Spinal cord.

7th week:

Practical: Dissecting Room: Anatomy:
Dissection of the brain – In situ I.

Demonstration: trigeminal nerve, trigeminal ganglion; facial nerve

8th week:

Practical: Dissecting Room: Anatomy:
Dissection of the brain – In situ II.
Demonstration of the oculomotor, trochlear, abducent, glossopharyngeal, vagus, accessory and hypoglossal nerves.

9th week:

Practical: Dissecting Room:
Anatomy: Consultation – I.

10th week:

Practical: Dissecting Room: Anatomy: Sensory organs – I. Structures of the ear, n. VIII.

11th week:

Practical: Dissecting Room: Anatomy: Sensory organs – II. Structures of the eye and orbita

12th week:

Practical: Dissecting Room:
Anatomy: Consultation – II.
Practice Hall of Dept. of Physiology:
Examination of the cranial nerves.

13th week:

Practical: Dissecting Room:-
Practice Hall of Dept. of Physiology:
Examination of somatosensor and motor system.

14th week:

Practical: Practical exam

Requirements

It is compulsory to attend the laboratory practices. Signature of the semester may be refused in case of more than 3 absences from all of the practices held in the dissection- and histology rooms of the Department of Anatomy and the practice hall of the Department of Physiology. Completion of all topic sheets in the exercise book is obligatory, that is verified by the signature of the teacher, is also a precondition of the signature.

For the practices, the venues are the dissection rooms and histology rooms of the Department of Anatomy and the Practice Halls of the Department of Physiology.

Rules of making up the practices taking place in the section room are identical with practices of Anatomy Course I-II.

Practices in the Department of Physiology are held on the 12th-14th weeks for Dentistry students.

Completion of the practices in the Department of Physiology are verified by completion of all topic sheets of the Exercise Book of Physiology and by signature of the practice teacher after each practice sheets. In case of lacking completed and signed Exercise Book, the end-semester signature can be refused.

Missed Neurobiology practices in the Department of Physiology must be made up in the frame of remedial practices. However, in the case of absolute necessity, one might try to join the practice of a different group; but before this happens, the student must get the permission of his/her lab teacher.

There is absolutely no possibility to attend the practices of a different group without the permission of your own lab teacher. The actual timetable and venue of the practices can be found on the following webpage: <https://elearning.med.unideb.hu>.

It is obligatory to attend the practices in the group assigned by the Education Office.

Upon request, students are obliged to present personal ID prior to the practices.

End-semester examination:

The semester is closed by a practical exam that consists of all materials of Neurobiology practicals.

The exam consists of two parts, in which the neuroanatomical and neurophysiological knowledge of the student is tested. Both parts should be completed with at least pass, and the average of the two exams will be the final grade of the Practical Exam.

Regarding the neuroanatomy part, the main emphasis is on recognizing and identifying macroscopic structures. The first task is to identify 10 structures selected by the examiner from a minimal structure list (available for the students at: <https://elearning.med.unideb.hu>).

The final mark is calculated as the sum of points according to the following scheme:

10 identified structures:	5 (excellent)
9 identified structures:	4 (good)
8 identified structures:	3 (satisfactory)
7 identified structures:	2 (pass)
6 or less identified structures:	1 (fail)

Regarding the neurophysiology part, the student has to demonstrate the knowledge of practical materials of the Practical Hall of Department of Physiology. The student has to complete one randomly chosen simulation or diagnostic practice as it was achieved by students during the

semester. As a precondition of attending the Closing Lab, the fully completed Exercise Book (with all the verified topics and signed front page) together with a photo ID must be presented during the Closing Lab. Students are expected to perform the given experiment on their own and must be familiar with theoretical background also.

In case of unsuccessful practical exam, the student can repeat the practical exam two times (on the 14th week and in the exam period at a time indicated by the Department of Physiology. There is no remedial exam in case of successful practical exam.

Besides the compulsory and recommended literature, lecture materials uploaded to <https://elearning.med.unideb.hu> also help students preparing for the Practical Exam

Department of Biochemistry and Molecular Biology

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. Posttranslational 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 metabolism II: Uroporphyrinoids, 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 barrier 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 secretion 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 the seminars. Only those students can take the exam of the theoretical course, who fulfilled the requirements of the practical course as well.

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 network ID and password) and topics discussed in the seminars.

Attendance on the **lectures** is recommended, but not compulsory.

On the **seminars** the lectures of the previous week can be discussed. Participation in all seminars is compulsory and can be missed only with medical proofs. The Department will not collect and verify the medical papers up to three missing seminars, including quarantine periods, as well. In case of more than three absences the Department refuses the signature. In this case the student may ask the Dean for an override, for these requests all medical proofs are necessary. Students can't make up seminar with another group. Students can earn 10 points by writing seminar tests (see more details in the "Information about seminars" file on the elearning page of the Department.)

Students can write two **control tests** during the semester from the material of the lectures and seminars. Control tests consist of all together 80 single- and multiple choice test questions (each for 1.25 points), by the tests maximum 100 points can be collected. Students can collect maximum 100+10 points: 100 points by writing two control tests based on the lecture material and 10 points by the seminar tests. Semester points will be automatically erased of those students, who break the rules of test writings.

Those students who finally reach at least 65 points in this semester, will get 10 exam bonus points, those who reach 75 points will get 16 exam bonus points that will be added to the results of the written part of the exam.

Those students, who reaches at least 210 points during the three semesters (Molecular Biology, Biochemistry I., II.), will be exempted from the written part of the final exam (for this exemption at least 55 points must be collected separately in each semester).

Final exam. The final exam consists of a written and oral part. On the written exam 100 points can be collected, the test consists of 30 single- and multiple choice test questions (each for 3,33 points) from "Dentist Biochemisry" (5 questions), "Cell- and organ biochemistry" (25 questions). Oral exam can be taken only if the student collects at least 60% (60 points) in the written part. The successful result of the written part is valid for the "B" and "C" exams. In case of unsuccessful written "C" exam, students will get oral questions, too.

The oral part of the examination starts with one basic question of Molecular Biology and a question about a basic „medical orientation problem" (containing questions connected to basic metabolism as well). The „starting" questions have to be answered immediately. After properly answering the „starting" questions, students will have two theoretical questions (1 from cell biochemistry and 1 from organ biochemistry). Questions of the oral examination will be posted on the elearning site of the department at the end of the semester.

Please follow the announcements of the department on the e-learning page of the department (<https://elearning.med.unideb.hu>), login with your university network ID and password). Specific rules for repeaters regarding the seminars and practices as well can be found on the elearning site of the Department.

Department of Foreign Languages

Subject: **HUNGARIAN LANGUAGE II/2.**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Practical: **28**

1st week:

Practical: Emlékszel?, Testrészek

2nd week:

Practical: Testrészek

3rd week:

Practical: Tünetek

4th week:

Practical: Gyógyszerek

5th week:

Practical: Klinikák és szakorvosok

6th week:

Practical: Lassítsunk egy kicsit, Összefoglalás

7th week:

Practical: Összefoglalás, Mid-term test (written)

Self Control Test

8th week:

Practical: Szoktál kanapészőrfőlni?

9th week:

Practical: Jó és rossz szokások

10th week:

Practical: Instrukció

11th week:

Practical: Tessék mondani!

12th week:

Practical: Anamnézis, összefoglalás

13th week:

Practical: Összefoglalás, End-term test (written)

Self Control Test

14th week:

Practical: End-term test (oral)

Self Control Test

Requirements

Requirements of the course:

Attendance

Attending language classes is **compulsory**. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum *2 occasions*. In case of more than 2 absences, the signature may be refused. Making up a missed lesson with another group is not allowed.

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

During the semester students must sit for **two written language tests**, and **an oral exam**. If a student is late for the test, he/she is not allowed to take it.

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: Fodor, Marianna-Rozman, Katalin: Beszélék magyarul?! II.

Assignments, audio files, oral exam topics and vocabulary minimum lists can be found on the elearning site of the Department of Foreign Languages (www.elearning.med.unideb.hu).

Department of Physiology

Subject: **DENTAL PHYSIOLOGY II.**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **30**

Seminar: **26**

1st week:

Lecture:

Neural regulation of gastrointestinal functions

Endocrine and paracrine regulation of gastrointestinal functions

Secretion of saliva, chewing, swallowing

2nd week:

Lecture:

Motor functions of the gastrointestinal tract

Exocrine functions of stomach, pancreas, liver and intestines

Absorption of nutrients

3rd week:

Lecture:

Food intake and its regulation

Energy balance, Regulation of body temperature

Quantitative description of kidney functions

4th week:

Lecture:

Glomerular filtration

Tubular transports

Urinary concentration & dilution

Self Control Test

5th week:

Lecture:

Water-balance, osmoregulation
Control of body fluid volume
Acid-base balance

6th week:

Lecture:

Acid-base disturbances, Calcium homeostasis I.
Calcium homeostasis II; Physiology of bone
K⁺-homeostasis, Micturition

7th week:

Lecture:

General principles of endocrinology
Hypothalamus-pituitary system , Growth hormone
The thyroid gland

8th week:

Lecture:

The hormones of adrenal cortex
The hormones of adrenal medulla
The hormones of pancreatic islets

9th week:

Lecture:

Regulation of pancreatic islet function
General principles in the regulation of gonadal functions
Female & Male gonadal functions

Self Control Test

12th week:

Self Control Test

Requirements

1. Verification of the semester

Attendance of lectures and seminars is compulsory. The signature of the semester may be refused in case of more than three absences from the seminars. In cases of more than 3 lecture absences these special advantages are withdrawn (see below). Completion of a missed seminar with a different group is not possible.

Each student must attend on seminars with the group specified by the Education Office. For continuous updates on all education-related matters, please check the elearning.med.unideb.hu web site (Department of Physiology menu item).

The Dental Physiology II lectures are listed at the elearning.med.unideb.hu web site, too.

2. Evaluation during the semester

The knowledge of students will be tested 3 times during the 2nd semester in the form of a written test (multiple choice questions). Participation on mid-semester written tests is compulsory and the results of all mid-semester tests will be presented to the examiner during the final exam. During this semester there will be no remedial test. We do not provide any possibilities to improve or make-up for missed tests.

3. Examination

The second semester is closed by the final exam (FE), which is composed of a written test plus an oral section, covering the topics of all lectures, seminars and laboratory practices of the full academic year. The result of the exam is failed if the student fails either on the written part or on the oral part. The list of exam questions is available on the elearning.med.unideb.hu web site (Department of Physiology menu item).

- If one wishes to improve his/her former Physiology exam mark, it is possible to take improvement exam. Note that the mark of improvement exam depends on the actual actual performance, even if it is worse than the previous result!

Depending on the average result of the self-controls of 2022/2023 academic year, the following special advantages are granted:

The average score of the six mid term SCTs (three in the first term and three in the second semester) is calculated. (If one took the end-semester examination, the calculation of his/her average is detailed below.)

- a). If the average score is 80% or higher, there is no need to take the written part of the final exam, and only the oral examination will be performed.
- b). If the average score is between 70% and 80%, 10 bonus points will be added to the result of the written part of the final examination.
- c). If the average score is between 60% and 70%, 5 bonus points will be awarded.

These special advantages are withdrawn

- if the signature of the semester is refused; or
- in cases of more than 3 lecture absences.

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

If one took the end-semester examination during the 2022/2023 academic year, the mark of the oral exam is converted into percentage scores in the following way (each 1st term self-control will be replaced with these percentage scores):

-If the examination was attempted because no score could be offered (i.e. one had to take the exam):
2: 65%; 3: 75%; 4: 85%; 5: 95%.

-If one had an offered grade and it was improved, then the conversion is: 2: 69%; 3: 79%; 4: 89%, and 5: 100%.

Faculty of Dentistry

Subject: **SUMMER CHAIRSIDE PRACTICE FOR 1ST AND 2ND YEAR DENTAL STUDENT**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Practical: **120**

CHAPTER 18

ACADEMIC PROGRAM FOR THE 3RD YEAR

Department of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS III.: PROPEDEUTICS OF TOTAL AND PARTIAL REMOVABLE DENTURES**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **37**

1st week:

Lecture: Anatomical and final impression taking. Clinical anatomy

Practical: Impression taking in the phantom lab.

2nd week:

Lecture: Functional cast

Practical: Clinical anatomy. Planning the borders of the denture.

3rd week:

Lecture: Centric relation position

Practical: Video of a final impression and CR's measurement.

4th week:

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

Practical: Practice of final impression.

5th week:

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

Practical: Measuring the centric relation.

6th week:

Lecture: Parts of the RDP, and their function

Practical: Repeater practice.

7th week:

Lecture: Support and anchorage of the denture.

Practical: Repeater practice.

8th week:

Lecture: Clasp retention, casted clasps

Practical: Try-in denture.

9th week:

Lecture: Clinical phases of the RDP fabrication I

Practical: Impression taking for RPDs.

10th week:

Lecture: Clinical phases of the RDP fabrication II

Practical: Total denture's try-in. Total denture's correction at the first control appointment.

11th week:

Lecture: Combined dental prosthesis I

Practical: Planning of an RPD on a cast. Factors of RPD's planning.

12th week:

Lecture: Combined dental prosthesis II

Practical: Repeater practice.

13th week:

Lecture: Broken denture reparation

Practical: Repeater practice.

14th week:

Lecture: Consultation

Practical: Repeater practice.

Requirements

The aim of acquiring the professional content of the subject: The aim of the course is to provide knowledge on removable dentures, and to enable students to perform the clinical phases of removable dentures on a basic level during their 4th year complex practices.

Brief course programme: During the course, students will learn to use impression materials in the fabrication of removable dentures, as well as learn about materials used in removable cases.

Students will learn the clinical phases of removable dentures including treatment planning, patient examination and clinical phases. They also receive training on how to deliver dentures, on patient instruction and on how to communicate with patients.

Competences: The student gains competence to treat simple totally and partially edentulous cases including treatment planning.

Requirements:

* Attendance of lectures is highly recommended, attendance of practices is compulsory. For information about time and place please see the timetable.

* The ratio of missed practices cannot exceed 20%. All the missed practices must be certified.

* There is no possibility to compensate for missed practices.

* Practical work will be evaluated at the end of each practice separately, as 'accepted' or 'not-accepted'. Certain practices will be evaluated with five grade marks, 'fail' (1) grade automatically means 'not-accepted' practice. The number of accepted practices must be above 50% of all practices.

* A missed practice is 'not-accepted'.

* Two written or oral self-control tests will be held during the semester in the 8th and 14th week. The result of a missed self-control is 'fail' (1). Missed self-control tests cannot be made up.

* The ESE grade will be offered-from 4.00 as good (4), from 4.51 as excellent (5)-based upon the result of the two self-controls and the grades received on the practices.

The offered grade will be calculated in the following form:

$(\text{average result of practical grades} + \text{grade of the 1st SCT} + \text{grade of the 2nd SCT})/3$.

The average result of practical grades will be rounded from x.71, rounded down below x.71).

* Students who have not achieved an offered grade, or achieved, but have not accepted it, will take an exam in the exam period. Students must indicate the acceptance or rejection of the offered grade in the Neptun system. Students who would like to improve their offered grade in the exam period must reject the offered grade in the Neptun system before applying for an exam.

During the semester the student's performance will be evaluated at least twice (in the 6th and 12th week). If the student's performance does not reach the required level, the student will receive a documented notification of her/his poor performance. If the student's performance in the 12th week is still unsatisfactory, the subject's lecturer will notify the head of the department

Assessment: End of semester exam (ESE) covering the topics of lectures and practices. A topic list will not be issued. The exam starts with an online entrance test. Students must complete this test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is "failed" (1).

Subject: **ODONTOTECHNOLOGY I.**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **10**

Practical: **37**

1st week:

Lecture: Custom tray, functional cast

Practical: Introduction to the instruments, occupational safety. Custom tray fabrication.

2nd week:

Lecture: Tooth setup. Denture processing

Practical: Occlusal rims fabrication

3rd week:

Lecture: Clasp retention

Practical: Mounting into articulator

4th week:

Lecture: Laboratory phases of partial removable denture I

Practical: Tooth setup

5th week:

Lecture: Laboratory phases of partial removable denture II

Practical: Denture processing

6th week:

Lecture: Broken denture reparation

Practical: Denture processing

7th week:

Lecture: Combined dental prosthesis I

Practical: Polishing / Cast fabrication

8th week:

Lecture: Combined dental prosthesis II

Practical: Surveying / Pre-duplicating

9th week:

Lecture: Combined dental prosthesis III

Practical: Duplicating

10th week:

Lecture: High-tech in dentistry

Practical: RPD's wax pattern

11th week:

Practical: Spruing / Investing

12th week:

Practical: RPD metal framework processing

13th week:

Practical: RPD metal framework finishing / Polishing

14th week:

Practical: Broken denture fixing

Requirements

The aim of acquiring the professional content of the subject:

To introduce students to the technology of basic removable dentures. Students get acquainted with the technology of basic removable denture fabrication, as well as with materials, techniques and methods used in dental technology. They enrich their knowledge by gaining theoretical and practical experience.

Brief course programme:

In the frame of the course students will be familiarised with the technology of removable denture

fabrication. During the practices, students will learn and practice the steps of the removable denture fabrication.

Competences:

Students will be able to perform basic odontotechnological steps, processes and understand their theoretical background.

Requirements:

Attendance of lectures is highly recommended but not compulsory. Active participation in the practices is required. There is no possibility to compensate for missed practices. All absences must be certified. The amount of missed practices cannot exceed 2 practices.

Exam: AW5

Method of assessment: AW5 grade based on the result of the practical and theoretical tests. The practical and theoretical tests will be held according to the conditions announced in the first week of the semester. The signature will be refused, if the student's practical performance does not meet the requirements.

Department of Foreign Languages

Subject: **MEDICAL HUNGARIAN I.**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Practical: **28**

1st week:

Practical: Introduction, orientation

2nd week:

Practical: The tooth / A fog anatómiája

3rd week:

Practical: The oral cavity / A szájüreg anatómiája

4th week:

Practical: Numbering / A fogak számozása

5th week:

Practical: Dental materials / Fogászati anyagok

6th week:

Practical: Dental tools / Fogászati eszközök

7th week:

Practical: Dental specialists / Fogászati szakterületek

8th week:

Practical: Mid-term oral test

Self Control 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
Self Control Test**Requirements****Requirements of the course:****Attendance**

Attending language classes is **compulsory**. If a student is late it is considered as an absence. Students can miss only 10 percent of the classes that is maximum *2 occasions*. In case of more than 2 absences, the signature may be refused. Making up a missed lesson with another group is not allowed.

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

During the semester students must sit for two oral exams. A further minimum requirement is the knowledge of 200 words per semester divided into 10 word quizzes. There are five word quizzes before and another five after the mid-term test. If a student fails or misses any word quizzes he / she cannot take the mid-term and the end-term oral exams. A word quiz can be postponed by a week and students can take it only with their own teacher.

The oral exam consists of a role-play from a list of situations covered in the coursebook. If students fail the oral exam, they fail the whole course.

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

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

Coursebook: Kovács, Judit: A fogászati szaknyelv alapjai 1.

Assignments, audio files, oral exam topics and vocabulary minimum lists can be found on the elearning site of the Department of Foreign Languages (www.elearning.med.unideb.hu).

Department of Immunology

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: Adaptive immunity. Antigen recognition by B-cells, characteristics of antibodies. The structure and effector functions of antibodies.

4th week:

Seminar: Generation of B- and T-cell diversity, development of B and T lymphocytes. Central mechanisms of immune tolerance.

5th week:

Seminar: Antigen recognition by T-lymphocytes. Structure of MHC, MHC polymorphism. Antigen presentation. Role of the professional antigen presenting cells in T cell activation, T-cell subsets.

6th week:

Seminar: Effector functions of T-lymphocytes. Activation and antigen-dependent differentiation of B-lymphocytes. Germinal center reaction. Isotype switch.

7th week:

Seminar: Immunological memory and of immune tolerance mechanisms.

8th week:

Seminar: Inflammation.

Self Control Test

9th week:

Seminar: Immune responses to extracellular pathogens. Immune responses to intracellular pathogens.

10th week:

Seminar: Primary immune deficiencies.

11th week:

Seminar: Hypersensitivity reactions, allergy.

12th week:

Seminar: Mechanisms of the development of autoimmune diseases. Oral manifestation of autoimmune diseases.

13th week:

Seminar: Tumor immunology, tumor antigens and immune responses against tumors.

14th week:

Seminar: The immune system of bone tissue. Immune responses to dental implants. Focal infections.

Self Control Test

Requirements

Signing of the Lecture Book:

Participation in the Seminars is compulsory. The Department shall refuse to sign the students' Lecture book if he/she is absent from more than three seminars during semester. However, students

can make up for a missed seminar with another group; yet, only on the same week. Making up for a seminar should be communicated to both seminar teachers prior to the seminar.

Self control tests (SCTs), offered grades, end-term exam:

During the semester two self control tests (SCT) will be organised (weeks 8 and 14).

The first SCT contains the material of seminars on weeks 1-7. To ensure a solid basic knowledge of immunology, students must score higher than 60% to qualify for the 2nd SCT, hence for an offered grade.

The 2nd SCT contains the material of seminars on week 8-13.

If a student's score for the first SCT is higher than 60% and is higher than 50% for the 2nd SCT, she/he will be offered a grade. Should student accept this offered grade, she/he will be exempted from the end-term exam.

The offered grades are calculated by the following algorithm, based on the cumulative percentage points of the two SCTs (i.e. 200 points maximum).

110-139: pass (2)

140-159: satisfactory (3)

160-179: good (4)

180-200: excellent (5)

Those students who have not qualified for an offered grade must take the end-term exam during the exam period. The end-term exam consists of a written and an oral part.

"A" exam: To qualify for the oral part of an "A" exam, students must score higher than 70% on the written (entry) exam. Students who score less than 70% on the written part will fail (thus, the oral exam will not take place).

"B" exam: "B" exams are identical to "A" exams except when the student failed the oral, but not the written, part of the "A" exam. With a score of higher than 70% on the written part of the "A" exam, the student is exempt from the written exam on the "B" exam.

"C" exam: "C" exams are oral exams only, without a written entry test.

Those students who would like to improve the grade of a successful ("A" or "B" exam) or do not accept the offered grade, are also exempted from the entry test.

The list of exam topics is available on the departmental website (www.elearning.med.unideb.hu).

Lecture materials and other information concerning education can be found on our website at www.elearning.med.unideb.hu.

Department of Laboratory Medicine

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.

10th week:

Lecture: 5. ABO and Rh Blood Groups
6. Other blood group system (Kell, Kidd, Duffy, MN, Ss, I)

11th week:

Lecture: 7. Compatibility testing. Transfusion

reactions

8. Preparation of blood products

12th week:

Practical: Determination of ABO and Rh blood groups.

13th week:

Practical: Detection of irregular antibodies, antibody screening, compatibility testing.

Requirements

Participation in practices is obligatory. In case of further absences practices should be made up for by attending the practicals with another group on the same week, or a medical certificate needs to be presented. Please note that strictly only a maximum of 2 students are allowed to join another group to make up for an absence.

Requirements for signing the Lecture book: The Department may refuse to sign the Lecture book if the student is absent from practices. The materials of Clinical Biochemistry subject are uploaded on the e-learning website (www.elearning.med.unideb.hu)

Assessment: At the end of the first and second semester there is a written examination (test) assessed by a five grade evaluation.

Requirements for examinations: The examination is based on the lecture and practical material (Practicals in Laboratory Medicine, eds.: János Kappelmayer, 2016) as well as the relevant chapters from the textbook of William J. Marshall: Clinical Chemistry (9th Edition, 2021).

Department of Medical Microbiology

Subject: **DENTAL MICROBIOLOGY**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **28**

Practical: **28**

1st week:

Lecture: 1. The science of microbiology. Major groups of microorganisms. Prokaryotic taxonomy and cell structure.

2. Morphology and physiology of bacteria. Bacterial genetics. Pathogenesis and infection.

Practical: Laboratory safety instructions. Sampling. Bacterial morphology.

2nd week:

Lecture: 3. Host defenses against bacteria.

4. Immunization, vaccines.

Practical: Culture and identification techniques.

3rd week:

Lecture: 5. Principles of chemotherapy I.
6. Principles of chemotherapy II.

Practical: Sterilization and disinfection.

4th week:

Lecture: 7. Gram positive cocci (Staphylococcus, Streptococcus).

8. Gram positive rods (Corynebacterium, Lactobacillus).

Practical: Determining the sensitivity of bacteria to antibiotics.

5th week:

Lecture: 9. Neisseria, Bordetella, Actinobacillus.

10. Actinomyces, acid fast bacteria (Mycobacterium, Nocardia).

Practical: Spirochaetes.

6th week:

Lecture: 11. Anaerobic bacteria.

12. Development of the oral microflora.

Practical: The oral microflora.

7th week:

Lecture: 13. The dental plaque.

14. Dental caries.

Practical: Enterobacteriaceae.

8th week:

Lecture: 15. Periodontal diseases.

16. Dentoalveolar infections.

Practical: Diagnosis of viral infections.

9th week:

Lecture: 17. The structure and classification of viruses.

18. Replication strategies of viruses.

Practical: Viral infections of relevance to dentistry I.

10th week:

Lecture: 19. Host 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 structure. Candida

28. Antifungal drugs. Protozoa

Practical: Case reports of infections with dental importance

Requirements

Participation in the practical courses is obligatory. The Department may refuse to sign the students' Lecture book if they are absent from more than two practices or seminars in a semester. At the end of the semester the student is required to take a final examination (consisting of a written entry test and an oral examination) based on the whole material (lectures, practices and book) taught in the Dental Microbiology course.

Department of Operative Dentistry and Endodontics

Subject: **ORAL BIOLOGY**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **14**

Seminar: **14**

1st week:

Lecture: Craniofacial development

Seminar: Film on craniofacial development

2nd week:

Lecture: Amelogenesis

Seminar: The mineral component of dental hard tissues

3rd week:

Lecture: Dentinogenesis.

Seminar: The fibres and extracellular matrix in calcified dental tissues

4th week:

Lecture: Pain due to dentin sensitivity

Seminar: Dentin permeability

5th week:

Lecture: Tooth displacement, jaw remodelling

Seminar: Cementogenesis

6th week:

Lecture: Eruption (phases, theories)

Seminar: Shedding of primary teeth. Abnormal behaviour of primary teeth

7th week:

Lecture: Development of the dental pulp. Pulp matrix

Seminar: Blood and nerve supply to the pulp

8th week:

Lecture: The salivary glands

Seminar: Composition of saliva

9th week:

Lecture: The gingival crevice. Gingival crevicular fluid (GCF)

Seminar: Dental plaque and calculus

10th week:

Lecture: Temporomandibular joint (TMJ)

Seminar: Discussion of the TMJ

11th week:

Lecture: Mastication and deglutition

Seminar: Speech

12th week:

Lecture: Oral mucosa. Oral sensation

Seminar: Taste

13th week:

Lecture: Nutrition in relation to Oral Biology. Vitamins

Seminar: Metabolism of fluoride. Toxic effects of fluoride

14th week:

Lecture: Theories of ageing. The ageing mouth

Seminar: Effects of ageing in relation to the mouth (hard and soft tissues, oral functions)

Requirements

Course objectives

The aim of the course: 3rd year students need to know at the exam the anatomy, histology and physiology of the surrounding tissues and organs of oral cavity.

Short description of the course

Lectures and seminars deal with the surrounding organs and tissues of the human oral cavity. Important subjects: toxicity of fluorides, mastication, deglutition and taste function. Other important themes: tooth-sensitivity and alterations of the hard- and soft tissues of the mouth in aged people.

Requirements for signing the lecture book:

The seminars start and finish in accordance with the timetable, arriving late is not allowed. Students are required to stay at the premises of the seminar from the beginning to the end of the class.

Missed classes cannot be more than 1 out of the total seminar classes.

A certification is required for any absences which has to be handed to the leader of the seminar course.

Missed seminar classes cannot be made up for.

Examination: at the end of the semester (ESE_oral exam).

Materials for exam preparation: official lecture book, lectures and materials of the seminars.
Course exemption

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

Requirements for taking up the subject:

Odontology, Dental Physiology II, Oral Anatomy, Histology and Embriology II. Lecture

Subject: **RESTORATIVE DENTISTRY PROPEDEUTICS I. (CARIOLOGY)**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **56**

1st week:

Lecture: Dental caries characteristics, histopathology. Caries and cavity classification, nomenclature. Basic rules of cavity preparation

Practical: Subject, aims and methods of propedeutics. Labour health regulations and rules of the Phantom lab. Handing out the instruments. Introduction of Fantom head. Practice in drilling. Positions

2nd week:

Lecture: Class I. cavity preparation for amalgam

restoration. Lower and upper premolars and molars

Practical: Introduction of dental materials. Mixing, insertion and usage of the dental materials in practice

3rd week:

Lecture: The protective role of liners and bases. Amalgam restorations in cavity class I. cases. Finishing, polishing of amalgam restorations

Practical: Preparation of cavity class I. for amalgam restoration with mirror using technique

4th week:

Lecture: Preparation of cavity class V., VI. for amalgam restoration. Lower and upper premolar and molar cases. Amalgam restorations in cavity class V., VI. cases

Practical: Placement of liners and bases. Amalgam restoration in cavity class I. case

5th week:

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

Practical: Finishing, polishing of amalgam restorations. Preparation of cavity class V. for amalgam restoration

6th week:

Lecture: Matrices, retainers, wedge placement. Separation of the teeth. Amalgam restorations in cavity class II. cases

Practical: Written exam I.
Removal of amalgam restorations. Preparation of cavity class II. for amalgam restorations with mirror using technique. Matrices and retainers. Placement of guttapercha based temporary restoration

7th week:

Lecture: Composites. Adhesive technique. Adhesion on the enamel and dentin surface

Practical: Removal of gutta-percha based temporary restoration. Placement of amalgam in cavity class V. and II. cases

8th week:

Lecture: Preparation of cavity class III., IV., V. for composite restorations. Lower and upper incisor, canine cases

Practical: Preparation of cavity class III., IV., V. for composite restorations

9th week:

Lecture: Preparation of cavity class I., II., VI. for composite restorations. Lower and upper premolar molar cases

Practical: Preparation of cavity class I., II., IV. for composite restorations

10th week:

Lecture: Composite restoration in cavity class III., IV. V cases

Practical: Composite restoration in cavity class III., V.

11th week:

Lecture: Composite restoration in cavity class I., II., VI. cases

Practical: Written exam II.
Composite restoration in cavity class I., II.

12th week:

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

Practical: Composite restoration in cavity class IV.

13th week:

Lecture: Self control test

Practical: Insertion of temporary restorative material. Cavity preparation in real tooth, removal of the caries. Introduction of Supermat matrix system

14th week:

Lecture: Registration of dental status. Making a problem orientated treatment plan. Consultation

Practical: Practical exam

Requirements

Course objectives

The aim of the course: fundamental principles of cavity preparations and direct restorations are the topics of lectures and practices.

Short description of the course:

In lectures and practices at the end of course the students will be familiar with dental instruments and equipments, the different types of cavity preparations and materials for the direct restorative concepts. The practices interventions will be performed on plastic teeth which assisted into Manekins' head simulating real clinical situations.

Examination: Five grade (AW5) practical grade evaluation

Materials for exam preparation: official lecture book, lectures and materials of the practicals.

Requirements for signing the lecture book:

- During the semester one written test will be held in lecture time in accordance with the requirements of the curriculum. The missed test can be made up for in a given time designated by the Department after officially proof of absence. In addition, two pre-announced written tests will take place in practical time. Furthermore, several tests may be held without prior announcement. The results of any missed pre-announced test conclude to failure (1). The result cannot be improved.
- The practices start and finish in accordance with the timetable, arriving late is not allowed.
- Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
- Missed classes cannot be more than 20% of the total practice classes.
- A certification is required for any absences which has to be handed to the leader of the practice course.
- Missed classes cannot be made up for.
- The practical exercises performed during the cariology propedeutics course are evaluated with a grade.
- The cariology propedeutics course is successfully performed and may be accepted if the student is present at the practices, completes all the practical exercises, and none of the grades received for the practical exercises is a failed grade (grade 1).
- For signing the index it is required to have at least 71% successfully completed and accepted practices.
- Any missed practices result in a failed grade.
- On the 14th week student is required to take a practical exam.

Grade formation:

- The average of obtained grades for all practical assignments and unannounced tests completed in 13 weeks, +
 - The average of the result pre-announced written tests during the practices (2), and the written test taken during a lecture (1), +
 - The result of the practical exam, (an average of the grades)
- the mean of these grades gives the final AW5 grade.

Requirements for taking up the subject:

Odontology, Dental Physiology II, Oral Anatomy, Histology and Embriology II. Lecture

Department of Pathology

Subject: **GENERAL PATHOLOGY**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **28**

Seminar: **14**

Practical: **28**

1st week:

Lecture: -Introduction to anatomical pathology. Macropsy, autopsy-Surgical pathology: Methods and reporting

Practical: Introduction

2nd week:

Lecture: -Adaptation on cellular level- Morphology of the reversible cell injury and cell death (swelling, fatty change and necrosis)

Practical: 1. Acute myocardial infarction (coagulation necrosis) 2. Gangrene in the lower leg 3. Fat necrosis in the 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. Cholesterosis in the gallbladder 9. Atrophia brunea cordis

4th week:

Lecture: -Haemorrhage. Thrombosis. Embolism. DIC. -Morphological patterns of acute inflammatory response.

Practical: 10. Simple endometrial hyperplasia 11. Atrophia endometrii et myometrii 12. Nodular hyperplasia in the prostate 13. Bile stasis in the liver due to extrahepatic bile duct obstruction

5th week:

Lecture: -The role of macrophages in inflammation. Granulomatous inflammation. Amyloidosis. -Tissue regeneration. Reparation and wound healing. Calcification.

Practical: 14. Amyloidosis (Kongó staining) 15. Arterias thrombus 16. Necrosis of the small bowel due to incarceration 17. Hemorrhagic infarct in the lung

6th week:

Lecture: -Dysplasia, preneoplastic conditions.- Characteristic of benign and malignant tumors. Differentiation and anaplasia.

Practical: 18. Pulmonary edema 19. Nutmeg liver 20. Appendicitis acuta suppurativa 21. Meningitis purulenta

7th week:

Lecture: -Characteristics of tumor cell populations (clonality, heterogeneity and progression).-Tumor dignity. Proliferation. Grading and staging.

Practical: 22. Bronchopneumonia with lung abscess 23. Septic abscesses in the myocardium due to systemic fungal infection (PAS staining) 24. Chronic non-specific salpingitis 25. Foreign body granuloma

8th week:

Lecture: -Prognostic and predictive tumor markers. -Mechanisms of local and distant tumor spread. Angiogenesis.

Practical: 26. Keratoachantoma 27. Condyloma 28. Bowen's disease 29. Invasive cervical cancer

9th week:

Lecture: -The biology of tumor growth. Heredity in cancer. -Opportunistic infections. Systemic effects of neoplasia.

Practical: 30. Signet ring cell carcinoma in the stomach (PAS) 31. Krukenberg type ovarian metastasis (PAS) 32. Liver metastasis 33. Teratoma adultum (cysticum) ovarii 34. Leiomyoma

10th week:

Lecture: -Mono-, and polyclonal disorders. - Immunodeficiencies. Tuberculosis.

Practical: 35. Allergic vasculitis 36. Polyarteritis nodosa 37. End stage lesion in Burger's disease 38. Gouty tophus

11th week:

Lecture: -Humoral and cellular immunopathological mechanisms. -The pathology of transplantation. Autoimmunity.

Practical: 39. Polymyositis 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 lymphocytic leukemia (CLL) 46. Follicular lymphoma (FL)

13th week:

Lecture: -Pathology of the lymphatic system. - Malignant lymphomas, lymphoid leukaemias.

Practical: 47. Diffuse large B-cell lymphoma (DLBCL) 48. Gastric lymphoma (MALT type) 49. Hodgkin's disease (HL) 50. Myelofibrosis

14th week:

Lecture: -AML. Chronic myeloproliferative disorders. -Myelodysplasia. Anaemias. Pigments.

Practical: Repeating practice

Requirements

Pathology I-II.

Learning stuff:

Textbook: Robbins' Basic Pathology, 10th Edition (Elsevier)

Lectures: PPT slides of all lectures (uploaded for the actual week)

Practicals (weekly packages):

-histopath slides

-macro preps

-topic-wise supporting content

Test bank: continuously available from the e-learning site

Downloadable material: Department of Pathology

Validation of Semester:

-Histopathology and macro pathology (autopsy) classes are compulsory.

-Participation should be warranted electronically right before the class using the barcode based mobile approach.

-Missing of two practical classes (histo and macro pathology together) is tolerable.

-Intracurricular replacement of histo and/or macro pathology classes is possible on the same week.

Examination:

1st semester (Pathology 1): **End of Semester Examination (ESE)**

2nd semester (Pathology 2): **Final exam (FE).**

The Exam consists of: online test, practical exam and oral test.

Written and practical exams (proposed timing):

Pathology theory test (week 13):

-The test bank of the written pathology test can be found on the departmental E-learning website

-85% is to be reached for pass.

-In the 2nd semester the questions comes from the 1st and the 2nd semester

Histopathology exam (computerized-week 14):

-The computerized histopathology exam consisted of 6 microscopic slides with related questions.

-Digital slides and learning material public on the E-learning andsite.

-85% correct answers are required for pass.

-In the 2nd semester exam slides come from the 1st and 2nd semester.

Macro practical exam (autopsy room-week 14):

-This practical exam takes place in the autopsy room.

-Oral presentation and interpretation of macro preparations is expected.

-1-5 grades. Grade 2 (pass) is required for the succesful exam.

Pass of all 3 exams are required for entry to the ESE and FE.

Any failed test is to be repeated on the exam day before starting the oral part

Oral exam:

Oral presentation and discussion of topics choosen from the topic list.

ESE: Two randomly choosen 1st semester topics to be presented.

FE: Three randomly choosen topics (one from the 1st semester, and two from the 2nd semester).

The knowledge of students is judged on the five-grade evaluation scale (1-5 grades).

During the oral exam fail on any (possible) substation (written, practical, oral) means termination of the chance. The exam must be repeted from the part that failed.

During improvement exam only the oral exam topics must be repeated (the student can get worse grade than the previous one or possibly can fail).

For further information: <http://pathol.med.unideb.hu>
<https://elearning.med.unideb.hu>

Department of Periodontology

Subject: **PERIODONTOLOGY PROPEDEUTICS I.**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **2**

Practical: **8**

6th 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)

7th week:

Lecture: Periodontal examination, oral hygiene motivation, disclosing agents, plaque and gingival indices

Practical: Fundamentals of periodontal instrumentation I. (math principles, positioning, instrument grasp, anterior rests, mandibular posterior rests)

8th week:

Practical: Fundamentals of periodontal instrumentation II. (maxillary posterior rests, design, adaptation-angulations, activation, instrumentation strokes)

9th week:

Practical: Fundamentals of periodontal instrumentation II. (maxillary posterior rests, design, adaptation-angulations, activation, instrumentation strokes)

10th week:

Practical: Fundamentals of periodontal instrumentation III.

(probe:basic, explorers, debridement concepts, sickle scalers, periodontal files)

11th week:

Practical: Fundamentals of periodontal instrumentation III. (probe:basic, explorers, debridement concepts, sickle scalers, periodontal files)

12th week:

Practical: Fundamentals of periodontal instrumentation IV. (universal curets, area-specific curets, instrumentation strategies and patient cases)

13th week:

Practical: Fundamentals of periodontal instrumentation IV. (universal curets, area-specific curets, instrumentation strategies and patient cases)

Requirements

Prerequisites of taking the subject: Odontology, Dental Physiology II

The aims and objectives of this course:

- learning the basic anatomy and physiology of periodontium
- have knowledge and understanding of the etiology of periodontal diseases
- fundamental characteristics of plaque-induced gingivitis and chronic periodontitis
- achieve basic knowledge about periodontal hand scaling instruments

Short description of the course:

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

Requirements:

Student attendance is mandatory and a record is taken at each practice. The Department may refuse to sign the students' index if they are absent from more than 20% of all practical lessons in a semester.

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

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

Course exemption:

With previously obtained valid signature the attendance exemption of the practices can be requested.

Conditions of signing the index:

- active participation in practices
- no more absence than 20%

Assessment: AW5

Calculation of the practical grade:

AW5 grade consists of proper practical work and successful test.
In case of failing, exam 'B' and 'C' can be taken during the exam period.

Compulsory reading:

Carranza's Clinical Periodontology 12th Ed., Elsevier
ISBN:9780323227995
-lectures and practices materials (handouts are available)

Recommended reading:

J. S. Nield-Gehring: Fundamentals of Periodontal Instrumentation 6th Edition, 2008 Lippincott Williams & Wilkins. ISBN 978-0-7817-6992-1

Division of Nuclear Medicine and Translational Imaging

Subject: **DOSIMETRY, RADIATION HEALTH EFFECTS**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Seminar: **24**

1st week:

Seminar: Types and origin of ionizing radiation
Interactions of charged particles with matter

2nd week:

Seminar: Interactions of electromagnetic radiation with matter
Detection of X-ray, gamma and beta radiation by inducing light

3rd week:

Seminar: Gas ionization detectors
Dose concepts and dosimeters

4th week:

Seminar: Consultation: physics of ionizing radiation
How to use dosimeters (practice)

5th week:

Seminar: Biological effects of radiation
Forms of radiation injury

6th week:

Seminar: Constituents of population dose
Radiation protection rules, dose limits

7th week:

Seminar: How to work with unsealed radioactive preparations?
Protection against external radiation

8th week:

Seminar: Classification and equipment of workplaces applying ionizing radiation
How to work with X-ray devices?

9th week:

Seminar: Radiation protection of patients
Consultation: radiation biology and protection

10th week:

Seminar: Operations in case of
nuclear/radiological incidents bookkeeping
Supervision by the authorities

11th week:

Seminar: Radiation protection in a CT lab
Demonstration of the radiation protection system

12th week:

Seminar: Requirements for staffing
Consultation, exam
Self Control Test

Requirements

Attendance of at least 75% of the seminars. Usable understanding of the basic physical phenomena, the concepts of radiation effects and protection, as well as the regulations and practical solutions is required.

Chance "A" is a computer-based exam. Chance "B" and "C" are oral.

Electronic materials:

<https://elearning.med.unideb.hu/course/view.php?id=707>

Department of Biomaterials and Prosthetic Dentistry

Subject: **INTRODUCTION TO PROSTHODONTICS IV.: PROPEDEUTICS OF FIXED PROSTHODONTICS**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **14**

Practical: **37**

1st week:

Lecture: Tooth preparation for bridges. Insertion direction. Evaluation of abutment teeth.

Prosthetic value of abutment teeth.

Practical: Preparation for bridge (molar and premolar). Alginate impression of antagonist arch.

2nd week:

Lecture: Impression making for fixed prosthesis I.

Practical: Preparation for bridge. Alginate impression.

3rd week:

Lecture: Impression making for fixed prosthesis II.

Practical: Preparation for bridge.

4th week:

Lecture: Provisional restorations I.

Practical: Preparation for bridge. Impression making of preparation arch.

5th week:

Lecture: Provisional restorations II.

Practical: Preparation for bridge and crown

6th week:

Lecture: Framework try in and biscuit probe of fixed prosthesis.

Practical: Making of provisional crown.

7th week:

Lecture: Cementation. Removal of fixed prosthesis.

Practical: Preparation for bridge and crown

8th week:

Lecture: Post and core restorations I.

Practical: Preparation for bridge.

9th week:

Lecture: Post and core restorations II

Practical: Preparation for bridge. Impression making of preparation arch.

10th week:

Lecture: Indirect inlay, onlay, overlay restorations I.

Practical: Post and core restorations made with direct and indirect techniques.

11th week:

Lecture: Indirect inlay, onlay, overlay restorations II.

Practical: Preparation for inlay restoration in molar tooth.

12th week:

Lecture: Treatment planning of combined prosthesis I. Clasp holder crowns.

Practical: Preparation for bridge and crown.

13th week:

Lecture: Treatment planning of combined prosthesis II. Precision attachments.

Practical: Preparation for bridge and crown.

14th week:

Lecture: Consultation

Practical: Preparation for bridge and crown.

Requirements

The aim of acquiring the professional content of the subject:

The aims of the subject are to practise the clinical steps of basic fixed prosthesis in preclinical (phantom head) circumstances. Students are introduced in the use of different materials, techniques and methods in preparation of the basic fixed prosthesis. Students will acquire the steps of fabrication of basic fixed prosthesis which is necessary to the clinical work.

Brief course programme:

In the course students learn the fabrication process of basic fixed prosthesis, the indications and contraindications of fixed prosthesis. Students will practise the clinical steps of basic fixed prosthesis in phantom head to prepare for the clinical work.

Competences:

The student will be able to do fixed prosthesis including crowns, bridges and dowel core restorations.

Requirements:

Lectures and practices according to the timetable of the subject. It is not allowed to late from practices. Active attendance during practices is required.

The amount of absences cannot exceed two practices.

Each practice between week 6-14 will be evaluated as accepted or non-accepted. If the number of non-accepted practices exceeds 4, the signature will be rejected. In this case the subject cannot be completed during the semester.

Assessment: FE (involving possibility of failure), with electronic tablet test as entrance test. Final

exam covering the topics of Introduction to Prosthodontics I-IV and Odontotechnology I-II. Condition of taking the final exam: successfully completed Odontotechnology II. The exam starts with an online (tablet) entrance test. Students must complete the entrance test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60% the final exam grade is “fail” (1). In case of a 'C' chance exam the final (oral) exam will be held in the presence of an exam committee, even if the student failed the entrance test.

Subject: **ODONTOTECHNOLOGY II.**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **10**

Practical: **37**

1st week:

Lecture: Working cast and dies

Practical: Working cast and dies

2nd week:

Lecture: Articulators

Practical: Working cast and dies

3rd week:

Lecture: Technology of provisional restoration

Practical: Working cast and dies

4th week:

Lecture: Making wax pattern

Practical: Working cast and dies

5th week:

Lecture: Wax lost technique

Practical: Mounting into articulator

6th week:

Lecture: Processing of the metal

Practical: Making wax pattern

7th week:

Lecture: Technology of casted post and core restoration

Practical: Making wax pattern

8th week:

Lecture: High-tech technology in dental laboratory

Practical: Sprue placement

9th week:

Lecture: Technology of aesthetic covering of metal framework

Practical: Burn out, casting

10th week:

Lecture: Consultation

Practical: Cleaning the casting, sandblasting

11th week:

Practical: Processing of the metal framework

12th week:

Practical: Processing of the metal framework

13th week:

Practical: Ceramic covering of metal framework

14th week:

Practical: Ceramic covering of metal framework

Requirements

The aim of acquiring the professional content of the subject:

To introduce students to the technology of basic fixed dentures. Students get acquainted with the technology of basic fixed denture fabrication, as well as with materials, techniques and methods used in dental technology. They enrich their knowledge by gaining theoretical and practical experience.

Brief course programme:

In the frame of the course students will be familiarised with the technology of fixed denture fabrication. During the practices, students will learn and practice the steps of the fixed denture fabrication.

Competences:

Students will be able to perform basic odontotechnological steps, processes and understand their theoretical background.

Requirements:

Attendance of lectures is highly recommended but not compulsory. Active participation in the practices is required. There is no possibility to compensate for missed practices. All absences must be certified. The amount of missed practices cannot exceed 2 practices.

Exam: AW5

Method of assessment:

AW5 grade based on the result of the practical and theoretical tests.

The practical and theoretical tests will be held according to the conditions announced in the first week of the semester. The signature will be refused, if the student's practical performance does not meet the requirements.

Department of Behavioural Sciences

Subject: **BIOETHICS**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **6**

Seminar: **9**

1st week:

Lecture: General Ethics Introduction – philosophical and conceptual overview

2nd week:

Lecture: Modern Medical Ethics – its evolution, character-traits and relation to its predecessors.

3rd week:

Lecture: Patient Rights – their history, importance and challenges in the modern healthcare systems

4th week:

Seminar: End of Life Decisions – withholding and –drawing treatments, futility, triage

5th week:

Seminar: Fundamental Ethical Questions of Human Trials and Research Integrity

6th week:

Seminar: Casuistry as a Means of Analysis – 1st case analysis

7th week:

Seminar: Questions of Patient Rights and Justice – 2nd case analysis

8th week:

Seminar: Wrap-up: Overviewing and systematizing the semester material

Requirements

Requirements:

Grade: Colloquium

Requirement of the signature: taking part in the seminars, one absence allowed

Compulsory readings:

Gregory E. Pence-Medical Ethics -Accounts of Ground-Breaking Cases McGraw-Hill Education, 2016

Guidry-Grimes, Laura, Veatch, Robert-The Basics of Bioethics – Routledge, 2019

About the course:

The course outlines and explores the basics of modern bioethics. It helps students orienting in the diverse questions of contemporary bioethics – ranging from its ethical foundations, theories and argumentation, through patient rights and the questions of autonomy, to the end of life decisions and research ethics issues.

On top of laying down the theoretical and conceptual grounds of the subject matter, the course aims to map the national and international legal frameworks and policy environment. Besides, the course's purpose is to train those competences which enables the students to interpret and critically reflect upon the actual laws through general and professional ethical norms, by means of developing their rhetorical, logical and philosophical skills.

Subject: **MEDICAL PSYCHOLOGY**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **10**

Practical: **10**

1st week:

Lecture: Health and medical psychology: definition, models, the bio-psycho-social model.

Seminar: The role of psychology in medical practice.

2nd week:

Lecture: Seeking professional help (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 (vulnerability, protective factors). Basics of psychology.

8th week:

Lecture: Crisis, presuicidal syndrome, burnout.

9th week:

Lecture: Somatic symptom and related disorders

10th week:

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

Requirements

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

The final mark is the average of the seminar and the lecture results. Both should be better than fail to pass the ESE

Department of Dentoalveolar Surgery

Subject: **ORAL SURGERY PROPEDEUTICS**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **14**

Practical: **28**

1st week:

Lecture: Anatomy of the maxillofacial region

Practical: Introduction of Oral Surgery Department and Central Sterilization Unit

2nd week:

Lecture: Patient examination in the maxillofacial region

Practical: Complementary examination methods, oral surgery instruments

3rd week:

Lecture: Asepsis, antisepsis, sterility, sterilization in oral surgery

Practical: X-ray and other imaging techniques in oral surgery

4th week:

Lecture: Local anaesthetics, pharmacology
Practical: Introduction of the local anesthetic methods

5th week:

Lecture: Complications of local anaesthesia
Practical: Local anaesthetic methods at dentoalveolar outpatient department

6th week:

Lecture: Indications and techniques
Practical: Patient examination at dentoalv. outpatient dept.

7th week:

Lecture: Test I.
Practical: Practice of examination, local anaesthesia, and instruments at dentoalv. outpatient dept
Self Control Test

8th week:

Lecture:
Complications of dental extraction
Practical: Practice of extraction at dentoalv. outpatient dept.

9th week:

Lecture: Consultation
Practical: Practice of extraction at dentoalv. outpatient dept

10th week:

Lecture: TEST 2
Practical: Practice of technics of examination and local anaesthesia, dental extraction, instruments
Self Control Test

11th week:

Lecture: Basic techniques in oral surgery I- II.
Practical: Practice of technics of examination and local anaesthesia, dental extraction, instruments

12th week:

Lecture: Importance of systemic diseases, medical emergencies and first aid in the dental office
Practical: Practice of technics of examination and local anaesthesia, dental extraction, instruments

13th week:

Lecture: TEST 3.
Practical: Practice of technics of examination and local anaesthesia, dental extraction, instruments
Self Control Test

14th week:

Lecture: Final consultation.
Practical:
 Practice of technics of examination and local anaesthesia, dental extraction, instruments

Requirements

Course objectives: Theory and practice of patient examination (creates the groundwork of dental and oral surgical care), infection control, acquisition of anesthetic methods, tooth extraction techniques applicable in the maxillofacial region.

Brief course description: To learn the fundamentals of Dentoalveolar Surgery within the framework of lectures and practices with the help of phantom heads. (patient examination, anesthesia, extractions, and complications of the latter).

Compulsory reading:

Szabó Gy.: Oral and Maxillofacial Surgery Semmelweiss Publishing House, Budapest, 2004., ISBN: 963-9214-15-9

Recommended Book:

James R. Hupp: Contemporary oral and maxillofacial surgery, Mosby, 2014, ISBN: 978-0-323-09177-0

Stanley F. Malamed: Handbook of Local Anesthesia, 6th Edition, Mosby, 2013, ISBN:978-0-323-07413-1

Exam: ESE (end semester exam)

End semester exam has three parts: I. electronical part, II. practical part, III. theoretical part. The end semester exam starts with an electronical part, which is considered successful if the result is more than 70%. If this test is not successful, the student can not continue the exam. The electronic part has to be repeated on the B chance as well if the practical part is not successful. Parts of the practical exam are: recognition of instruments, patient examination, demonstration of techniques of local anaesthesia and tooth extraction. The first step of the practical exam is the recognition of 5 instruments, in this part it is not acceptable to make any mistake. If any part of the practical exam is unsuccessful, the whole exam is automatically failed. The practical exam has to be repeated if the result of the previous practical part was unsuccessful. If the electronical and practical parts are successful, but the theoretical is failed, than on the next exam only the theoretical part has to be repeated.

On „C” chance exam there is no need to do the electronical part.

The results of the written tests can be taken into consideration when deciding on the end semester grade.

Assessment:

There are three electronical tests during the semester. Missed tests are automatically assessed as fail. If two tests are assessed as ‘Fail’ out of the total number of three, then the signature will be refused. If the average result of three tests is above 3.51, the student does not have to take the electronic part of the final exam.

Course requirements:

Students are required to attend the practices.

Lectures: As given in the timetable (time and place)

Practices: In the building of the Faculty of Dentistry

Active participation in the practices (there is no possibility to compensate for missed practices).

Being late from the practices and lectures is not permitted. Every student has to participate in the practices in their preassigned groups. There is no possibility to switch between the practical groups. With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 20%, even if it is certified.

Prerequisites: Anatomy II., Odontology, Biochemistry II.

Compulsory lectures:

-Local anaesthetics, pharmacology

-Complications of local anaesthesia

-Indications and techniques of dental extraction

-Complications of extraction

-Importance of systemic diseases, medical emergencies and first aid in the dental office

Course exemption:

With previously obtained valid signature the attendance exemption of the practices can't be requested

Conditions of signature in the lecture book: Only one absence may be accepted from the obligatory lectures, in case of more absences the semester won't be accepted.

If the result is „fail” on two tests out of the three that is written during the semester, the lecture book won't be signed.

Missed practices and compulsory lectures should be certified in a credible way within three workdays.

Assessing grades according to test scores:

Result(%)	Grade
0-60%	1
61-70%	2
71-80%	3
81-90%	4
91-100%	5

Department of Foreign Languages

Subject: **MEDICAL HUNGARIAN II.**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Practical: **28**

1st week:

Practical: Introduction, orientation

2nd week:

Practical: Pediatric dentistry / Gyermekfogászat

3rd week:

Practical: Pediatric orthodontics / Gyermekkor
fogsabályozás

4th week:

Practical: Before treatment / Kezelés előtt

5th week:

Practical: Filling / Tömés

6th week:

Practical: Bleeding gum, calculus / Vérző íny,
fogkő

7th week:

Practical: Revision / Ismétlés

8th week:

Practical: Mid-term test
Self Control Test

9th week:

Practical: Crown, bridge /Korona, híd

10th week:

Practical: Extraction / Foghúzás

11th week:

Practical: Rootcanal treatment / Gyökérkezelés

12th week:

Practical: Dental check-up / Fogászati
ellenőrzés

13th week:

Practical: Prosthesis / Protézis, műfogsor

14th week:

Practical: Revision / Ismétlés

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*. In case of more than 2 absences, the signature may be refused. Making up a missed lesson with another group is not allowed.

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

Students have to take a mid-term test and a comprehensive exam in the exam period. 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 mid-term test. If a student fails or misses any word quizzes he / she cannot take the mid-term and the end-term oral exams. A word quiz can be postponed by a week and students can take it only with their own teacher.

The oral exam consists of a role-play from a list of situations covered in the coursebook. If students fail the oral exam, they fail the whole course.

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

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

Coursebook: Kovács, Judit: A fogászati szaknyelv alapjai 2.

Assignments, audio files, oral exam topics and vocabulary minimum lists can be found on the elearning site of the Department of Foreign Languages (www.elearning.med.unideb.hu).

Department of Laboratory Medicine

Subject: **CLINICAL BIOCHEMISTRY II.**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **11**

Practical: **6**

1st week:

Lecture: 1. Coagulopathies, (general introduction), haemophilias .

2. von Willebrand disease

3. Platelet function disorders.

2nd week:

Lecture: 4. Inherited thrombophilias

5. Acquired thrombophilias

6. Prethrombotic state, thromboembolias,

consumption coagulopathies

Practical: Laboratory diagnostics of coagulopathias

3rd week:

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

4th week:

Practical: Laboratory diagnostic of Thrombophilia. Laboratory monitoring of anticoagulant therapy.

6th week:

Lecture:

7. Pathogenesis and pathomechanism of diabetes mellitus

8. Pathobiochemistry and clinical biochemistry of the acute complications of diabetes mellitus

9. Laboratory diagnostics of diabetes mellitus

8th week:

Lecture:

10. Laboratory diagnostics of acute coronary syndrome I.

11. Laboratory diagnostics of acute coronary syndrome II.

Requirements

Participation in practicies is obligatory. In case of further absences practicies should be made up for by attending the practicals with another group on the same week, or a medical certificate needs to be presented. Please note that strictly only a maximum of 3 students are allowed to join another group to make up for an absence.

Requirements for signing the Lecture book: The Department may refuse to sign the Lecture book if the student is absent from practicies. The materials of Clinical Biochemistry subject are uploaded on the e-learning website (www.elearning.med.unideb.hu)

Assessment: At the end of the first and second semester there is a written examination (test) assessed by a five grade evaluation. The materials of both semesters are required for the written test at the end of the second semester.

Requirements for examinations: The examination is based on the lecture and practical material (Practicals in Laboratory Medicine, eds.: János Kappelmayer, 2016) as well as the relevant chapters from the textbook of Marshall: Clinical Chemistry (9th edition, 2021).

Department of Operative Dentistry and Endodontics

Subject: **RESTORATIVE DENTISTRY PROPEDEUTICS II. (ENDODONTICS)**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **14**

Practical: **56**

1st week:

Lecture: Morphology of the upper and lower teeth: numbers, localizations and shapes of the roots and root canals, accessory root canals, apical delta and apical foramens. Shapes and localizations of the access cavities

Practical: Root canal morphology of the upper

and lower teeth

2nd week:

Lecture: Preservation of the pulp vitality (direct and indirect pulp capping)

Practical: Direct and indirect pulp capping methods in the practice

3rd week:

Lecture: The basic principles of the root canal therapy: purpose, indications, contraindications and the steps of it

Practical: Access cavity preparation. Absolute isolation

4th week:

Lecture: Pre-endodontic build-up. Endodontic hand instruments

Practical: Pre-endodontic build up (badly destructed teeth). Endodontic hand instruments and uses

5th week:

Lecture: Radiographic considerations in endodontics

Practical: Determination of the working length. Traditional root canal preparation technique, root canal irrigation and medication, temporary coronal filling

6th week:

Lecture: The role, purpose and general principles of the chemo-mechanical preparation in the root canal system. Manual root canal preparation techniques: traditional and step back preparation

Practical: Step-back preparation technique, root canal irrigation and medication, temporary coronal filling

7th week:

Lecture: Root canal irrigants and medicaments

Practical: Written exam I.
Restorative practice

8th week:

Lecture: Root canal obturation materials and filling techniques: single cone and lateral compaction

Practical: Photographic evaluation of the

guttapercha cone fit. Single cone and cold lateral compaction root canal obturation techniques

9th week:

Lecture: Retreatment: removal of root canal obturation materials

Practical: Access cavity preparation and working length determination (human extracted tooth with one canal). Retreatment: removal of the root canal obturation material (eucalyptus essential oil), irrigation, drying, obturation

10th week:

Lecture: Restauration of endodontically treated teeth (considerations)

Practical: Digital dental radiography system: evaluation of working length in a human extracted tooth. Chemo-mechanical preparation, irrigation, drying cold lateral compaction

11th week:

Lecture: Endodontic related traditional surgery

Practical: Written exam II.
Endodontic surgery: root resection and retrograde root canal obturation

12th week:

Lecture: Medical history, patient examination, and treatment plan in endodontics.
Documentation

Practical: Medical history, patient examination, and treatment plan in endodontics.
Documentation

13th week:

Lecture: WRITTEN EXAM

Practical: Root canal treatment (molar teeth)

14th week:

Lecture: Case presentations

Practical: Case discussion: different pulp diagnoses and differential diagnoses

Requirements

Course objectives

The aim of the course: students need to learn and know the basic endodontic knowledge and use that in practise.

Short description of the course

During the course, students learn about the theoretical and practical basics of endodontology: access cavity preparation, manual methods of root canal preparations, cold obturation techniques, and pulp-vitality preserving methods.

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 one written test will be held in lecture time in accordance with the requirements of the curriculum. The test result cannot be improved. The results of any missed test conclude to failure (1). The missed test can be made up for in a given time designated by the Department after official proof of absence (certification of COVID infection).
- The practices start and finish in accordance with the timetable, arriving late is not allowed.
- 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. Any missed practices result in a fail grade (1) that day.
- Furthermore, several tests can be held without prior announcement during the practices, the results of which will be included in the evaluation of the performance that day.
- 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.
- The practical work is evaluated with a grade in each practice which is the average of the all practical grade (subtasks) of the day.
- If one exercise of the practice is graded with failed (1), then the whole practice is evaluated as fail (1)!
- For signing the lecture book it is required to have at least 71% of passed (2) grades (10 pieces for 14 weeks).

Grade formation

- If the average of:

- 1st grade: the mark of the semester (14) +
- 2nd grade: the result of test (1) during a lecture +
- 3rd grade: the average of the 2 pre-announced written tests during the practices.

reach the minimum 3,51 and above to 4,5, the achieved grade is good. The average 4,51 or above conclude to an excellent grade. The achieved grade is offered to the student as an examination grade.

The student is not obliged to take the offered grade and can ask to take the examination

Requirements for taking up the subject: Oral biology, Restorative Dentistry Propedeutics I. (Cariology)

Department of Operative Techniques and Surgical Research

Subject: **BASIC SURGICAL TECHNIQUES**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **5**

Seminar: **7**

Practical: **6**

1st week:

Lecture: The role of operative professions in medicine. Surgical deontology. Surgical armamentarium.

Seminar: Classification and handling of the surgical instruments. Tools' order on the instrumental tables. (2 hours)

2nd week:

Lecture: Surgical sutures, suture materials.

Seminar: Conventional hand suturing and knotting techniques. Suture materials in practice. (2 hours)

3rd week:

Lecture: Asepsis, antisepsis. Preparation for operation personnel: scrubbing, gowning, gloving. Isolation. Operating room environment.

Seminar: Preparation for operation personnel. Isolation of the operative field. (1 hour)

Practical: Scrubbing. Wound closure with different suture techniques on biomodels. (2 hours)

4th week:

Lecture: Types of bleeding. Different methods of surgical hemostasis. Vein preparation and cannulation. Injection techniques and blood sampling.

Seminar: Bioplasts and tissue adhesives. (1 hour)

Practical: Ligatures on gauze model. Demonstration and practising of vein preparation/cannulation, preparation of infusion set, blood sampling and injection techniques (i.m., i.v.) on phantom models. (2 hours)

5th week:

Lecture: Surgical incisions. Conicotomy, tracheostomy.

Seminar: Video-demonstration of median/paramedian laparotomy, conicotomy and tracheostomy. (1 hour)

Practical: Conicotomy on phantom model. Repeat: Wound closure with different suture techniques on surgical training models. Vein

preparation/cannulation, preparation of infusion set, blood sampling and injection techniques (i.m., i.v.) on phantom models. (2 hours)

Self Control Test

Requirements

Prerequisite: Oral anatomy, histology and embryology, Dental Physiology II.

The lectures and seminars/practices are built on each other. Consequently, it is difficult to make up the missed classes. Attending the 2nd and 3rd lecture is compulsory. Though according to the Rules and Regulations only 30% of the lectures can be made compulsory, attending the 4th lecture is also strongly recommended. The make-up of the first 3 practices is obligatory. Compensation for the missed seminars should be paid according to the Rules and Regulations of the University of Debrecen. If the student is absent from 2 seminars/practices in a semester (without any acceptable reason), the Department may refuse the signature. Performance is assessed on a five-grade scale (AW5) and is based on the performance over the curriculum and the result of the final test written at the end of the course. It is based not only on the compulsory reading material, but also on the material presented at the lectures.

Department of Pathology

Subject: **ORGAN AND ORAL PATHOLOGY**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **50**

Seminar: **14**

Practical: **14**

1st week:

Lecture: -Soft tissue tumors. -Non-neoplastic lesions of the bones. Pathology of the joints. - Bone tumors.

Practical: Introduction

2nd week:

Lecture: -Diabetes mellitus.- Arteriosclerosis. Hypertension and hypertensive vascular disease. -Acute myocardial infarction.

Practical: 63. Nephropathia diabetica 64. Crescentic glomerulonephritis 65. Acute pyelonephritis 66. Clear cell kidney carcinoma

3rd week:

Lecture: -Myocarditis. Cardiomyopathies. - Diseases of the endocardium and the cardiac valves. -Congenital heart diseases. Venous and lymphatic vessel disorders.

Practical: 67. Carcinoma transitiocellulare

vesicae urinariae 68. Prostatic adenocarcinoma 69. IRDS 70. Bronchial asthma

4th week:

Lecture: -ARDS. Pneumonia. Pulmonary embolisms. -Chronic obstructive pulmonary diseases. -Interstitial lung disease.

Practical: 71. Boeck's sarcoidosis 72. Bronchial squamous carcinoma 73. Intrabronchial carcinoid tumor 74. Small cell carcinoma

5th week:

Lecture: -Tumors of the lung and pleura. - Benign, preneoplastic and neoplastic lesions in the oral cavity. Diseases of the salivary glands. - Esophageal diseases. Gastritis. Gastrointestinal ulcers.

Practical: 75 a és b Barrett's esophagus (a;HE + b;PAS-AB) 76. Ulcus pepticum ventriculi 77.

Crohn's disease 78. Ulcerative colitis

6th week:

Lecture: -Maldevelopment of intestine. Megacolon. Circulatory intestinal lesions. - Enteritis, enterocolitis. Malabsorption. Inflammatory bowel diseases. -Colorectal cancer. -Maldevelopment of teeth.

Practical: 79. High grade adenoma in the colon 80. Malignant transformation of adenoma 81. Mucinous adenocarcinoma 82. Liver cirrhosis with HCC

7th week:

Lecture: -Intra- and extrahepatic biliary tract diseases. -Viral hepatitis. Drug induced liver diseases. Acute and chronic liver failure. -Liver cirrhosis.

-Pathology of dental caries
Practical: D1. Follicular cyst of the maxilla. D2. Keratin cyst of the mandibule. D3. Thyreoglossal cyst. D4. Brachiogenic cyst.

8th week:

Lecture: - Tumors and circulatory disorders of the liver. Inherited metabolic liver diseases. -The pathology of the pancreas and appendix. - Glomerular diseases.

-Pulpitis, periodontitis.
Practical: D5. Mucocoele. D6. Dental plaque. Chronic periodontitis. D7. Fissural and cervical caries. D9. Radicular cyst.

9th week:

Lecture: -Diseases affecting tubuli and interstitium. Kidney stones. Hydronephrosis. - Cystic diseases and tumors of the kidney. - Pathology of the urinary tract.

-White patch diseases of the oral mucosa.
Practical: D10. Chronic osteomyelitis of the mandibule. D11. Hyperplastic gingivitis. D12. Traumatic ulcer. D13. Pyogenic granuloma.

10th week:

Lecture: -Hyperplasia and carcinoma of the prostate. -Testicular tumors. -Non-neoplastic and

preneoplastic conditions of the breast.

-Odontogenic tumors and cysts.

Practical: D14. Epulis. D15. Leukemic ulceronecrotic stomatitis. D17. Lichen planus. D18. Lupus erythematosus.

11th week:

Lecture: -Breast cancer. -Uterine tumors. - Tumors of the ovarium. -Ulcerous and vesico-bullous lesions of the oral mucosa

Practical: D19. Pemphigus vulgaris. D23. Leukoparakeratosis. D25. Planocellular papilloma. D27. Planocellular carcinoma of the tongue.

12th week:

Lecture: -athology of the pregnancy. Pathomorphological aspects of the most frequent diseases of the newborn. -Melanocytic and epithelial skin tumors. -Pathology of the thyroid and parathyroid.

-Diseases of the lip and tongue. Oral manifestation of granulomatous diseases.
Practical: D33. Schwannoma. D34. Osteoma. D36. Cementifying fibroma. D37. Ameloblastoma of the mandibule.

13th week:

Lecture: -The pathology of the adrenals. - Ophthalmic pathology. Cerebrovascular diseases. -Stroke.

-Oral manifestation of systemic diseases. Diseases of the maxilla and mandible.

Practical: D39. Sialolithiasis; Chronic sialoadenitis. D40. Sjögren syndrome. D41. Adenolymphoma (Warthin-tumor). D43. Adenoid cystic carcinom.

14th week:

Lecture: -Neurodegenerative diseases. Dementias. -Infective diseases of the CNS. - Tumors of the CNS.

Practical: Repeating practice

Requirements

Pathology I-II.

Learning stuff:

Textbook: Robbins' Basic Pathology, 10th Edition (Elsevier)

Lectures: PPT slides of all lectures (uploaded for the actual week)

Practicals (weekly packages):

-histopath slides

-macro preps

-topic-wise supporting content

Test bank: continously available from the e-learning site

Downloadable material: Department of Pathology

Validation of Semester:

-Histopathology and macro pathology (autopsy) classes are compulsory.

-Participation should be warranted electronically right before the class using the barcode based mobile approach.

-Missing of two practical classes (histo and macro pathology together) is tolerable.

-Intracurricular replacement of histo and/or macro pathology classes is possible on the same week.

Examination:

1st semester (Pathology 1): **End of Semester Examination (ESE)**

2nd semester (Pathology 2): **Final exam (FE)**.

The Exam consists of: online test, practical exam and oral test.

Written and practical exams (proposed timing):

Pathology theory test (week 13):

-The test bank of the written pathology test can be found on the departmental E-learning website

-85% is to be reached for pass.

-In the 2nd semester the questions comes from the 1st and the 2nd semester

Histopathology exam (computerized-week 14):

-The computerized histopathology exam consisted of 6 microscopic slides with related questions.

-Digital slides and learning material public on the E-learning andsite.

-85% correct answers are required for pass.

-In the 2nd semester exam slides come from the 1st and 2nd semester.

Macro practical exam (autopsy room-week 14):

-This practical exam takes place in the autopsy room.

-Oral presentation and interpretation of macro preparations is expected.

-1-5 grades. Grade 2 (pass) is required for the succesful exam.

Pass of all 3 exams are required for entry to the ESE and FE.

Any failed test is to be repeated on the exam day before starting the oral part

Oral exam:

Oral presentation and discussion of topics choosen from the topic list.

ESE: Two randomly choosen 1st semester topics to be presented.

FE: Three randomly choosen topics (one from the 1st semester, and two from the 2nd semester).

The knowledge of students is judged on the five-grade evaluation scale (1-5 grades).

During the oral exam fail on any (possible) substation (written, practical, oral) means termination of the chance. The exam must be repeated from the part that failed.

During improvement exam only the oral exam topics must be repeated (the student can get worse grade than the previous one or possibly can fail).

For further information: <http://pathol.med.unideb.hu>
<https://elearning.med.unideb.hu>

Department of Periodontology

Subject: **PERIODONTOLOGY PROPEDEUTICS II.**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **2**

Practical: **15**

3rd week:

Lecture: Sonic and ultrasonic scalers in periodontal treatment.

4th week:

Lecture: Decision Making During Treatment Planning for Patients with Periodontal Disease.

9th week:

Practical: Clinical periodontal assessment and radiographic analysis of the periodontium.

10th week:

Practical: Patient's role in nonsurgical periodontal therapy.

11th week:

Practical: The role of antiseptic therapy in the management of periodontal diseases.

12th week:

Practical: Introduction to periodontal maintenance.

13th week:

Practical: Comprehensive Patient Cases.

14th week:

Practical: Comprehensive Patient Cases.

Requirements

Prerequisites of taking the subject: Periodontology propedeutics I.

The aims and objectives of this course:

-to be able to communicate effectively the impact of local factors on their periodontal health and disease management to the patients.

-be capable of examining, diagnosing, performing risk prediction, treatment planning and

managing, in their broadest sense

-to achieve knowledge about periodontal hand scaling instruments in clinical practice

Short description of the course:

-to treat and maintain the patient with periodontal disease in a holistic manner

Requirements:

Student attendance on clinic is mandatory and a record of clinical attendance is taken at each practice. The Department may refuse to sign the students' Lecture book if they are absent from more than 20% of all practical lessons in a semester.

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

Practices: In the building of Faculty of Dentistry

Course exemption:

With previously obtained valid signature the attendance exemption of the practices can be requested.

Conditions of signing the index:

-active participation in practices

-no more absence than 20%

Assessment: AW5

Calculation of the practical grade:

AW5 grade consists of proper practical work.

Compulsory reading:

Carranza's Clinical Periodontology 12th Ed., Elsevier

ISBN:9780323227995

-lectures and practices materials (handouts are available)

Recommended reading:

1. J. S. Nield-Gehring: Fundamentals of Periodontal Instrumentation 6th Edition, 2008 Lippincott Williams & Wilkins. ISBN 978-0-7817-6992-1

2. Foundations of Periodontics for the Dental Hygienist 3th Edition, 2011 Lippincott Williams & Wilkins. ISBN 978-1-60547-573-8

Division of Radiology and Imaging Science

Subject: **INTRODUCTION TO DENTAL RADIOLOGY**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **18**

Seminar: **23**

1st week:

Lecture: Head and neck radiology X-ray, ultrasound (General Radiology)

Seminar: Introduction to imaging modalities. Demonstration of radiological equipment.

2nd week:

Lecture: Head and neck CT, CBCT, MRI given opportunities (General Radiology)

Seminar: Anatomical introduction: projectional anatomy with facial bones' X-ray imaging. Sectional anatomy: CT, US, MRI of head and neck region.

3rd week:

Lecture: Musculoskeletal system (General Radiology)

Seminar: Imaging of bone and joint diseases

4th week:

Lecture: Emergency radiology (General Radiology)

Seminar: Emergency radiology

5th week:

Lecture: Neuroradiology (General radiology)

Dento-Alveolar radiology (Dental radiology)

Seminar: Neuroradiology

6th week:

Lecture: Chest (General radiology)

Maxillofacial radiology (Dental radiology)

Seminar: Radiology of chest

7th week:

Lecture: Examination of the GIT system (General radiology)

Periodontal formula of radiological imaging methods (Dental radiology)

Seminar: GIT system (General radiology)

Imaging diagnosis in Dento-Alveolar Surgery (Dental radiology)

8th week:

Lecture: Kidney-bladder system. Screening tests for breast examination, prostate, low dose CT.

Cardio CT, radiation protection. (General radiology)

Radiography of periodontal lesions (Dental radiology)

Seminar:

Urinary tract (General radiology)

Imaging diagnosis in Maxillofacial Surgery (Dental radiology)

9th week:

Lecture: Radiology in Restorative Dentistry (Dental radiology)

Seminar: Radiological anatomy of periodontal formulas (Dental radiology)

10th week:

Lecture: Radiology in Restorative Dentistry (Dental radiology)

Seminar: Different mapping methods of periodontal diseases (Dental radiology)

11th week:

Lecture: Radiology in Prosthetic Dentistry (Dental radiology)

Seminar: Radiology in Restorative Dentistry (Dental radiology)

12th week:

Lecture: Radiology in Prosthetic Dentistry (Dental radiology)

Seminar: Dental Radiology: Radiology in Prosthetic Dentistry (Dental radiology)

13th week:

Lecture: Radiology in Pediatric Dentistry (Dental radiology)

Seminar: Radiology in Pediatric and Orthodontic Dentistry (Dental radiology)

14th week:

Lecture: Radiology in Orthodontic Dentistry (Dental radiology)

Seminar: Test (offered grade)

Requirements

Course objectives

The aim of the course is to familiarize with traditional and modern imaging techniques used in general medicine and dental practice.

Short description of the course

During the course students will get acquainted with traditional general and dental X-ray equipment and techniques (X-ray, UH, CT, MRI), new digital radiography and dental applications, dosage concepts and radiation protection regulations.

Exam Type: ESE

Written examination in the form of an electronic test / tablet.

Subject requirements:

The attendance on lectures is not obligatory, but recommended.

Participation in seminars is compulsory. It is not possible to make up the absences. Absences shall be verified, the rate of absences shall not exceed 20%.

Conditions for signing the lecture book

If the absence from seminars exceeds 20% (3 seminar days-but, the maximum of each two-two occasions for general and dental radiology) the signature of the lecture book shall be refused.

Final grade

An offered grade will be given by writing an electronic test in the last week at the time appointed by the Department (lecture, seminar or predetermined time). The material asked on the test consists of the lectures, seminars and official textbook.

The electronic test is evaluated as follows:

0-60%	failed (1)
61-70%	passed (2)
71-80%	satisfactory (3)
81-90%	good (4)
91-100%	excellent (5)

If the offered grade is failed (1) the student must take an end-semester (electronic) exam as an ,A' ,B' chance. If the ,B' chance exam is failed (1) the student must take an oral exam as a ,C' chance.

Faculty of Dentistry

Subject: **3RD YEAR SUMMER PRACTICE FOR DENTISTRY STUDENTS**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Practical: **60**

CHAPTER 19

ACADEMIC PROGRAM FOR THE 4TH YEAR

Department of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY I.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **5**

Practical: **105**

1st week:

Practical: 1-15 week: Complex dental treatment: restorative, periodontal and extraction procedures according to patients' needs. The minimum requirements declared by the departments to be fulfilled. General nursing procedures during treatments.

2nd week:

Lecture: Nursery procedures during restorative treatment

3rd week:

Lecture: General nursery procedure in the dental

surgery

4th week:

Lecture: Nursery procedures during prosthetic treatment

5th week:

Lecture: Extraction related nursery procedures

6th week:

Lecture: Nursery procedures during periodontal treatment

Requirements

Assessment:

AW5. Continuous monitoring of the knowledge during practices. The grade is given on the basis of the student's term-time practical performance and this is considered as the final grade of the end semester exam.

The grade cannot be improved during the exam period

Signature conditions:

-Completion of the required minimums.

-Active participation on the practices (there is no possibility to compensate the missed practices).

-The practices begin/end according to the timetable, delay is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.

-With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 2 patient treatment and 1 assistance practice altogether. All missed practices need to be certified.

-All procedures amongst the practical work will be evaluated with grades. The final grade is calculated on basis of the grade-averages received from all special fields. (The calculations follow the general rule for rounding, from x.51.)

-The student's performance provided on general practices will be evaluated twice, in the 6th and in the 13th week, during the semester and the student will be notified in written form by non-acceptable performance.

-Grades given on the practices, will be the end semester grades, which cannot be improved during the exam period.

-In addition, the supervisor takes the professional attitude and responsibility of the student into account, and his / her effort to earn or maintain professional development, the proper behavior towards the clinical staff, the patients and their relatives. The correct fulfillment of the administrative responsibilities and the appropriate behavior towards of the administrative personnel.

-In case the performance is non-acceptable, the student will be warned in written form. From students with two warnings the signature will be denied. In case of not fulfilling the requirements, the student will be warned with the PROFESSIONALISM EVALUATION REPORT FORM (F118 // 1ST). The student who had to be warned twice during the semester because of inadequate performance due to professional reasons or inadequate professional attitudes his / her the signature will be rejected

The Faculty of Dentistry provides students with 1 white medical coat, 1 suit sluice (trousers and top) and 1 locker key for the duration of the Complex practice. The students undertake to return these items at the end of the practice.

Prerequisites of taking the subject: Oral Surgery Propedeutics, Restorative Dentistry Propedeutics II. (Endodontics), Introduction to Prosthodontics, Periodontology Propedeutics.

Subject: **PROSTHETIC DENTISTRY I.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: Planning and preparation I.

2nd week:

Lecture: Planning and preparation II.

3rd week:

Lecture: Clinical procedures of fixed prosthodontics I.

4th week:

Lecture: Clinical procedures of fixed prosthodontics II.

5th week:

Lecture: Clinical procedures of fixed prosthodontics III.

6th week:

Lecture: Clinical procedures of fixed prosthodontics IV.

7th week:

Lecture: Clinical procedures of fixed prosthodontics V.

8th week:

Lecture: Porcelain fused to metal FPDs.

9th week:

Lecture: Polimer covered FPDs.

10th week:

Lecture: Laboratory procedures I.

11th week:

Lecture: Laboratory procedures II.

12th week:

Lecture: Laboratory procedures III.

13th week:

Lecture: Cements.

14th week:

Lecture: Postoperative care.

Requirements

The aim of acquiring the professional content of the subject:

The aim of the subject is to expand students' knowledge on the field of prosthetic dentistry and to give detailed information on the field of fixed prosthodontics and dental technology. Beside lectures, special practices provide expanded academic education and training of practical skills. The content of the subject is based on already acquired skills and experience.

Brief course programme:

The course involves academic knowledge of formulating appropriate treatment plan for prosthodontics with an emphasis on fixed prosthodontics. It provides details of clinical procedures such as mouth preparation, tooth preparation, impression making, framework trial, fixed prosthodontic device (FPD) trial, or cementation procedures. Based on the skills and experience acquired on propedeutics more detailed information is given on laboratory procedures. Special practices start with an up-to date theoretical summary of the given topics, followed by small-group hands-on courses.

Competences:

At the end of the course the student is able to formulate appropriate treatment plans for complicated clinical cases, as well as to create correct prosthetic plans.

Requirements:

Attendance on the lectures is highly recommended but not compulsory. Active participation in the practices is required. There is no possibility to compensate for missed practices. With acceptable certificate students may miss practices, but the ratio cannot exceed 50%. The presence in practices will be recorded. Practices start and end according to the timetable. If a student is late or leave early it is considered as an absence.

Assessment:

End of semester examination.

Method of assessment:

One written (electronic) self-control test will be held during the semester. The date of the test will be indicated during the first week of the semester. The self-control test covers the topics of lectures and practices of the semester, and includes relevant material from official textbooks.

The result of this self-control test will be offered as the grade of the end of semester exam, according to the following :

60.01-70%	pass(2)
70.01-80%	satisfactory (3)
80.01-90%	good(4)
90,01-100 %	excellent(5)

Students are not obliged to accept the grade offered, they may opt for taking an oral examination during the examination period. The exam starts with an online entrance test. Students must complete the entrance test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the exam grade is "failed" (1). Oral exam

topics will be announced during the first week of the semester.

Department of Orthodontics

Subject: **ORTHODONTICS I.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **15**

Practical: **15**

1st week:

Lecture: Subject of orthodontics.

Terminology.

Growth (cephalocaudal gradient)

4th week:

Lecture: Cephalometric analysis, face aesthetic.

Diagnosis (occlusion).

Treatment planning.

7th week:

Lecture: Self control test.

Tooth movement.

Biomechanics.

10th week:

Lecture: Removable appliances 1. (plates).

Removable appliances 2. (functional appliances).

Removable appliances 3. (thermoplastic, combined appliances).

13th week:

Lecture: The sequence of tooth eruption.

Treatment timing.

Self-control test.

Requirements

The aims and objectives of this course

To provide an insight for dentistry students into the orthodontist thinking and to present the basic correlations which a dentists ought to know.

Short description of the course:

During the course, the students learn about the causes and treatments of ever-evolving and changing orthodontic and jaw orthopaedic disorders, and the limits of the profession. The first semester aims to give an introduction into the basics, and into the theoretical background.

Compulsory reading:

S.J. Littlewood, L. Mitchell: An introduction to Orthodontics, 5th Ed., Oxford 2019., ISBN:9780198808664

Recommended books:

Proffit W., Fields H., Sarver D.: Contemporary Orthodontics 5th ed., Elsevier 2013

Assessment:

AW 5 grade

Requirements:

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

Practices: In the building of Faculty of Dentistry

Students attendance at the lectures is not mandatory but recommended.

Active participation in the practices (there is no possibility to compensate the missed practices).

Course exemption:

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

Conditions of signing the index:

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

The final AW5 marks are decided according to the marks given during the semester. 2 tests will be held during the semester (electronic or written).

Calculation of the grade:

The average mark of the 2 written tests will give the final mark. If it is less than 1,51 then the grade is failed' (1) and the grade must be improved during the examination period, as a ,B' or ,C' chance.

Results of the written tests:

0- 9% failed (1)

60-69 % pass (2)

70-79% satisfactory (3)

80-89% good (4)

90% ≤ excellent (5)

Department of Dermatology

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: Seborrhic diseases. Local therapy.

14th week:
Lecture: Viral dermatoses, epizoonoses

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.

Department of Internal Medicine

Subject: **INTERNAL MEDICINE I.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **14**

1st week:
Lecture: Stomatology and internal medicine.
Diagnostic procedures in cardiology.
Practical: History taking, physical examination
(Department of Internal Medicine building B).

2nd week:
Lecture: Acquired valvular and congenital heart diseases.
Practical: History taking, physical examination (Department of Internal Medicine building B)

3rd week:
Lecture: Infective endocarditis.
Practical: History taking, physical examination
(Department of Internal Medicine building B)

4th week:
Lecture: Angina pectoris.
Practical: Examination of cardiac patients
(Dept. Cardiology)

5th week:
Lecture: Myocardial infarction.
Practical: Examination of cardiac patients
(Dept. Cardiology)

6th week:
Lecture: Arrhythmias, pacemaker treatment.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

7th week:
Lecture: Cardiac failure, antithrombotic treatment in cardiology.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

8th week:
Lecture: Hypertension.
Practical: Patients with cardiac, venous and arterial disorders (Department of Internal

Medicine)

9th week:

Lecture: Venous thromboembolic disorders.

Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine)

10th week:

Lecture: Arterial thromboses.

Practical: Patients with cardiac, venous and arterial disorders (Department of Internal Medicine building B)

11th week:

Lecture: Pneumonias, tuberculosis, lung cancer.

Practical: Patients with cardiac, venous and arterial disorders (Department of Internal

Medicine building B)

12th week:

Lecture: COPD, respiratory failure.

Practical: Patients with pulmonary disorders (Dept. Pulmonology)

13th week:

Lecture: Glomerulonephritis, pyelonephritis.

Practical: Patients with pulmonary disorders (Dept. Pulmonology)

14th week:

Lecture: Renal failure.

Practical: Patients with renal disorders (Department of Internal Medicine building A)

Department of Operative Dentistry and Endodontics

Subject: **RESTORATIVE DENTISTRY I. (CARIOLOGY)**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: Modern possibilities in dental caries diagnostics

2nd week:

Lecture: Isolation of operative field. Absolute and relative isolation. Rubber dam placement

3rd week:

Lecture: Morphology of the teeth. The physiology of occlusion with special focus on restorative dentistry

4th week:

Lecture: Dental treatments of patients with chronic underlying diseases. Endocarditis prophylaxis. Antibiotics in dental practice

5th week:

Lecture: Special types of cavity preparations: tunnel, box only. Complex preparation for

composites in case of a complex caries lesion. Parapulpal pins

6th week:

Lecture: Complex preparation for amalgam restorations. Pins and occlusal coverage with amalgam. Bonded amalgam restorations

7th week:

Lecture: Adhesive technique I.

8th week:

Lecture: Adhesive technique II.

9th week:

Lecture: Layering techniques, light curing possibilities to reduce polymerization shrinkage and improve marginal seal. Rebonding

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: Direct composite inlay, onlay, overlay. Preparation. Adhesive luting

14th week:

Lecture: Dental treatments in elderly. Caries of the roots, treatment options

Requirements

Course objectives

The aim of the course is to provide to the students fundamental knowledge for the performance of conservative dental procedures.

Short description of the course

During the course, the subject of restorative dentistry will be taught in theoretical lectures and special practises.

Examination: exam at the end of the mid semester (ESE_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.

- Special practicals:

The practices start and finish in accordance with the timetable, arriving late is not allowed.

Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work. o Absences, in theory, are not allowed.

In reasoned cases, for certified absences the department ensure make up classes on a previously agreed date during the semester.

A certification is required for any absences which has to be handed to the leader of the practice course.

At each practical student's work is evaluated with a grade by the practice course leader based on the student's knowledge on theory, practical work and manuality.

At the end of the semester, student is given a grade for his/her mid term work based on the average of the grades given during the semester.

Special practices (4th 1st semester): 2x5 lessons

Course exemption

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

Grade formation

The result of the test and the grades of the special practicals can impact on the grade of the oral exam.

!!! ATTENTION

ENDODONTICS CASE PRESENTATION (5th year)

During the case presentation, student is required to present the case of his/her own patient (multirooted MOLAR tooth, with multiple root canals) treated with rubber dam isolation.

Presentation requirements:

- Filled signed endodontic form without any missing detail, approved, signed and stamped by the supervisor
- Evaluable radiological documentation
- Logically built up computer presentation

The mandatory endodontics case study is planned according to previously agreed date and is presented in sequence order.

!!! Missing the presentation of case study, or missing any part of the above mentioned listed requirements, results in the refusal of signing the lecture book.

Requirements for taking up the subject: Restorative Dentistry Propedeutics II. (Endodontics), Introduction to Prosthodontics IV.: Prop. of Fixed Prosthodontics together with Prosthetic Dentistry I.

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY I.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: Tooth-eruption disorders and their treatment

2nd week:

Lecture: Surgical tooth removal

3rd week:

Lecture: Oral surgical treatment of patients with hemostatic disorder

4th week:

Lecture: Endodontic surgery I.

5th week:

Lecture: Odontogenic and non-odontogenic inflammations of the head and neck region and their treatment I.

6th week:

Lecture: Odontogenic and non-odontogenic inflammations of the head and neck region and their treatment II.

7th week:

Lecture: Osteomyelitis of the jaws

8th week:

Lecture: Pathology of head and neck cysts

9th week:

Lecture: Therapy of head and neck cysts

10th week:

Lecture: Diseases of the maxillary sinus and

their treatment

11th week:

Lecture: Diseases of the salivary glands and their treatment

12th week:

Lecture: Antibiotics in oral surgery

13th week:

Lecture: Consultation

14th week:

Lecture: Endodontic surgery II.

Requirements

Aim of the course:

The aim of the course is to learn about the surgical procedures relating to the pathological conditions of the teeth that are supplementary to dental treatments. To present those dental and maxillofacial diseases for which preoperative preparation and/or postoperative treatment is the dentist' task. During the semester, students will learn about pathological conditions causing symptoms in the adjacent regions of the teeth or on the jaws and their knowledge is essential for the safe practicing of the dental profession.

Course exemption:

Students who have obtained signature in a previous semester must participate in the compulsory lectures and practices. There is no exemption from attending the compulsory lectures and special practices.

Course requirements and conditions for obtaining signature:

Active participation in the designated lectures is mandatory. Arriving late for the lectures is not accepted. Late students are not allowed to join the lectures. Students must participate in the lectures and practices from the beginning to the end thereof. Only one of the compulsory lectures may be missed. The absence must be certified in a credible way within three working days. Students who have more than one uncertified absence from the lectures will not get signature.

Active participation in the special practices is mandatory. Arriving late for the practices is not accepted. Late students are not allowed to join the practices. Students must participate in the practices from the beginning to the end thereof. Any absence from the special practice must be certified in a credible way within three working days. The missed practice must be made up.

Making up for the missed practice is subject to a credible certification and the prior permission of the head of department exclusively during the study term and with a group of the same program and same year.

Mandatory lectures:

Tooth-eruption disorders and their treatment
Surgical tooth removal
Oral surgical treatment of patients with hemostatic disorders
Endodontic surgery

Conditions for obtaining signature:

Only one of the designated lectures may be missed. The absence must be certified in a credible way within three working days. Absence from the practice must be certified in a credible way within three working days. Missed practices must be made up according the rules. Students who fail to make up the missed practice or have more than one uncertified absence from the compulsory lectures will not get signature.

Exam:

Oral end semester exam The exam covers the presentation and compulsory readings of the semester, and questions from Oral Surgery Propedeutics can be expected too. Not knowing the parts of the handouts provided by the Department that are emphasised by exclamation mark results in a failed exam.

Compulsory readings:

J. R. Hupp, M. R. Tucker: Contemporary oral and maxillofacial surgery ISBN-13: 978-0323552219, Elsevier, 2018

R.A. Cawson: Essentials of Oral Pathology and Oral Medicine Churchill Livingstone 1998., ISBN: 0443053480

Recommended Books:

P.W. Booth, S.A. Schendel, J.E. Hausamen: Maxillofacial Surgery Churchill Livingstone 1999., ISBN: 0443058539

Szabó Gy.: Oral and Maxillofacial Surgery Semmelweiss Publishing House Budapest, 2004., ISBN: 963-9214-15-9

Prerequisites: Pathology II, Oral Surgery Propedeutics

Subject: **SURGERY**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **14**

1st week:

Lecture: History of surgery. Wounds, wound healing. Asepsis, antisepsis.

2nd week:

Lecture:

Burns and other thermic injuries. Reconstruction after burns.

3rd week:

Lecture: Indications and contraindications of surgery, legal considerations. Surgical infections, antibiotic treatment

4th week:

Lecture:

Basics of anesthesiology. Blood transfusion, pathophysiology of bleeding.

5th week:

Lecture:

Basics of gynecology (Dental inflammation and dental anesthesia in pregnancy.)

6th week:

Lecture: Bone fractures and their healing. Conservative and operative treatment.

7th week:

Lecture: Diseases of the kidneys and urinary tract

8th week:

Lecture: Surgical gastroenterology (Stomach, intestines, liver, biliary duct and pancreas). Hernia surgery.

9th week:

Lecture: Trauma of the upper and lower extremities; trauma of soft tissue, bones and joints

10th week:

Lecture: Diagnostics and treatment of polytraumatized patients. Head, chest and abdominal injuries

11th week:

Lecture: First-aid, basics of life support,

physiology of shock.

12th week:

Lecture: Acute abdomen, types of bowel obstruction

13th week:

Lecture: Surgical oncology. Endocrine and breast surgery.

14th week:

Lecture: End Semester Exam

Self Control Test



Requirements

Aim of the Course

Increasing the general medical awareness of dentistry students. This includes the familiarizing them with some of the most important surgical disciplines and the border areas of surgical disciplines. Emphasis will be given to discuss the surgical issues related to dental practice, reviewing symptoms, exploring some pathophysiological relations, and to be aware of the available therapeutic options. Through this, students as future practitioners of this manual profession will be prepared to acquire surgical approach.

Short description of the course

Students attend weekly one lecture for 13 weeks followed by an examination (in form of a written test) on week 14.

Compulsory literature

Anil Agarwal, Neil Borley, Greg McLatchie (szerk.): Oxford Handbook of Operative Surgery
 Kiadó: Oxford University Press,
 Kiadás éve: 2017 (3. kiadás)
 ISBN: 978-0-19-960891-1

Recommended literature

Anil Agarwal, Neil Borley, Greg McLatchie: Oxford Handbook of Operative Surgery
 (Oxford University Press, 2017)

Type of exam

Written examination, based on test questions, which incorporate the discussed surgical diseases

Description of course requirements

Knowledge of what has been said at the lecture is of key importance among the course requirements. A sketch is available from all of the presentations listed in the curriculum and available on the Faculty's website and they can be downloaded from there. It is suggested that the student prepares the literature on the basis of the presentations from the recommended and compulsory literature.

Disclaimers / information for repeaters

Identical to the rules applied to other non-professional subjects in the education of the FD.

Signature Conditions

Participation on the selected lectures.

Rules for grade calculation

Successful completion of the end-term multiple-choice test, where the grade is better, as more correct answers are given. Who reach 80% or above will be rated with 5 (excellent), fewer than 20% of the answers (0-19%) will fail (1).

Department of Otorhinolaryngology and Head and Neck Surgery

Subject: **OTOLARYNGOLOGY**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Seminar: **14**

1st week:

Seminar: Anatomy and examination of the

external ear.

Symptomes of ear diseases.

Inflammatory diseases of the external ear.
Ear wax.

2nd week:

Seminar: Anatomy and examination of the middle ear.
Acute suppurative otitis media.
Acute serous otitis media.

3rd week:

Seminar: Chronic otitis media and its complications.

4th week:

Seminar: Main surgical procedures of middle ear disorders.

5th week:

Seminar: The cochlea and the sound perception

6th week:

Seminar: Audiological examination
Rehabilitation of the hearing loss

7th week:

Seminar: Anatomy and physiology of the vestibular system

8th week:

Seminar: Trauma of the nose and paranasal sinuses (skull base fracture, maxilla fracture)
Epistaxis and its management

9th week:

Seminar: Tumors of the nose and paranasal sinuses and its management

10th week:

Seminar: The pharynx (inflammatory disorders, neoplasm)

11th week:

Seminar: The larynx (inflammatory disorders)

12th week:

Seminar: Benign et malignant disorders of the larynx

13th week:

Seminar: The salivatory glands
Differential diagnosis of neck masses

14th week:

Seminar: Endoscopic procedures in ORL

Requirements

Education: The form of education is seminar. During the semester one seminar is hold every week, so altogether the course consist of 14 seminars. Topics of seminars are given in the English Program Bulletin and on the institutional webpage. Attendance of seminars is compulsory, and there is no possibility for make up or any compensation. In case of missed lectures only those will be accepted, where a written certification (medical, legal, etc.) is presented. Certifications have to be handed to the leader of the seminar, and will be tend at the secretary. The acceptable number of missed seminars is not more than two.

Signing the lecture book. The lecture book will be signed by the leader of the institute only in case of completion of all educational requirements.

Examination: The theoretical knowledge of students in the field of otorhinolaryngology will be examined on oral examination.Exams could be taken only on official examination days during the examination period. The number of students is limited for each day, and only those are accepted for taking exam, who have priory made the registration through the Neptun system.The exams take place in the library of the institute, and start at about 8 o'clock.During the exam two topics have to be worked out and presented orally, where one is related to otology and the other is related either to rhinology, or laryngology or head and neck surgery.

Department of Pediatric and Preventive Dentistry

Subject: **PREVENTIVE DENTISTRY II.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Seminar: **14**

1st week:

Seminar: Oral status and indices.

2nd week:

Seminar: Caries risk assessment.

3rd week:

Seminar: How to plan preventive programs?

How to educate patients?

4th week:

Seminar: Preventive programs in practice.

Fissure sealing.

5th week:

Seminar: Fluoride therapy, remineralization techniques.

6th week:

Seminar: Dental prevention during pregnancy and infancy.

7th week:

Seminar: Mid-semester test.

8th week:

Seminar: Oral cancer prevention.

9th week:

Seminar: Modification of biofilm pathogenicity.

10th week:

Seminar: The effect of diet on oral health.

11th week:

Seminar: Fissure sealing 2.

12th week:

Seminar: Preventive care in conservative dentistry and prosthodontics.

13th week:

Seminar: Up-to-date preventive methods.

14th week:

Seminar: Self-control test.

Requirements

The aims and objectives of the course

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

Short description of the course

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

- Application of the basic sciences in maintaining healthy oral tissues
- The principles and control of dental diseases
- The etiology, epidemiology and prevention of dental caries
- Oral hygiene, nutrition and dietary measures, and dental health education as a preventive dental service
- Instruction of the oral hygiene methods

- The metabolic and dental aspects of fluorides in the control of dental caries
- Preventive aspects of prosthodontics and conservative dentistry
- Oral cancer prevention

Compulsory reading

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

Recommended reading

Limeback H: Comprehensive Preventive Dentistry. Wiley-Blackwell 2012

Assessment

AW 5 grade

Requirements

Active participation in the seminars is obligatory.

With acceptable written (medical, legal, etc.) certificate students may miss 2 seminars. The certificates must be sent to the Educational Secretariat of the Faculty of Dentistry (fokot@dental.unideb.hu) within 3 working days. There is no possibility to compensate the missed seminars.

Two written self-control tests will be held during the semester, the SCTs are obligatory to take. The missed SCT cannot be repeated. The result of the missed SCT is 0% (failed).

Course exemption

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

Conditions of signing the index

- Participation in all seminars (a maximum of 2 certified absences are allowed)
- Mid-semester and final tests are obligatory to take

Calculation of the AW5 grade

The mark of the course will be calculated according to the average of the result of the mid-semester test and the result of the final test.

If the average of the final test is under 60%, the result of the course is going to be a fail (regardless the grade of the mid-semester test) and the student must take an end-semester (oral) exam as a ‚B’ chance.

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

Department of Periodontology

Subject: **PERIODONTOLOGY I.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: Anatomy of the periodontium.

2nd week:

Lecture: Dental calculus, bacterial plaque and other deposits. Microbiology of periodontal disease.

3rd week:

Lecture: The role of bacterial plaque and other local factors in the etiology of periodontal diseases.

4th week:

Lecture: Etiology of periodontal disease: the role of systemic factors.

5th week:

Lecture: Pathogenesis of periodontal disease I.

6th week:

Lecture: Pathogenesis of periodontal disease II.

7th week:

Lecture: Clinical diagnosis and treatment plan of periodontal disease in general.

8th week:

Lecture: Self-control test.

9th week:

Lecture: Classification of periodontal disease. Advanced diagnostic methods in periodontology.

10th week:

Lecture: Gingivitis: Clinical features and diagnosis.

11th week:

Lecture: Periodontitis: Clinical features and diagnosis.

12th week:

Lecture: Emergencies and acute conditions in periodontology.

13th week:

Lecture: Trauma from occlusion.

14th week:

Lecture: Advanced diagnostic methods in periodontology.

Requirements

The aims and objectives of this course

1. Examination of periodontium
 - 1.1 Physical examination
2. Treatment of periodontal disorders in dental practice
 - 2.1 Instruction and motivation of patients
 - 2.2 Causative treatment of periodontal disorders: Scaling and root planning, curettage
 - 2.3 Periodontal surgery
 - 2.4 Indications and contraindications of periodontal surgery, post surgical treatments
3. Medicaments in periodontal therapy
4. Periodontal aspects of implantology

Short description of the course

-Taking previous medical history-the patients complaint(s)

- Inspection-healthy periodontium-distinction from the diseased
- Clinical examination of periodontium-periodontal probing; probing depth, pocket depth, definition of loss of attachment and their relationship
- Periodontal charting and recording-definition and periodontal indices
- Disclosing agents and their application in practice
- Demonstration of different tooth brushing methods on model
- Instruments and their usage (hand,rotational and ultra sound scalers; instruments for polishing, polishing pastes, maintenance of instruments)
- Therapy assessment: results, failures, follow up
- Chemical plaque control
- Antibiotics in periodontics
- Subgingival irrigation
- Periodontal dressings, tissue adhesives in practice
- Treatment of root hypersensitivity
- Special oral hygiene aids, instruments

Assessment:

End of Semester Exam

Requirements

Lectures: As given in the timetable (time and place)

Practices: In the building of Faculty of Dentistry (Dept. of Periodontology)

- With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 20% even if it is certificated.
- The number of accepted practices must be above 80% of practices.
- Missed practice is not-accepted.
- Students have to fulfil the minimum practical requirements of the subject.
- The minimum practical requirements of the subject will be handed out in the first week of the semester.

Course exemption

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

Conditions of signing the lecture book

- Active participation in the practices (there is no possibility to compensate the missed practices).
- The practical work will be evaluated at the end of each practice separately, as 'accepted' or 'not-accepted'.
- The test written during the semester should be passed. The result of the failed test could be repeated once during the semester.

Calculation of the grade

The result of the written test and the result of the ESE will give the final mark.

Department of Pharmacology and Pharmacotherapy

Subject: **DENTAL PHARMACOLOGY I.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **28**

Seminar: **14**

1st week:

Lecture 1: Drug receptors and pharmacodynamics 1.

Lecture 2: Drug receptors and pharmacodynamics 2.

Seminar: Prescription writing.

2nd week:

Lecture 3: Pharmacokinetics 1.

Lecture 4: Pharmacokinetics 2.

Seminar: Prescription writing.

3rd week:

Lecture 5: Pharmacology of adrenoceptors 1.

Lecture 6: Pharmacology of adrenoceptors 2.

Seminar: Prescription writing.

4th week:

Lecture 7: Pharmacology of adrenoceptors 3.

Lecture 8: Cholinergic drugs 1.

Seminar: Prescription writing.

5th week:

Lecture 9: Cholinergic drugs 2.

Lecture 10: Antihypertensive agents 1.

Seminar: Prescription writing.

6th week:

Lecture 11: Antihypertensive agents 2.

Lecture 12: ACE inhibitors.

Seminar: WRITTEN EXAMINATION.

7th week:

Lecture 13: Antianginal drugs.

Lecture 14: Agents used in hyperlipidemia.

Seminar: Prescription writing.

8th week:

Lecture 15: Drugs used in congestive heart failure.

Lecture 16: Antiarrhythmic agents.

Seminar: Prescription writing.

9th week:

Lecture 17: General anesthetics.

Lecture 18: Local anesthetics 1.

Seminar: Prescription writing.

10th week:

Lecture 19: Local anesthetics 2.

Lecture 20: Local anesthetics 3.

Seminar: Prescription writing.

11th week:

Lecture 21: Opioid analgesics.

Lecture 22: Non-opioid analgesics and antipyretics 1.

Seminar: WRITTEN EXAMINATION.

12th week:

Lecture 23: Non-opioid analgesics and antipyretics 2.

Lecture 24: Non-steroidal anti-inflammatory drugs 1.

Seminar: Prescription writing.

13th week:

Lecture 25: Antiasthmatic drugs.

Lecture 26: Drugs used in disorders of coagulation, Antianemic agents

Seminar: Prescription writing

14th week:

Lecture 27: Diuretics.

Lecture 28: Drugs acting on the gastrointestinal tract

Seminar: WRITTEN EXAMINATION.

Requirements

Attendance at seminars is compulsory. The Department may refuse to accept the semester if they are absent from more than 2 seminars. The current knowledge of the students will be tested in every month in each semester using a written test. Participation is compulsory, the results of the tests are recorded and will be presented to the examiner during the End of Semester Examination and the Final Examination. At the end of the 1st semester the students are required to take the End of Semester Examination (written and oral), based on the material taught in the semester. At the end of the 2nd semester the students are required to take the written and oral Final Examination, based on

the material taught in Pharmacology in both semesters.

In case of declared emergency state the teaching activity will be changed according to the followings:

1. Teaching materials, webinar conference logins, other education related documents are distributed by the official e-learning website of the Medical Faculty (elearning.med.unideb.hu).
2. Lecture slides are uploaded at least in pdf format or in narrated file (e.g. ppsx). Interactive webinar conferences (web lectures) are organized, if proper decision comes into power.
3. Seminars are online and the conference program is the external part of the Moodle system.
4. Seminars are organized for each educational group by the original seminar leader. Joining the seminar is possible and required through the Moodle e-learning system.
5. Participation in seminars is compulsory, only 2x2 hours unjustified absences per semester are allowed and the attendance is automatically registered by the Moodle system. To help the understanding of the presented material, online tests can be organized (polling). These results WILL NOT BE evaluated as a mark, but the discussion can be based on the distribution of the answers.
6. The possibility is open and highly recommended for all of the students to participate in more than one seminar session (2 hours) per week. The upper limit of students to join is 200 persons.
7. Regularly, practice tests are set up in the e-learning system. These result NO mark. Several attempts are allowed, the only goal is to reach better results than 90%.
8. After the withdrawal of emergency state, the original regulations come into power again.

Department of Public Health and Epidemiology

Subject: **PREVENTIVE MEDICINE AND PUBLIC HEALTH**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Lecture: **28**

Seminar: **24**

Practical: **41st week:**

Lecture: 1. The history, scope and methods of public health and preventive medicine, major public health issues in developing and developed countries

2. Introduction to human ecology

Seminar: 1-2. Demographical methods to study the health status of the population

2nd week:

Lecture: 3. Air pollution and health

4. Water pollution and health

Seminar: 3-4. Principles of prevention

3rd week:

Lecture: 5. Health hazards of ionising radiation and radioactive substances

6. Toxicology of organic solvents and pesticides

Seminar: 5-6. Occupational health and safety in

dentist practice

4th week:

Lecture: 7. Malnutrition, Nutritional deficiency diseases

8. Foodborne diseases, Diet related chronic diseases, Obesity

Seminar: 7-8. Financing dental services I.

5th week:

Lecture: 9. Health effect of noise and vibration

10. Heavy metals in the human environment

Seminar: 9-10. Financing dental services II.

6th week:

Lecture: 11. Global environmental changes and human health

12. Public health consequences of substance

abuse

Seminar: 7-8. Cadmium toxicity, case study

7th week:

Lecture: 13. Socioeconomic determinants of health, inequality and health

14. Lifestyle and health

Seminar: 9-10. Health promotion, Health education

8th week:

Lecture: 15. Introduction into the general epidemiology of non-communicable diseases

16. Epidemiology of mental diseases

Seminar: 15-16. Midterm test

9th week:

Lecture: 17. Epidemiology of neoplastic diseases

18. Epidemiology of cardiovascular diseases

Seminar: 17-18. Epidemiological measures and studies

10th week:

Lecture:

19. Epidemiology of skeletal and dental diseases

20. Epidemiology of chronic respiratory diseases

Seminar: 19-20. Preventive strategies

11th week:

Lecture: 21. Introduction into the general

epidemiology of communicable diseases

22. Epidemiology of communicable diseases transmitted through the skin and sexually transmitted

Seminar: 21-22. Reporting and control of communicable diseases, vaccination

12th week:

Lecture: 23. Epidemiology of nosocomial infections

24. Epidemiology of respiratory infectious diseases

Seminar: 23-24. Global Burden of Diseases database

13th week:

Lecture: 25. Epidemiology of viral hepatitis

26. Health policy principles

Seminar: 25-26. Sterilization and disinfection

14th week:

Lecture: 27. Health care systems of developed countries

28. Needs, demands and use of health services

Seminar: 27-28. Hospital infection control

Requirements

Requirements for signing the lecture book:

Attendance of lectures is highly recommended. Attendance of the seminars is obligatory. The academic adviser refuse to sign the lecture book if a student is absent more than two times from the seminars even if he/she has an acceptable excuse. Students should also perform a midterm test on the 8th week of the semester. The midterm test covers the topics of all lectures and seminars held in the first 7 weeks of the semester. There is no possibility to repeat this test during the semester and examination period. The mark of the midterm test will be included in the calculation of the final average mark of the subject.

Requirements for the final exam:

The final exam involves written and oral sections covering the topics of all lectures and seminars of the subject. The oral exam covers the topics of all seminars of the semester. The written exam consists of multiple choice test questions related to Environmental Health, Epidemiology and Health Policy. Each section is evaluated separately. The final exam is assessed on the basis of the average of five marks including the result of midterm test, and the results of Environmental Health, Epidemiology, Health Policy tests, and mark of the oral exam. It is failed if either the oral or any

part (Environmental Health, Epidemiology, Health Policy) of the written exam is graded unsatisfactory. Students should repeat only that/those section/sections of the final exam that has/have been previously unsuccessful. In this case the final exam is graded according to the average of the passing marks obtained on the first and repeated exams.

Type of exam:

final exam after one semester (ESE)

Prerequisites: completion of dental microbiology, organ and oral pathology subjects

Course description

The course covers the main areas of public health: environmental health including the health consequences of air and water pollution, occupational and nutritional health; the principles of epidemiology, the epidemiology and control of communicable and non-communicable diseases. Special attention is given on the main topics underlying nutritional disorders and deficiencies, health hazards of pharmacist' practice and preventive strategies.

Requirements

To acquire knowledge about the principles and the most important issues of environmental health, communicable and non-communicable diseases and health policy.

Methods of education

The education of the subject is based on lectures and seminars. The practical adaptation of the topics of lectures are highly promoted by seminars. Students will learn about the major public health issues in developing and developed countries and organisation of public health services. During the epidemiology seminars students will learn how to calculate the most important indicators for the measurement of morbidity and mortality. In addition, the epidemiology of communicable and non-communicable diseases will be discussed in detail.

Department of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY II.**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Lecture: **5**

Practical: **105**

1st week:

Lecture: 1-5 week: Case presentation

Practical: 1-15 week: Complex dental treatment: restorative, periodontial and extraction procedures according to patients' needs. The

minimum requirements declared by the departments to be fulfilled. General nursing procedures during treatments.

Requirements

Assessment:

AW5. Continuous monitoring of the knowledge during practices. The grade is given on the basis of the student's term-time practical performance and this is considered as the final grade of the end semester exam.

The grade cannot be improved during the exam period

Signature conditions:

- Completion of the required minimums.
- Active participation on the practices (there is no possibility to compensate the missed practices).
- The practices begin/end according to the timetable, delay is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.
- With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 2 patient treatment and 1 assistance practice altogether. All missed practices need to be certified.
- All procedures amongst the practical work will be evaluated with grades. The final grade is calculated on basis of the grade-averages received from all special fields. (The calculations follow the general rule for rounding, from x.51.)
- The student's performance provided on general practices will be evaluated twice, in the 6th and in the 13th week, during the semester and the student will be notified in written form by non-acceptable performance.
- Grades given on the practices, will be the end semester grades, which cannot be improved during the exam period.
- In addition, the supervisor takes the professional attitude and responsibility of the student into account, and his / her effort to earn or maintain professional development, the proper behavior towards the clinical staff, the patients and their relatives. The correct fulfillment of the administrative responsibilities and the appropriate behavior towards of the administrative personnel.
- In case the performance is non-acceptable, the student will be warned in written form. From students with two warnings the signature will be denied. In case of not fulfilling the requirements, the student will be warned with the PROFESSIONALISM EVALUATION REPORT FORM (F118 // 1ST). The student who had to be warned twice during the semester because of inadequate performance due to professional reasons or inadequate professional attitudes his / her the signature will be rejected.

The Faculty of Dentistry provides students with 1 white medical coat, 1 suit sluice (trousers and top) and 1 locker key for the duration of the Complex practice. The students undertake to return these items at the end of the practice.

Prerequisites: Complex Dentistry I., Dosimetry, Radiation Health Effects

Subject: **DIGITAL DENTISTRY**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Lecture: **14**

Practical: **14**

1st week:

Lecture: History of digital dentistry

Seminar:

Practical: Introduction to digital dentistry

2nd week:

Lecture: Fundamentals of basic 3D scannings I.

Practical: Open source demonstrating applications

3rd week:

Lecture: Fundamentals of basic 3D scannings II.

Practical: Open source demonstrating applications

4th week:

Lecture: Efficient 3D point cloud processing

Practical: Software-based processing of 3D point clouds

5th week:

Lecture: Mesh optimization methods and their geometrical principles

Practical: Mesh optimization in practice

6th week:

Lecture: Introduction to Computer Aided manufacturing (CAx).

Practical: Application of CAD software (FreeCAD as example).

7th week:

Lecture: Introduction to mesh and solid models: coordinate geometry and file formats.

Practical: Mesh and solid modelling with CAD (Computer aided Design/Drawing) application.

8th week:

Lecture: Introduction to cutting (material removal processes): machines, tools and materials; cutting forces, CNC machining. Introduction to additive technologies.

Practical: Machining design with CAM

(Computer Aided Manufacturing) applications. Rapid Prototyping with 3D printing.

9th week:

Lecture: Custom-made implant design and fabrication based on 3D printing

Practical: Custom-made implant design and fabrication based on 3D printing

10th week:

Lecture: Digital dentistry in fixed prosthodontics

Practical: Plan of the temporary crown using digital techniques

11th week:

Lecture: Removable partial dentures using digital technologies

Practical: Plan of the temporary crown using digital techniques

12th week:

Lecture: Total upper and lower dentures using digital technologies

Practical: Plan of the temporary crown using digital techniques

13th week:

Lecture: Implant supported prosthesis using digital technologies

Practical: Plan of the temporary crown using digital techniques

14th week:

Lecture: Test

Practical: Practical test

Requirements

Conditions of signature to the lecture book:

Active participation in the practices (there is no possibility to compensate for missed practices).

The practices begin/end according to the timetable, lateness is not permitted.

The signature in the lecture book will be refused in cases of absences from more than 2 practices.

All absences must be certified.

Final five grade practical (AW5) evaluation:

The evaluation covers the topics of lectures and practices and consists of a written and a practical

part. If the student fails, or does not attend the evaluation, the AW5 grade is „fail”, which can be improved as a „B” or „C” chance during the exam period.

Subject: **PROSTHETIC DENTISTRY II.**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: Total dentures: patient examination, examination of soft and hard tissues, diagnosis, treatment plan.

2nd week:

Lecture: Impression techniques, determination of the centric relation position, usage of the facebow.

3rd week:

Lecture: Statical and esthetic considerations of arranging artificial teeth.

4th week:

Lecture: Denture delivering and oral hygiene for total denture patients.

5th week:

Lecture: Definition of removable partial prosthodontics, types of partial dentures, parts of partial dentures. Support and anchorage of the denture.

6th week:

Lecture: Components of a removable denture. Casted clasp systems.

7th week:

Lecture: Clinical procedures of constructing a removable partial denture step by step. Reaction of oral mucosa to bearing the base of a denture.

Insertion, counselling, complaints and adjustments, refitting. Procedures and repairs.

8th week:

Lecture: Temporomandibular disorders and their treatments I.

9th week:

Lecture: Temporomandibular disorders and their treatments II.

10th week:

Lecture: Precision attachments for partial dentures.

11th week:

Lecture: Mechanical principles of the partial denture design.

12th week:

Lecture: Biomechanical aspects of wearing a removable partial denture.

13th week:

Lecture: Principles of planning a removable partial denture.

14th week:

Lecture: Dental laboratory relations. Consultation.

Requirements

The aim of the course is to expand knowledge about treatment of total and partially edentulous cases, including combined restoration, by using the information of „Prosthetic dentistry I”. Course includes detailed information on clinical and technical phases of treatment. Special practices focus

on certain topics in theory and practice.

Brief course programme: Students gain knowledge on the anatomical, clinical anatomical and physiological aspects of treatment of totally and partially edentulous situations. Course includes expanded knowledge on treatment planning, including necessary fixed components. Detailed information on clinical and technical phases is also part of the course.

Competences:

The student gains competence in creating a treatment plan for total and partial edentulous situations, and to clinically treat such cases.

Requirements:

- * Active participation in the practices (there is no possibility to compensate for missed practices).
- * The practices begin/end according to the timetable, lateness is not permitted. Attendance can only be accepted if the student is present in the practice room from the beginning until the end of the practice.
- * The signature in the lecture book will be refused in cases of absence from more than 50% of any special practice. All absences must be certified.
- * A practical mark may be given on the basis of the student's term-time practical performance, which may be considered at the ESE grade.

Assessment:

End of semester examination. The exam starts with an online entrance test. Students must complete this test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is "failed" (1). The complex, and special practical grades may be considered at the ESE grade.

Department of Orthodontics

Subject: **ORTHODONTICS II.**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Lecture: **15**

Seminar: **1**

Practical: **15**

1st week:

Lecture: Treatment systems 1. (Angle I)

Treatment systems 2. (Angle II)

Treatment systems 3. (Angle III)

4th week:

Lecture: Fixed appliances 1. (Lingual arch, Goshgarian, Hyrax, Temporary Anchorage Device)

Fixed appliances 2. (Multiband appliance)

Fixed appliances 3. (Phases of Multiband

Treatment)

7th week:

Lecture: Interdisciplinary orthodontics 1. (Adult Treatment)

Interdisciplinary orthodontics 2. (Orthodontic Treatment and Periodontology, Prosthetic)

Interdisciplinary orthodontics 3. (Complex Treatment of Patient with Cleft Lip and Palate)

10th week:

Lecture: Orthodontic materials
Relapse
Retention

13th week:

Lecture: Minimum questions

Requirements

The aims and objective of this course

To provide an insight for dentistry students into the orthodontist thinking and to present the basic knowledge and correlations.

Short description of the course:

During the course, the students learn about the causes and treatments of ever-evolving and changing orthodontic and jaw orthopaedic disorders, and the limits of the profession. The second semester aims to introduce the relevant orthodontic treatments.

Compulsory reading:

S.J. Littlewood, L. Mitchell: An introduction to Orthodontics, 5th Ed., Oxford 2019., ISBN:9780198808664

Recommended books:

Proffit W., Fields H., Sarver D.: Contemporary Orthodontics, 5th Ed., Elsevier 2013

Assessment:

Final exam

Requirements:

As given in the timetable (time & place)

Practices: In the building of Faculty of Dentistry

Students attendance at the lectures is not mandatory but recommended.

Active participation in the practices (there is no possibility to compensate the missed practices).

Course exemption:

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

Conditions of signing the lecture book

The Department may refuse to sign the student's lecture book if they are absent from more than 20% of all practical lessons in a semester.

Prerequisites of taking the subject:

Orthodontics I.

Calculation of the grade:

Before the final exam it is compulsory to complete the minimum questions (70%).

The students have to choose from the examination topics.

Department of Emergency Medicine

Subject: **EMERGENCY MEDICINE**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Lecture: **22**

Practical: **22**

1st week:

Lecture: General approach for emergency care, urgency levels, transportation trauma, etc.
Rescue techniques in catastrophe situations

Practical: Initial assessment and treatment with the airway, breathing, circulation, disability, exposure, approach in emergency medicine. Practical approach for emergency medicine. Prehospital Management. Airway management. Symptoms of airway obstruction.

2nd week:

Lecture: Cardiac arrest, levels of cardiopulmonary resuscitation, basic life support, professional basic life support, advanced life support, post resuscitation care.

Practical: BLS.

3rd week:

Lecture: Cardiac rhythm disturbances. Hypertensive emergencies. Syncope, endocrine, metabolic and acid-base emergencies.

Practical: Safe defibrillation. AEDs, manual defibrillators.

4th week:

Lecture: Chest pain, acute coronary syndromes, pulmonary embolism, aortic dissection.

Practical: Indications and limitations of maintaining peripheral veins. Vein puncture. Intraosseous access. Central vein catheterization. Gastric lavage, delivery in the field.

5th week:

Lecture: Shock. Acute severe allergic reactions, anaphylaxis. Respiratory failure.

Practical: CPR practice/ALS.

6th week:

Lecture: Pediatric emergencies cardiac arrest in childhood, acute circulatory and respiratory failure, seizures, etc.

Practical: Pediatric CPR.

7th week:

Lecture: Poisoning psychiatric emergencies.

Practical: Complex rapid trauma survey.

8th week:

Lecture: Abdominal pain. Gastrointestinal bleeding. Vomiting and diarrhea. Obstetric and gynecologic emergencies.

Practical: Complex treatment of critical patients.

9th week:

Lecture: Stroke, headache, subarachnoid hemorrhage, convulsions, altered mental status, coma.

Practical: Complex case situation.

10th week:

Lecture: Abdominal pain. Gastrointestinal tract bleeding. Vomiting and diarrhea. Obstetric and gynecologic emergencies.

Practical: Complex case situations.

11th week:

Lecture: Disaster medicine. Conception of the mass accident disaster. Organisation of rescue in the field.

Practical: Consultation.

Requirements

Requirements for signing the lecture book:

For obtaining the signature at the end of the semester you are required to attend all practicals. In case of absence you have to do the practical at a chosen time, written excuse is not accepted.

Concerning the supplementary practical you have to contact your physician responsible for the practical. Facilities for maximum 2 (two) complementary practicals are available at the Simulation Center in Debrecen. If somebody will have more than 2 missed practices will get no signature.

Evaluation: students write a test every week reading previous week lectures topic. The final examination consists of an oral and a practical part. Students can go for the oral exam only if they pass the practical exam. You can register for the exam before the beginning of the examination period. In case you fail to register for the exam we consider it as a failed one. "A" and "B" exam chances are assured.

The subject Emergency medicine (A00XY03T9) 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 Internal Medicine

Subject: **INTERNAL MEDICINE II.**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Lecture: **28**

Practical: **28**

1st week:

Lecture: Disorders of oesophagus, stomach and bowels.

Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

2nd week:

Lecture: Acute and chronic liver diseases. Liver cirrhosis.

Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

3rd week:

Lecture: Disorders of the gall bladder and pancreas.

Practical: Patients with gastrointestinal and hepatological disorders (Department of Internal Medicine building B)

4th week:

Lecture: Coagulopathies, von Willebrand's disease. Drug induced bleedings.

Practical: Patients with hematological disorders and bleedings (Department of Internal Medicine building B)

5th week:

Lecture: Disorders of the platelets: ITP, TTP, HUS, DIC

Practical: Patients with hematological disorders and bleedings (Department of Internal Medicine building B)

6th week:

Lecture: Anaemias. Acute leukaemias.

Practical: Patients with hematological disorders or thrombosis (Department of Internal Medicine building B)

7th week:

Lecture: Chronic leukaemias. Chronic myeloproliferative disorders.

Practical: Patients with hematological and bleeding disorders (Department of Internal Medicine building B)

8th week:

Lecture: Lymphomas (Hodgkin and non-Hodgkin). Myelodysplasia.

Practical: Patients with hematological and bleeding disorders (Department of Internal Medicine building B)

9th week:

Lecture: Disorders of the pituitary gland, adrenal gland and thyroid gland.

10th week:

Lecture: Disorders of the parathyroid gland. Diabetes mellitus.

Practical: Patients with endocrinological disorders and diabetes mellitus (Department of Internal Medicine building A)

11th week:

Lecture: Systemic autoimmune disorders: SLE, Sjögren, systemic sclerosis, polymyositis.

Practical: Patients with endocrinological disorders and diabetes mellitus (Department of Internal Medicine building A)
Patients with immunological disorders (3rd Dept. Medicine).

12th week:

Lecture: Immune deficiency, vasculitis.

Practical: Patients with immunological disorders (Institute of Internal Medicine Building C)

13th week:

Lecture: Rheumatologic disorders. Peripheral circulatory deficiency.

Practical: Patients with immunological disorders (Institute of Internal Medicine Building C)

14th week:

Lecture: Disorders of the orbita. Uveitis.

Practical: Institute of Internal Medicine, Division of Rheumatology

Requirements

Participation in the lectures is recommended, the practicals are obligatory. Following the first semester an end of semester exam (ESE) is necessary. Final Exam (FE) is compulsory at the end of the 2nd semester. Signature of the lecture book is denied after two missing practicals.

The student is expected to be able to communicate with the patient in Hungarian, including history taking. 1st part is written (minimum test, $\geq 85\%$), 2nd part is practical exam; 3rd part is oral exam (two topics). Students attending more than 80% of the lectures, +20% will be calculated at the minimum test.

Department of Operative Dentistry and Endodontics

Subject: **RESTORATIVE DENTISTRY II. (ENDODONTICS)**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: The pulp and periapical area: anatomy and histology. The dentin-pulp complex. The principles of endodontology

2nd week:

Lecture: Vital pulp therapy

3rd week:

Lecture: The biology of dental pulp: pathology, symptoms and therapy

4th week:

Lecture: Endodontics in health related problems

5th week:

Lecture: Guidelines in endodontics

6th week:

Lecture: Modern concepts and methods in the course of shaping the root canal (rotary instruments)

7th week:

Lecture: Different materials in endodontics: irrigation materials, intracanal medicaments and root filling materials

8th week:

Lecture: Obturation techniques I.: cold-warm techniques. Evaluation of the root canal filling

9th week:

Lecture: Root canal treatment: problems, failures and complications. Flare-ups in endodontics.

10th week:

Lecture: Endodontic revision (surgical and non-surgical retreatment).

11th week:

Lecture: Restoration of endodontically treated teeth

12th week:

Lecture: Bleaching of non vital teeth

13th week:

Lecture: Traditional and microsurgical techniques in endodontic surgery

14th week:

Lecture: Written exam

Requirements

Course objectives

The aim of the course is to provide to the students fundamental knowledge for the performance of endodontic procedures.

Short description of the course

During the course, the subject of endodontics will be taught in theoretical lectures and special practises.

Examination: exam at the end of the mid semester (ESE_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.

- **Special practicals:**

The practices start and finish in accordance with the timetable, arriving late is not allowed.

Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.

Absences, in theory, are not allowed. o In reasoned cases, for certified absences the department

ensure make up classes on a previously agreed date during the semester.

A certification is required for any absences which has to be handed to the leader of the practice course.

At each practical student's work is evaluated with a grade by the practice course leader based on the student's knowledge on theory, practical work and manuality.

At the end of the semester, student is given a grade for his/her mid term work based on the average of the grades given during the semester.

Special practices (4th 2nd semester): 2x5 lessons

Course exemption

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

Grade formation

The result of the test and the grades of the special practicals can impact on the grade of the oral exam.

!!! ATTENTION

ENDODONTICS CASE PRESENTATION (5th year)

During the case presentation, student is required to present the case of his/her own patient (multirouted MOLAR tooth, with multiple root canals) treated with rubber dam isolation.

Presentation requirements:

- Filled signed endodontic form without any missing detail, approved, signed and stamped by the supervisor
- Evaluable radiological documentation
- Logically built up computer presentation

The mandatory endodontics case study is planned according to previously agreed date and is presented in sequence order.

!!! Missing the presentation of case study, or missing any part of the above mentioned listed requirements, results in the refusal of signing the lecture book.

Requirements for taking up the subject: Restorative Dentistry I. (Cariology)

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY II.**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: Maxillofacial traumatology, soft tissue and tooth injuries, pathology of fractures

2nd week:

Lecture: Diagnosis and treatment of mandibular fractures I

3rd week:**Lecture:** Diagnosis and treatment of mandibular fractures II**4th week:****Lecture:** Central and lateral midface fractures and their treatment**5th week:****Lecture:** Central and lateral midface fractures and their treatment II.**6th week:****Lecture:** First aid and temporary fixation in oral and maxillofacial surgery**7th week:****Lecture:** TMJ diseases**8th week:****Lecture:** Neurological diseases of the face**9th week:****Lecture:** Developmental anomalies of maxillofacial region, clefts**10th week:****Lecture:** Craniofacial surgery**11th week:****Lecture:** Orthognatic surgery**12th week:****Lecture:** Benign tumors**13th week:****Lecture:** Bone tumors**14th week:****Lecture:** Odontogenic tumors

Requirements

Course objectives:

The aim of the course is to learn about traumas, developmental disorders of the stomatognath system, treatment options of benign tumor of the oral cavity and their symptoms and appearance, and to demonstrate the role of the dentist in treating these disorders.

Course exemption:

Students who have obtained signature in a previous semester must participate in the **compulsory lectures** and practices. There is no exemption from attending the compulsory lectures and special practices.

Course requirements and conditions for obtaining signature:

Active participation in the designated lectures is mandatory. Arriving late for the lectures is not accepted. Late students are not allowed to join the lectures. Students must participate in the lectures and practices from the beginning to the end thereof. Only one of the compulsory lectures may be missed. The absence must be certified in a credible way within three working days. **Students who have more than one uncertified absence from the lectures will not get signature.**

Active participation in the special practices is mandatory. Arriving late for the practices is not accepted. Late students are not allowed to join the practices. Students must participate in the practices from the beginning to the end thereof. Any absence from the special practice must be certified in a credible way within three working days. **The missed practice must be made up. Making up for the missed practice is subject to a credible certification and the prior permission of the head of department exclusively during the study term and with a group of the same program and same year.**

Mandatory lectures:

Maxillofacial traumatology, soft tissue and tooth injuries, pathology of fractures
TMJ diseases

Developmental anomalies of maxillofacial region, clefts
 Orthognatic surgery
 Odontogenic tumors

Conditions for obtaining signature:

Only one of the designated lectures may be missed. The absence must be certified in a credible way within three working days. Absence from the practice must be certified in a credible way within three working days. Missed practices must be made up according the rules. Students who fail to make up the missed practice or have more than one uncertified absence from the compulsory lectures will not get signature.

Exam:

Oral end semester exam **The exam covers the presentation and compulsory readings of the first and second semesters**, and questions from Oral Surgery Propedeutics can be expected too. **Not knowing the parts of the handouts provided by the Department that are emphasized by exclamation mark results in a failed exam.**

Compulsory reading:

James Hupp, Myron Tucker, Edward Ellis: Contemporary Oral and Maxillofacial Surgery Mosby, 7th Edition, ISBN-13: 978-0323552219

Recommended books:

R. A. Cawson: Essentials of Oral Pathology and Oral Medicine, Churchill Livingstone, 1998, ISBN: 0443053480

Ellis, Hopp, Tucker: Contemporary Oral and Maxillofacial Surgery, Mosby, 2003, ISBN: 0-323-01887-4

Szabó Gy.: Oral and Maxillofacial Surgery, Semmelweis Publishing House, Budapest, 2001., ISBN: 963-9214-15-9

Prerequisites: Oral Surgery I.

Department of Pediatric and Preventive Dentistry

Subject: **PEDIATRIC DENTISTRY PROPEDEUTICS**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Seminar: **5**

Practical: **10**

1st week:

Seminar: Introduction to pediatric dentistry. The child patient.

2nd week:

Seminar: Examination methods in pediatric dentistry. Patient chart and role of dental screening.

3rd week:

Seminar: Dental development and eruption. Teething and eruption problems.

4th week:

Seminar: Comparison of the primary and permanent dentitions (anatomy, physiology).

5th week:

Seminar: Prevention in the pediatric dental practice.

6th week:

Practical: Accurate oral status assessment in case of primary, mixed and permanent dentitions.

7th week:

Practical: Fissure sealing.

8th week:

Practical: Class I preparation in primary molars.

9th week:

Practical: Class II cavity preparation in primary teeth, matrix placement and wedging.

10th week:

Practical: Pulpotomy in primary tooth.

11th week:

Practical: Crown build up preparation for SS

crown.

12th week:

Practical: Apexification.

13th week:

Practical: Splinting of traumatized teeth.

14th week:

Practical: Fluoride modalities.

Requirements

The aims and objectives of the course:

The goal of the course is to provide the students with an introductory knowledge and manual skills to treat child patients during the 5th year Pediatric Dentistry practicals.

Short description of the course:

Topics of the practices:

- Accurate oral status assessment in case of primary, mixed and permanent dentitions
- Fissure sealing
- Class I preparation in primary molars
- Class II cavity preparation in primary teeth, matrix placement and wedging
- Pulpotomy in primary tooth
- Crown build up and preparation for SS crowns
- Apexification
- Splinting of traumatized teeth
- Fluoride modalities

Compulsory reading:

Handouts provided by the Pediatric and Preventive Dentistry Department (download from the elearning.med.unideb.hu website)

Assessment:

AW 5 grade

Requirements:

Active participation on the seminars.

Participation in practices is obligatory.

With acceptable written certificate students may miss 1 seminar. The missed seminar must be certified within 3 working days to the Educational Office by e-mail (fokot@dental.unideb.hu)

In case of absence, practice should be made up for by attending the practical with another group.

Course exemption:

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

Conditions of signing the index:

Two written self-control tests will be held during the semester.

All of the SCTs are obligatory to take and cannot be repeated. The result of the missed SCT is 0%.

Prerequisites of taking the subject:

Preventive Dentistry II.

Orthodontics I.

Calculation of the grade:

5 grade (AW5) practical mark will be calculated according to the average of the practical grades (1/4) and the average of the 2 SCTs (3/4).

If the average of the SCTs is under 60%, the result of the course is fail (1) and the student must take an end-semester (oral) exam as a ,B' chance.

60-69,9 % pass (2)

70-79,9 % satisfactory (3)

80-89,9 % good (4)

from 90% excellent (5)

Department of Periodontology

Subject: **PERIODONTOLOGY II.**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: Treatment of periodontal diseases: goals, steps.

2nd week:

Lecture: Cause-related therapy: Oral hygiene.

3rd week:

Lecture: Cause-related therapy: Root surface debridement.

4th week:

Lecture: Chemical plaque-control. Drugs in periodontology.

5th week:

Lecture: Surgical phase of periodontal therapy: Gingivectomy.

6th week:

Lecture: Written exam.

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: Effectiveness of periodontal therapy.
Maintenance phase.

12th week:

Lecture: Written exam.

13th week:

Lecture: Connection between periodontology and other subdisciplines.

14th week:

Lecture: The epidemiology of periodontal diseases.

Requirements

Prerequisites of taking the subject: Periodontology I

The aims and objectives of this course:

1. Examination of periodontium
 - 1.1 Physical examination
2. Treatment of periodontal disorders in dental practice
 - 2.1 Instruction and motivation of patients
 - 2.2 Causative treatment of periodontal disorders: Scaling and root planning, curettage
 - 2.3 Periodontal surgery
 - 2.4 Indications and of contraindications of periodontal surgery, post surgical treatments
3. Medicaments in periodontal therapy
4. Periodontal aspects of implantology

Short description of the course:

- Taking previous medical history – the patients complaint(s)
- Inspection – healthy periodontium – distinction from the diseased
- Clinical examination of periodontium – periodontal probing; probing depth, pocket depth, definition of loss of attachment and their relationship
- Periodontal charting and recording – definition and periodontal indices
- Disclosing agents and their application in practice
- Demonstration of different tooth brushing methods on model
- Instruments and their usage (hand, rotational and ultra sound scalers; instruments for polishing, polishing pastes, maintenance of instruments)
- Therapy assessment: results, failures, follow up
- Chemical plaque control
- Antibiotics in periodontics
- Subgingival irrigation
- Periodontal dressings, tissue adhesives in practice
- Treatment of root hypersensitivity
- Special oral hygiene aids, instruments

Requirements:

Lectures: As given in the timetable (time & place)
Practices: In the building of Faculty of Dentistry

- With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 20%, even if it is certificated.
- The number of accepted practices must be above 80% of practices.
- Missed practice is not-accepted.
- Students have to 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.

Course exemption:

With previously obtained valid signature the attendance exemption of the practices can be requested.

Conditions of signing the index:

- Active participation in the practices (there is no possibility to compensate the missed practices).
- The practical work will be evaluated at the end of each practice separately, as 'accepted' or 'not-accepted'.
- The test written during the semester should be passed. The result of the failed test could be repeated once during the semester.

Assessment: ESE

Calculation of the grade:

At least 2 written self-control tests will be held during the semester.

If one of the written tests is failed, there is no possibility to receive offered grade.

In the exam period the student must take an oral exam as an ,A' ,B' or ,C' chance.

Compulsory reading:

Carranza's Clinical Periodontology 12th Ed., Elsevier

ISBN:9780323227995

T. G. Wilson, K.S. Kornman: Fundamentals of Periodontics, 2nd Ed.

Quintessence Books 2003., ISBN: 0-86715-405-5

Recommended Books:

Lindhe-Karring-Lang: Clinical Periodontology and Implant Dentistry (2 volumes)

Wiley-Blackwell 2008. 5th Ed.

ISBN: 978-1-4051-6099-5

Rateitschak, K. H. ed.: Periodontology, 2nd Ed., Thieme, Stuttgart, 1989.

Department of Pharmacology and Pharmacotherapy

Subject: **DENTAL PHARMACOLOGY II.**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Lecture: **28**

Seminar: **14**

1st week:

Lecture 1: Introduction to central nervous system.

Lecture 2: Antipsychotics.

Seminar: Prescription writing.

2nd week:

Lecture 3: Antidepressant agents.

Lecture 4: Pharmacological management of parkinsonism.

Seminar: Prescription writing.

3rd week:

Lecture 5 : Sedative-hypnotic drugs 1.

Lecture 6: Sedative-hypnotic drugs 2.

Seminar: Prescription writing.

4th week:

Lecture 7: Antiepileptic drugs.

Lecture 8: The alcohols.

Seminar: Prescription writing.

5th week:

Lecture 9: Principles and mechanisms of antibiotic therapy.

Lecture 10: Penicillins 1.

Seminar: WRITTEN EXAMINATION.

6th week:

Lecture 11: Penicillins 2.

Lecture 12: Cephalosporins.

Seminar: Prescription writing

7th week:

Lecture 13: Macrolides.

Lecture 14: Clindamycin.

Seminar: Prescription writing.

8th week:

Lecture 15: Tetracyclines and chloamphenicol.

Lecture 16: Aminoglycosides.

Seminar: Prescription writing.

9th week:

Lecture 17: Sulfonamides.

Lecture 18: Quinolones and fluoroquinolones.

Seminar: Prescription writing.

10th week:

Lecture 19: Antiviral agents.

Lecture 20: Antifungal agents.

Seminar: Prescription writing.

11th week:

Lecture 21: Immunotherapy.

Lecture 22: Antineoplastic drugs.

Seminar: WRITTEN EXAMINATION.

12th week:

Lecture 23: Anticaries agents.

Lecture 24: Antiplaque and antigingivitis drugs.

Seminar: Prescription writing.

13th week:

Lecture 25: Antiseptics and disinfectants.

Lecture 26: Drugs for medical emergencies

Seminar: Consultation.

14th week:

Lecture 27: Drugs for medical emergencies

Lecture 28: Toxicological aspects of dental practice.

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.

Faculty of Dentistry

Subject: **COMPLEX SUMMER PRACTICE FOR DENTAL STUDENT**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Practical: **120**

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: Cardiovascular, hematologic and respiratory diseases, including malignant ones

Practical: 1-15 week: Complex dental treatment: restorative, periodontal and extraction procedures according to patients' needs. The minimum requirements declared by the departments to be fulfilled. General nursing procedures during treatments

2nd week:

Lecture: Gastrointestinal diseases, including malignant ones

3rd week:

Lecture: Preterm delivery, low birth weight and

gynaecological diseases, including malignant ones

4th week:

Lecture: Autoimmune diseases

5th week:

Lecture: Neurological diseases

Requirements

Assessment:

AW5. Continuous monitoring of the knowledge during practices. The grade is given on the basis of the student's term-time practical performance and this is considered as the final grade of the end semester exam.

The grade cannot be improved during the exam period.

Signature conditions:

-Completion of the required minimums.

-Active participation on the practices (there is no possibility to compensate the missed practices).

-The practices begin/end according to the timetable, delay is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.

-With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 2 patient treatment and 2 assistance practice altogether. All missed practices need to be certified.

-All procedures amongst the practical work will be evaluated with grades. The final grade is calculated on basis of the grade-averages received from all special fields. (The calculations follow the general rule for rounding, from x.51.)

-The student's performance provided on general practices will be evaluated twice, in the 4th and in the 10th week, during the semester and the student will be notified in written form by non-

acceptable performance.

-Grades given on the practices, will be the end semester grades, which cannot be improved during the exam period.

-In addition, the supervisor takes the professional attitude and responsibility of the student into account, and his / her effort to earn or maintain professional development, the proper behavior towards the clinical staff, the patients and their relatives. The correct fulfillment of the administrative responsibilities and the appropriate behavior towards of the administrative personnel.

-In case the performance is non-acceptable, the student will be warned in written form. From students with two warnings the signature will be denied. In case of not fulfilling the requirements, the student will be warned with the PROFESSIONALISM EVALUATION REPORT FORM (F118 // 1ST). The student who had to be warned twice during the semester because of inadequate performance due to professional reasons or inadequate professional attitudes his / her the signature will be rejected.

The Faculty of Dentistry provides students with 1 white medical coat, 1 suit sluice (trousers and top) and 1 locker key for the duration of the Complex practice. The students undertake to return these items at the end of the practice.

Prerequisites: Complex Dentistry II.

Subject: **PROSTHETIC DENTISTRY III.**

Year, Semester: 5th year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: Rigid and elastic impression materials, advanced impression materials.

2nd week:

Lecture: Working cast and dies.

3rd week:

Lecture: Polymers in dentistry. Techniques for producing dentures made of polymers.

4th week:

Lecture: Adhesive materials in dentistry.

5th week:

Lecture: Dental ceramics.

6th week:

Lecture: Biocompatibility and corrosion.

7th week:

Lecture: Metal alloys in dentistry.

8th week:

Lecture: CAD / CAM systems in dentistry.

9th week:

Lecture: TMI disorders.

10th week:

Lecture: Removing post and core restorations.

11th week:

Lecture: Making a final prosthetic plan.

12th week:

Lecture: Design and fabrication of fixed-and-partial dentures combinations.

13th week:

Lecture: Complex and multidisciplinary

prosthodontic treatment.

used in prosthetic dentistry.

14th week:

Lecture: Advanced technologies and materials

Requirements

The aim of acquiring the professional content of the subject:
Students will learn the practical aspects of prosthetic dentistry.

Brief course programme:
Students will learn the practical aspects of prosthetic dentistry.

Competences:
The student will be able to make a prosthetic treatment plan in more complex cases.

Requirements:
Active participation in the practices (there is no possibility to compensate for missed practices). The practices begin/end according to the timetable, lateness is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.

Assessment:
End of semester examination.
One self-control test will be held during the semester based upon the topics of lectures, practices and reading materials, at a date announced later. The result of the self-control test will be offered as the grade of the end of semester exam. Students who have not achieved an offered grade (less than 60%), or achieved, but have not accepted it, will take an exam in the exam period from the material of the titles attached. Students must indicate the acceptance or rejection of the offered grade in the Neptun system. Students who would like to improve their offered grade in the exam period must reject the offered grade in the Neptun system before applying for an exam.

The grade of the test will be calculated as the following:

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

The exam starts with electronic/tablet entrance test. Students must complete this test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is “fail” (1).

Department of Forensic Medicine

Subject: **FORENSIC MEDICINE**

Year, Semester: 5th year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **14**

1st week:

Lecture: Signs of death

Practical: Every week's practical topic is the same as the lecture's topic.

2nd week:

Lecture: Types of the injuries I.

Practical: Every week's practical topic is the same as the lecture's topic.

3rd week:

Lecture: Practical approach of the signs of death. Block lecture and practice (3-6 week's topic on one week) by a forensic dentist.

Practical: Every week's practical topic is the same as the lecture's topic.

7th week:

Lecture: Types of the injuries II.

Practical: Every week's practical topic is the same as the lecture's topic.

8th week:

Lecture: Types of the injuries III.

Practical: Every week's practical topic is the same as the lecture's topic.

9th week:

Lecture: Traffic accident

Practical: Every week's practical topic is the same as the lecture's topic.

10th week:

Lecture: Suffocation

Practical: Every week's practical topic is the same as the lecture's topic.

11th week:

Lecture: Forensic genetics

Practical: Every week's practical topic is the same as the lecture's topic.

12th week:

Lecture: Forensic toxicology

Practical: Every week's practical topic is the same as the lecture's topic.

13th week:

Lecture: Medical law, health insurance, compensation, disability.

Practical: Every week's practical topic is the same as the lecture's topic.

14th week:

Lecture: Written exam

Self Control Test

Requirements

Attendance on 80% of the practices. Successful written exam on the last practice.

Department of Neurology

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, papilloedema; 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

Educational advisor: Dr. Csapó Krisztina, Dr. Árokszállási Tamás

Teaching materials can be reached at neurologia.unideb.hu and elearning.med.unideb.hu.

1. There is one lecture and one practical every week in the first ten weeks of the 1st semester.

2. In the exam period an oral exam has to be taken, which is evaluated by a 5-grade mark.

Places for exams are opened every week during the exam period. Students have to register in Neptun for the exam. Without registration the exam cannot be taken. The first exam is the 'A' chance, the second exam is the 'B' chance, both are oral exams. If somebody failed 'A' and 'B' chances, the third possibility is the 'C' chance, which is in front of an exam committee. In this case the student has to fix an appointment with the educational advisor. Teaching materials presented at lectures and seminars are asked at the exams.

If the student wishes to improve the grade, it is possible once in the exam period after registration in the Neptun for a free exam place.

Department of Operative Dentistry and Endodontics

Subject: **RESTORATIVE DENTISTRY III. (CARIOLOGY AND ENDODONTICS)**

Year, Semester: 5th year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: Up-to date preparation techniques:
Laser, oscillating instruments, chemical-mechanical caries removal, air abrasion in restorative dentistry

2nd week:

Lecture: Dentin-hypersensitivity and treatment options. Erosion. Causes, manifestations in oral cavity, diagnosis making and its therapy

3rd week:

Lecture: Activation methods of root canal irrigants

4th week:

Lecture: Modern concepts and methods in the course of shaping the root canal

5th week:

Lecture: Obturation materials-a comparative evaluation

6th week:

Lecture: Pulp-periodontal interrelationship

7th week:

Lecture: Outcome estimation in endodontics

8th week:

Lecture: Written exam

9th week:

Lecture: Case presentation

10th week:

Lecture: Case presentation

11th week:

Lecture: Case presentation

12th week:

Lecture: Case presentation

13th week:

Lecture: Case presentation

14th week:

Lecture: Case presentation

Requirements

Course objectives

The aim of the course is to provide students fundamental diagnostic and endodontic knowledge of conservative dentistry, endodontics and their borderlines.

Short description of the course

During the course, the borderline of restorative dentistry and endodontics will be taught in theoretical lectures and special practises.

Examination: I. semester oral exam at the end of the mid semester (ESE_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 mid term work based on the average of the grades given during the semester.

Special practice (5th 1st semester): 2x5 lessons

Course exemption

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

Grade formation

The result of the test and the grades of the special practicals can impact on the grade of the oral exam.

Requirements for taking up the subject: Restorative Dentistry II. (Endodontics), Complex Dentistry II.

Department of Oral Medicine

Subject: **ORAL MEDICINE**

Year, Semester: 5th year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: Principles of diagnosis of oral mucosal diseases. Developmental varieties of oral mucosa.

2nd week:

Lecture: Ulcerative, bullous & vesicular oral disorders. Desquamative gingivitis.

3rd week:

Lecture: White and red lesions of oral mucosa. Discolorations of oral mucosa (developmental and disease).

4th week:

Lecture: Gingival hyperplasia and benign tumours of oral mucosa

5th week:

Lecture: Precancerous lesions, paraneoplastic lesions, oral malignant tumors.

6th week:

Lecture: Disease of salivary glands.

7th week:

Lecture: Lip and tongue diseases

8th week:

Lecture: Written exam

9th week:

Lecture: Orafacial complaints without physically detectable disorders. (burning mouth syndrome, subjective xerostomy, dysgeusia), TMJ disorders.

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: Oral symptoms in immunodefects

Requirements

The aims and objectives of the course:

1. To be aware of the forms and appearance of oral mucosal disease.
2. To know and understand the relationship with their risk factors, diagnostics, and treatment.

Short description of the course:

1. Physical examination: inspection, palpation. Special examinations used in oral diagnostics (endoscopy, vital staining, cytology, biopsies)
2. Definitions of precancerous lesion and condition. Responsibilities of general practitioners.
3. Oral cancer screening: basic steps.

4. Developmental varieties of oral mucosa.
5. Inflammatory conditions: stomatitises, cheilitises, glossitises.
6. Ulcerative lesions: infectious, traumatic, immunmediated and their differentiation.
7. White lesions of oral mucosa: infectious, immunological and traumatic of origin. Their differential diagnostics. Practice: Patient examination and basic treatments discussion

Compulsory reading:

The content of lectures and the studies handed out by the lecturer

Recommended books: Any dealing specifically with oral medicine!

Assessment:

ESE

Requirements:

Lectures: As given in the timetable (time and place)

Practices: In the building of Faculty of Dentistry (Department of Periodontology.)

Active participation on the practices

With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 20%, even if it is certificated.

The Practical work will be evaluated at the end of each practice separately, as 'accepted' or 'not-accepted'.

The number of accepted practices must be above 80% of practices.

Missed practise is not-accepted.

Course exemption:

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

Conditions of signing the index:

Active participation in the practices (there is no possibility to compensate the missed practices).

Students have to fulfil the minimum practical requirements of the subject.

The minimum practical requirements of the subject will be handed out on the first week of the semester.

Calculation of the practical grade:

The test, written during the semester should be passed. The result of the failed test must be repeated once during the semester.

The appointment of the remedial will be sent out by a Neptun message. In case of failing remedial test, the semester is not accepted, the signature of the index will be refused.

Written test will be assessed as follows:

0-44 % fail (not accepted)

45% ≤ accepted

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY III.**

Year, Semester: 5th year/1st semester

Number of teaching hours:

Lecture: **14**

Practical: **10**

1st week:

Lecture: Premalignant conditions, precancers

2nd week:

Lecture: Malignant tumours in general

3rd week:

Lecture: Lip cancer and its treatment.

Cancer of the floor of the mouth and the tongue

4th week:

Lecture: Cancer of the bucca, the gingiva and the maxillary sinus

5th week:

Lecture: Tumour metastases, RND

6th week:

Lecture: Complex therapy of head and neck cancers.

Reconstructive surgery of the head and neck region

7th week:

Lecture: Radiotherapy and chemotherapy of malignant tumors, intraoral side effects

8th week:

Lecture: Differential diagnosis of swellings of the neck

9th week:

Lecture: Implantology I.

10th week:

Lecture: Implantology II.

11th week:

Lecture: Preprosthetic surgery

12th week:

Lecture: Preimplant surgery

13th week:

Lecture: Consultation

14th week:

Lecture: General anaesthesia in the dental practice

Requirements

Aims of the course:

During the course students learn about the processes leading to the development of the most common malignancy of oral mucosa, the squamous cell carcinoma, the premalignant oral mucosal disorders and conditions, and the role of the dentist in their treatment. We present the most common localizations of oral tumors, their complex treatment and their dental aspects. During the semester, students become familiar with differential diagnostic problems related to malignant tumors and also acquire basic implantological knowledge.

Course exemption:

Students who have obtained signature in a previous semester must participate in the mandatory lectures and practices. There is no exemption from attending the compulsory lectures and special practices.

Course requirements and conditions for obtaining signature:

Active participation in the designated lectures is mandatory. Arriving late for the lectures is not accepted. Late students are not allowed to join the lectures. Students must participate in the lectures and practices from the beginning to the end thereof. Only one of the compulsory lectures may be missed. The absence must be certified in a credible way within three working days. Students who have more than one uncertified absence from the lectures will not get signature. Active participation in the special practices is mandatory. Arriving late for the practices is not accepted. Late students are not allowed to join the practices. Students must participate in the practices from the beginning to the end thereof. Any absence from the special practice must be certified in a credible way within three working days. The missed practice must be made up. Making up for the missed practice is subject to a credible certification and the prior permission of the head of department exclusively during the study term and with a group of the same program and same year.

Mandatory lectures:

Premalignant conditions, precancers

Lip cancer and its treatment. Cancer of the floor of the mouth and the tongue

Differential diagnosis of swellings of the neck

Preprosthetic surgery

Conditions for obtaining signature:

Only one of the designated lectures may be missed. The absence must be certified in a credible way within three working days. Absence from the practice must be certified in a credible way within three working days. Missed practices must be made up according the rules. Students who fail to make up the missed practice or have more than one uncertified absence from the compulsory lectures will not get signature.

Exam: Oral end semester exam

The exam covers the presentation and compulsory readings of the semester, and questions from Oral Surgery Propedeutics can be expected too. Not knowing the parts of the handouts provided by the Department that are emphasized by exclamation mark results in a failed exam.

Compulsory readings:

J. R. Hupp, M. R. Tucker: Contemporary oral and maxillofacial surgery ISBN-13: 978-0323552219, Elsevier, 2018

R.A. Cawson: Essentials of Oral Pathology and Oral Medicine, Churchill Livingstone 1998., ISBN: 0443053480

Recommended Books:

P.W. Booth, S.A. Schendel, J.E. Hausamen: Maxillofacial Surgery Churchill Livingstone 1999., ISBN: 0443058539

Szabó Gy.: Oral and Maxillofacial Surgery, Semmelweiss Publishing House, Budapest, 2004., ISBN: 963-9214-15-9

Prerequisites: Oral Surgery II.

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

2nd week:

Lecture: Etiology of dental caries and its characteristics in childhood

3rd week:

Lecture: Caries in the primary dentition, diagnosis, treatment

4th week:

Lecture: Caries and consecutive diseases, diagnosis and treatment

5th week:

Lecture: Endodontic treatment in childhood. The treatment of the immature permanent teeth

6th week:

Lecture: Prosthetic dentistry for children

7th week:

Lecture: Common growth and developmental anomalies of the teeth

8th week:

Lecture: Traumatic injuries to the teeth and supporting tissues I. (primary dentition)

9th week:

Lecture: Traumatic injuries to the teeth and supporting tissues II. (permanent dentition)

10th week:

Lecture: Common structural disturbances of the teeth

11th week:

Lecture: Periodontology in pediatric dentistry

12th week:

Lecture: Oral manifestation of infective diseases

13th week:

Lecture: Oral manifestation of systemic diseases

14th week:

Lecture: Test (written examination)

Requirements

The aims and objectives of this course:

The goal of the course is to teach knowledge and skills in all subjects relating to pediatric dentistry: behavioral aspects relevant to the treatment encounter with the child, such as emotional and behavioral development, and behavioral principles in treating children; dentition development; and total treatments provided to children, including prevention of oral and dental diseases, various restorative treatments, treating trauma to the teeth and dental inflammations.

Short description of the course:

The students during the practical lessons will practice:

1. The methods of examination, instrumentation, treatment planning
2. Describe the normal anatomic structures of oral cavity of the infant
3. Discuss and recognize common developmental disturbances of the teeth
4. Classify common oral lesions and infections by clinical features
5. Discuss etiological factors influencing the formation of dental caries in children
6. Develop an individualized oral health care program for the child patient
7. Identify and distinguish morphologic differences in the primary teeth
8. Do the specific cavity preparation indicated in primary posterior teeth, dependent on the restorative material used
9. Extract primary tooth
10. Use the several clinical procedures available for pulp care
11. Carry out successful pulpectomy
12. Recognize and treat dental injuries

13. Fabricate a simple splinting device
14. Fabricate a space maintainer
15. Restore an anterior primary and permanent tooth with composite restorative material
16. Restore a fractured incisor with composite material
17. Carry out a successful apexification
18. To seal fissures
19. Use preventive methods

Compulsory books:

Welbury RR, Duggal MS, Hosey M-T: Paediatric Dentistry. 4th ed. Oxford University Press, 2012.
ISBN:0-19 8565836

Recommended books:

Cameron A, Widmer R: Handbook of Pediatric Dentistry. 4th ed. Mosby Elsevier, 2013.
ISBN:978 0 72343452 8.

Assessment:

AW5 grade

Requirements:

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

Active participation on the practices is obligatory. With acceptable written certificate students may miss 1 practical lesson. The missed practical can be made up with another group after obtaining the permission from the tutor of the other group.

The practices start and finish in accordance with the timetable, arriving late is not allowed.

A delay of more than ten minutes shall be deemed to be an absence! In this case the missed class cannot be made up for.

Course exemption:

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

Conditions of signing of the index:

During the semester we evaluate the practical work and the theoretical knowledge with grades.

The semester ends with a written examination (test). The result of the test must be at least 60% to pass.

Calculation of the grade:

If the result of the test is under 60% the student must take an end-semester (oral) exam as a ,B' chance.

The practical mark is calculated on basis of the average of the practical grades (1/4) and the test result (3/4).

60-69.9 % pass (2)

70-79.9 % satisfactory (3)

80-89.9 % good (4)

from 90% excellent (5)

Department of Pediatrics

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. Lecturer: Csongor Kiss M.D., PhD. D.Sc.

Practical: Infrastructure of the Department of Pediatrics, pediatric history taking.

2nd week:

Lecture: Fluid and electrolyte homeostasis. Metabolic disorders. Lecturer: Tamás Kovács M.D.

Practical: Perinatal Intensive care Unit (Petra Varga M.D., Melinda Kiss-Vojtkó M.D.)

3rd week:

Lecture: Infant feeding, feeding disorders vomiting in infants. Lecturer: Éva Juhász M.D.

Practical: Infants Department-Examination of patients, prophylaxis and treatment of rickets. (Erika Bálega M.D.)

4th week:

Lecture: Diseases of the respiratory tract. Lecturer: Zsolt Bene M.D., PhD.

Practical: Infants Department-Bathing, clothing and feeding of infants. (Erika Bálega M.D.)

5th week:

Lecture: Disorders of the circulation. Lecturer: Gábor Mogyorósy M.D., PhD.

Practical: Department of Cardiology - Examination of patients, assessment of EKG. (Andrea Berkes M.D., Fruzsina Erdős-Molnár M.D.)

6th week:

Lecture: Disorders of dentition, the oral opening and the tongues Lecturer: Csongor Kiss M.D., PhD. D.Sc.

Practical: Pediatric Surgery I. (Vivien Stercel M.D., Adam Radványi M.D.)

7th week:

Lecture: Tonsillopharyngeal disorders Lecturer: Csongor Kiss M.D., PhD. D.Sc.

Practical: Pediatric Surgery II. (Vivien Stercel M.D., Adam Radványi M.D.)

8th week:

Lecture: Disorders of the salivary glands. Dysphagia. Lecturer: Csongor Kiss M.D., PhD. D.Sc.

9th week:

Lecture: Interactions of oral health and general health Lecturer: Csongor Kiss M.D., PhD. D.Sc.

Practical: Department of Pulmonology - Examination of patients, assessment of chest X-ray pictures. (Gergely Balázs M.D., Timea Rózsa M.D.)

10th week:

Lecture: Disorders of the hematopoietic system, tumors of the head and neck region. Lecturer: István Szegedi M.D.

Practical: Department of Hematology - Transfusion (István Szegedi M.D.)

11th week:

Lecture: Neuroinfections. Seizures in children. Lecturer: Mónika Bessenyei M.D.

Practical: Department of Pediatric Internal Disorders -Examination of patients with nephrologic and neurologic disorders. (István Szegedi M.D.)

12th week:

Lecture: Contagious infectious diseases in

children. Pediatric AIDS. Lecturer: Éva Nemes M.D.

Practical: Emergency Care Unit -Examination of patients, assessment of Astrup test. (Éva Juhász M.D.)

13th week:

Lecture: Disorders of the kidneys. Lecturer: Tamás Szabó M.D., PhD.

Practical: Department of pediatric Internal Diseases -Examination of patients with

gastrointestinal and endocrine disorders. (Erzsébet Lakatos M.D., Mariann Márki M.D.)

14th week:

Lecture: Disorders of the gastrointestinal tract. Lecturer: Ilma Korponay-Szabó M.D., PhD., DSc

Practical: Consultation

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 arranged individually by the senior tutors of the groups. Development of proper skills in pediatric patient's examinations, assessment of the clinical science of pediatric diseases involving the head and neck region with a special emphasis on the oral cavity is expected by the senior tutors on the last (15th week's) practice.

Requirements of the examination: Obtaining signature of the lecture book. Prearranged exam appointment strictly within the exam period as given by the Department of Education (to be obtained from the secretary of the Department, students are kindly requested to come to do the exam in a group of 5-20 students in an exam day; changes in the exam schedule should be made at least 24 hours-1 working day-prior to the scheduled exam). Type of examination: Colloquium type end-semester exam (ESE), two titles.

Department of Psychiatry

Subject: **PSYCHIATRY**

Year, Semester: 5th year/1st semester

Number of teaching hours:

Lecture: **5**

Practical: **5**

1st week:

Lecture: Examination of a psychiatric patient Psychopathology.

Practical: Classification of illnesses.

2nd week:

Lecture: Anxiety disorders.

Practical: Affective illnesses.

3rd week:

Lecture: Alcohol and drug.

4th week:

Lecture: Organic psychosyndromes. Border territory of dentistry and psychiatry.

5th week:

Lecture: Schizophrenia. Pharmacotherapy.

Practical: Border territory of dentistry and psychiatry.

Requirements

Psychiatric titles of first term:

1. Basic points in psychopathology. 2. Classification in psychiatry. Nosological systems. 3. The psychiatric interview. 4. Alcoholism chronicus. 5. Anxiety disorders. 6. Affective illnesses. 7. Schizophrenia. 8. Organic psychosyndromes. 9. Questions from the border territory of dentistry and psychiatry. 10. Psychotherapy and psychopharmacotherapy.

Department of Biomaterials and Prosthetic Dentistry

Subject: **COMPLEX DENTISTRY IV.**

Year, Semester: 5th year/2nd semester

Number of teaching hours:

Lecture: **5**

Practical: **240**

1st week:

Lecture: Definition of interdisciplinary term and its importance

Practical: 1-15 week: Complex dental treatment: restorative, periodontial and extraction procedures according to patients' needs. The minimum requirements declared by the departments to be fulfilled. General nursing procedures during treatments

2nd week:

Lecture: Dental care aspects in the case of patients with organ failure in the peri- and posttransplant periods

3rd week:

Lecture: Dental and surgical treatment of patients with oncologic and oncohematologic diseases

4th week:

Lecture: Dental and surgical treatment of patients with neurological diseases, the special aspects of treatment

5th week:

Lecture: Dental treatment of patients with autoimmune diseases, follow-up

Requirements

Assessment:

AW5. Continuous monitoring of the knowledge during practices. The grade is given on the basis of the student's term-time practical performance and this is considered as the final grade of the end semester exam.

The grade cannot be improved during the exam period

Signature conditions:

-Completion of the required minimums.

-Active participation on the practices (there is no possibility to compensate the missed practices).

-The practices begin/end according to the timetable, delay is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.

-With acceptable certificate students may miss practices, but the ratio of missed practices cannot exceed 2 patient treatment and 2 assistance practice altogether. All missed practices need to be certified.

-All procedures amongst the practical work will be evaluated with grades. The final grade is

calculated on basis of the grade-averages received from all special fields. (The calculations follow the general rule for rounding, from x.51.)

-The student's performance provided on general practices will be evaluated twice, in the 4th and in the 10th week, during the semester and the student will be notified in written form by non-acceptable performance.

-Grades given on the practices, will be the end semester grades, which cannot be improved during the exam period.

-In addition, the supervisor takes the professional attitude and responsibility of the student into account, and his / her effort to earn or maintain professional development, the proper behavior towards the clinical staff, the patients and their relatives. The correct fulfillment of the administrative responsibilities and the appropriate behavior towards of the administrative personnel.

-In case the performance is non-acceptable, the student will be warned in written form. From students with two warnings the signature will be denied. In case of not fulfilling the requirements, the student will be warned with the PROFESSIONALISM EVALUATION REPORT FORM (F118 // 1ST). The student who had to be warned twice during the semester because of inadequate performance due to professional reasons or inadequate professional attitudes his / her the signature will be rejected.

The Faculty of Dentistry provides students with 1 white medical coat, 1 suit sluice (trousers and top) and 1 locker key for the duration of the Complex practice. The students undertake to return these items at the end of the practice.

Presrequisites: Complex Dentistry III.

Subject: **PROSTHETIC DENTISTRY IV.**

Year, Semester: 5th year/2nd semester

Number of teaching hours:

Lecture: **12**

Practical: **10**

1st week:

Lecture: Case presentation.

2nd week:

Lecture: Case presentation.

3rd week:

Lecture: Case presentation.

4th week:

Lecture: 4th-12th week: Case presentation

Requirements

Conditions of signature in the lecture book:

* Active participation in the practices (there is no possibility to compensate for missed practices).

* The practices begin/end according to the timetable, lateness is not permitted. Attendance can only be accepted if the student is present at the venue from the beginning until the end of the practice.

* The signature in the lecture book will be refused in cases of absence from more than 50% of any special practice. All absences must be certified.

* Practical mark may be given on the basis of the student's term-time practical performance, which

may be considered at the final exam grade.

* The case report should be presented in the form of a PowerPoint presentation.

Assessment:

Final exam. The exam starts with an online entrance test. Students must complete this test answering at least 60% of the questions correctly to continue to the oral exam. If the result of the entrance test is less than 60%, the final exam grade is “failed” (1). The complex and special practical grades may be considered at the final exam grade.

Department of Operative Dentistry and Endodontics

Subject: **RESTORATIVE DENTISTRY IV. (CARIOLOGY AND ENDODONTICS)**

Year, Semester: 5th year/2nd semester

Number of teaching hours:

Lecture: **12**

Practical: **10**

1st week:

Lecture: Microscop and magnifiers. Minimal invasive non preparation treatment options. Composite repair

2nd week:

Lecture: Esthetic direct restorations I. (Diastema closure, form corrections)

3rd week:

Lecture: Esthetic direct restorations II. (Cavity class IV. direct composite veneer)

4th week:

Lecture: Root resorption (classification and treatment)

5th week:

Lecture: Treatment of fractured teeth (crown and root fractures)

6th week:

Lecture: The importance of follow-up in

endodontics (wound healing and repair following endodontic therapy). Focal infection theory

7th week:

Lecture: Written exam

8th week:

Lecture: Case presentation

9th week:

Lecture: Case presentation

10th week:

Lecture: Case presentation

11th week:

Lecture: Case presentation

12th week:

Lecture: Case presentation

Requirements

Course objectives

The aim of the course is to provide students further fundamental and precise diagnostic and endodontic knowledge of conservative dentistry, endodontics and their borderlines.

Short description of the course

During the course, the borderline of restorative dentistry and endodontics will be taught in theoretical lectures and special practises.

Examination: Final Examination (FE_oral exam)

Materials for exam preparation: official lecture book, lectures and materials of the special practicals.

Requirements for signing the lecture book:

- During the semester, in accordance with the course requirements there is one written test that takes place during a lecture. The self-control tests cannot be repeated only with an adequate proof in a given time. The result of any missed test conclude to failure (1). The result cannot be improved.

ENDODONTICS CASE PRESENTATION

During the case presentation, student is required to present the case of his/her own patient (multirouted MOLAR tooth, with multiple root canals) treated with rubber dam isolation.

Presentation requirements:

- Filled signed endodontic form without any missing detail, approved, signed and stamped by the supervisor
- Evaluable radiological documentation
- Logically built up computer presentation

The mandatory endodontics case study is planned according to previously agreed date and is presented in sequence order.

!!! Missing the presentation of case study, or missing any part of the above mentioned listed requirements, results in the refusal of signing the lecture book.

• Special practicals:

- o The practices start and finish in accordance with the timetable, arriving late is not allowed.
- o Students are required to stay at the premises of the practical from the beginning to the end of the class and participate actively in the practical work.
- o Absences, in theory, are not allowed. o In reasoned cases, for certified absences the department ensure make up classes for students on a previously agreed date, during the semester.
- o A certification is required for any absences which has to be handed to the leader of the practice course.
- o At the end of each practical student's work is evaluated with a grade based on the knowledge of his/her theory, practice work and manuality.
- o At the end of the semester, student is given a grade for his/her term work based on the average of the grades given during the semester.

Special practice (5th 2nd semester): 2x5 lessons

Course exemption

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

Grade formation

The result of the test and the grades of special practicals can impact on the grade of the oral exam.

Requirements for taking up the subject: Restorative Dentistry III. (Cariology and Endodontics), Complex Dentistry III.

Department of Oral and Maxillofacial Surgery

Subject: **ORAL SURGERY IV.**

Year, Semester: 5th year/2nd semester

Number of teaching hours:

Lecture: **12**

Practical: **10**

1st week:

Lecture: Mechanism of acute and chronic pain

2nd week:

Lecture: Differential diagnosis of facial pain and trismus

3rd week:

Lecture: Pharmacological analgesia in oral surgery practice

4th week:

Lecture: Local anesthesia in the dental practice, allergy and faint

5th week:

Lecture: Dental focal disease

6th week:

Lecture: Inflammations of dental origin and their treatment in the dental office

7th week:

Lecture: Antibiotic treatment and endocarditis prophylaxis in dentistry and oral surgery

8th week:

Lecture: Radiotherapy and medication induced osteonecrosis of the jaws

9th week:

Lecture: Dental and oral surgical treatment of patients with hemostatic disorders

10th week:

Lecture: Complications of tooth extraction, iatrogenic injuries and their treatment

11th week:

Lecture: Dentoalveolar trauma

12th week:

Lecture: Final consultation

Requirements

Course objectives:

The course organizes the basic dental treatments and knowledge for the practicing dentist. Basic oral surgical procedures will be discussed in a practice oriented way, with much greater detail than previously. The course takes into account the aspects of medication, the effects of various comorbidities and adverse effects of their treatment on the jaws and minor surgical interventions, and the most common possible iatrogenic harms in general dental practice. Knowing all these is essential for a safe dental practice.

Course exemption:

Students who have obtained signature in a previous semester must participate in the mandatory lectures and practices. There is no exemption from attending the compulsory lectures and special practices.

Course requirements and conditions for obtaining signature:

Active participation in the designated lectures is mandatory. Arriving late for the lectures is not accepted. Late students are not allowed to join the lectures. Students must participate in the lectures and practices from the beginning to the end thereof. Only one of the compulsory lectures may be missed. The absence must be certified in a credible way within three working days. Students who have more than one uncertified absence from the lectures will not get signature.

Active participation in the special practices is mandatory. Arriving late for the practices is not accepted. Late students are not allowed to join the practices. Students must participate in the practices from the beginning to the end thereof. Any absence from the special practice must be certified in a credible way within three working days. The missed practice must be made up. Making up for the missed practice is subject to a credible certification and the prior permission of the head of department exclusively during the study term and with a group of the same program and same year.

Mandatory lectures:

Pharmacological analgesia in oral surgical practice
Local anesthesia in the dental practice, allergy and faint
Dental focal disease

Conditions for obtaining signature: Only one of the designated lectures may be missed. The absence must be certified in a credible way within three working days. Absence from the practice must be certified in a credible way within three working days. Missed practices must be made up according the rules. Students who fail to make up the missed practice or have more than one uncertified absence from the compulsory lectures will not get signature.

Exam: Final exam

The exam covers the materials of Oral Surgery I, II, III and IV that means the lectures and the compulsory readings. Students can expect questions from Oral Surgery Propedeutics as well. Following a failed exam, a “B” or “C” chance exam may be taken at the earliest on the third day after the failed exam.

Compulsory reading: James Hupp, Myron Tucker, Edward Ellis: Contemporary Oral and Maxillofacial Surgery Mosby, 7th Edition, ISBN-13: 978-0323552219

Recommended books:

Szabó Gy.: Oral and Maxillofacial Surgery, Semmelweis Publishing House, Budapest, 2001, ISBN: 963-9214-15-9

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

Prerequisite: Oral Surgery III

Department of Pediatric and Preventive Dentistry

Subject: **PEDIATRIC DENTISTRY II.**

Year, Semester: 5th year/2nd semester

Number of teaching hours:

Lecture: **12**

Practical: **15**

1st week:

Lecture: Oral syndromes in childhood.

2nd week:

Lecture: Differential diagnosis of oral mucosal lesions.

3rd week:

Lecture: Pharmacology in pediatric dentistry.

4th week:

Lecture: The importance of age groups in preventive and pediatric dentistry.

5th week:

Lecture: Dental fear and anxiety.

6th week:

Lecture: Behavior management, conscious sedation, general anesthesia.

7th week:

Lecture: Children with special care and need

8th week:

Lecture: Child abuse and neglect.

9th week:

Lecture: Orthodontic pediatric interface.

10th week:

Lecture: Minimal intervention dentistry.

11th week:

Lecture: Consultation.

12th week:

Lecture: Self-control test.

Requirements

The aims and objectives of this course:

The goal of the course is to provide the students with a theoretical knowledge and manual skills to treat child patients, to perform dental prevention, give first aid and refer special cases to specialist.

Short description of the course:

Topics of the practices:

- Know the methods of examination, instrumentation, treatment planning. Describe the normal anatomic structures of oral cavity of the infant.
- Discuss and recognize common developmental disturbances of the teeth. Classify common oral lesions and infections by clinical features.
- Do the specific cavity preparation indicated in primary posterior teeth, depending on the restorative material used. Extract primary tooth
- Discuss etiological factors influencing the formation of dental caries in children. Develop an individualized oral health care program for the child patient.
- Do step by step amalgam filling in posterior primary and permanent teeth. Identify and distinguish morphologic differences in the primary teeth.
- Recognize and treat dental injuries. Fabricate a simple splinting device
- Fabricate a space maintainer
- Restore an anterior primary and permanent tooth with composite restorative material

- Restore a fractured incisor with composite crown.
- Use the several clinical procedures available for pulp care. Carry out successful pulpectomy.
- Carry out a successful apexification
- Seal fissures and use preventive methods

Compulsory reading:

Welbury R, Duggal MS, Hosey MT: Paediatric dentistry (3rd ed.) Oxford University Press, 2005

Assessment:

Final Exam

Requirements:

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

Active participation on the practices is obligatory. With acceptable written certificate students may miss 1 practical lesson. The missed practical can be made up with another group after obtaining the permission from the tutor of the other group.

The practices start and finish in accordance with the timetable, arriving late is not allowed.

A delay of more than ten minutes shall be deemed to be an absence! In this case the missed class cannot be made up for.

Course exemption:

With previously obtained valid signature the attendance exemption of the practices can be requested.

Conditions of signing the index:

- Active participation in the practices

Calculation of the grade:

The final exam consists of a written and an oral part for everyone. The oral exam can be taken only if the student collects at least 65% in the written part. If the oral exam is unsuccessful, but the written part was accepted, the written part must not be repeated prior to the next oral exam.

Prerequisites of taking the subject:

Pediatric Dentistry I.

Department of Periodontology

Subject: **PERIODONTOLOGY III.**

Year, Semester: 5th year/2nd semester

Number of teaching hours:

Lecture: **12**

Practical: **10**

1st week:

Lecture: Introductory lecture.

2nd week:

Lecture: 2nd-12th week topic: Case presentation and analysis.

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Requirements

Prerequisites of taking the subject: Periodontology II, Oral medicine

The aims and objectives of this course:

The aim of case presentations is to know all details and associations concerning the patients.

Short description of the course:

Each student has to present the previous medical history and the results of physical examination, x-ray one of his/her own 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.

Requirements:

If the required cases are not presented during the lectures, the signature of the index will be refused.

Course exemption:

With previously obtained valid signature the attendance exemption of the practices can be requested.

Conditions of signature in the index:

-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 it is certificated.

-The practical work will be evaluated at the end of each practice separately, as 'accepted' or 'not-accepted'.

-The number of accepted practices must be above 50% of practices.

-Missed practise is not-accepted.

-Students have to fulfil the minimum practical requirements of the subject.

-The minimum practical requirements of the subject will be handed out on the first week of the semester.

Assessment: Final exam

Compulsory reading:

Carranza's Clinical Periodontology 12. Ed., Elsevier

ISBN:9780323227995

T. G. Wilson, K.S. Kornman: Fundamentals of Periodontics, 2nd Ed.

Quintessence Books 2003., ISBN: 0-86715-405-5

Recommended Books:

Lindhe-Karring-Lang: Clinical Periodontology and Implant Dentistry (2 volumes)

Wiley-Blackwell 2008. 5th Ed.

ISBN: 978-1-4051-6099-5

Rateitschak, K. H. ed.: Periodontology, 2nd Ed.

Thieme, Stuttgart, 1989.

CHAPTER 21 REQUIRED ELECTIVE COURSES

DEENK Life Sciences Library

Subject: **LIBRARY SYSTEM**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Seminar: **10**

1st week:

Practical: Introduction to the Library and library use:

-Traditional services (registration, rules of library usage, loans, reading room, computer lab).

-Electronic services (the Library's home page, online catalogues).

2nd week:

Practical: Electronic Information Resources:

-Electronic journals.

-Link collections.

3rd week:

Practical: Databases:

-Medline.

-Impact Factors.

4th week:

Practical: Databases

5th week:

Practical: Test

Requirements

The aim of the course: The aim of this course is to acquire a basic theoretical and practical knowledge on library search systems and databases for an effective learning-research activity.

Course description: The purpose of this course is to introduce students to the short history of the DEENK, its structure and regulations, and to present its services via the library's own website.

Students will learn about the structure of the website, and get an overview of the most important menu items. Students will also become familiar with the use of traditional and electronic library systems and services, databases, and the online catalogue. PubMed: Students will learn about its structure, its role in scientific research activities, and the most important search methods and possibilities in online resources, health websites, and online journals.

Department of Biomaterials and Prosthetic Dentistry

Subject: **CONE BEAM CT IN PROSTHETIC DENTISTRY**

Year, Semester: 5th year/2nd semester

Number of teaching hours:

Seminar: **12**

Subject: **ESTHETIC DENTISTRY**
 Year, Semester: 5th year/1st semester
 Number of teaching hours:
 Seminar: **14**

1st week:
Seminar: Introduction to Esthetics
 Morphopsychology and Facial Esthetics.

2nd week:
Seminar: Esthetic Smile

3rd week:
Seminar: Landmarks and Proportions of the
 Face. Treatment planning

4th week:
Seminar: Documentation in Esthetic Dentistry

5th week:
Seminar: Esthetics and its Relationship to
 Function I.

6th week:
Seminar: Esthetics and its Relationship to
 Function II.

7th week:
Seminar: Morphologic Changes During a
 Lifetime

8th week:
Seminar: TMetal-Ceramic and All-Ceramic

Crows and Bridges.

9th week:
Seminar: Periodontal Esthetic Surgery.

10th week:
Seminar: Oral and Maxillofacial Esthetic
 Surgery.

11th week:
Seminar: Tooth Color Science, Tooth Color
 Analysis, Bleaching Methods.

12th week:
Seminar: All-Ceramic Inlays and Onlays.

13th week:
Seminar: Ceramic Veneers.

14th week:
Seminar: Esthetics in Implantology

Requirements

The required minimum number of attendants is 10.

Conditions of signature in the lecture book:

Five grade (AW5) practical grade evaluation. The final AW5 marks are decided according to the marks given during the semester. At least 1 written or oral self-control test will be held during the semester. Any self-control test with a failed (1) result can be repeated once during the semester, in a given time. If the student fails to improve the result, the final AW5 grade is “failed” (1), and the grade must be improved during the examination period, as a “B” or “C” chance.

Assessment: AW5

Subject: **HISTORY OF DENTISTRY, PROSTHETIC DENTISTRY COMPULSORY ELECTIVE I.**

Year, Semester: 2nd year/1st semester

Number of teaching hours:

Lecture: **14**

1st week:

Lecture: Introduction to the history of dentistry.

2nd week:

Lecture: The ancient Orient. Egypt, Mesopotamia, Palestine and Syria. India.

3rd week:

Lecture: The far east: China, Japan.

4th week:

Lecture: Pre-Columbian America: Aztec, Maya, Inca culture.

5th week:

Lecture: Greco-Roman medicine.

6th week:

Lecture: Aftermath of antiquity in east and west.

7th week:

Lecture: The world of Islam.

8th week:

Lecture: High and late middle ages in Europe.

9th week:

Lecture: Awakening of natural sciences.

10th week:

Lecture: The 18th century.

11th week:

Lecture: Dentistry in the industrial ages. Prosthetics.

12th week:

Lecture: Conservative dentistry. Self-control test

13th week:

Lecture: Dental surgery. Orthodontics.

14th week:

Lecture: Research and teaching.

Requirements

The required minimum number of attendants is 10.

Students registered for the course will be informed through the Neptun system regarding date and place of the first seminar.

Conditions of signature in the lecture book: Active participation in the practices (there is no possibility to compensate for missed practices). All absences must be certified.

Assessment: Five grade (AW5) practical grade evaluation

Students should submit an essay through the Department's online exam interface by the given deadline. If the student does not upload the essay by the given deadline, the AW5 will be "fail" (1) and the student must retake the subject. The theme of the essay will be sent through the Neptun system to the students. The signature in the lecture book will be rejected for students, whose essays show significant similarities. The "fail"(1) mark (except caused by similarities) can be improved during the exam period, as a "B" or "C" chance exam. The "B" or "C" chance exams are electronic

tablet tests.

Subject: **IMPLANTOLOGY - BASICS OF ORAL IMPLANTOLOGY**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Seminar: **14**

6th week:

Seminar: Complementary surgical techniques, augmentation, sinus lifting, nerve transposition, etc.

- Implant supported fixed prostheses
- Implant supported removable prostheses

7th week:

Seminar: -History of implantology, introduction
 - Biology of osseal healing, biocompatibility, osseointegration and materials related to dental implants
 - Anatomy, diagnostic techniques preceding implantation (Department of Dentoalveolar Surgery)

10th week:

Seminar: Practice I. (Planning, inserting the dental implant) (Department of Dentoalveolar Surgery)

11th week:

Seminar: Practice II. (Impression techniques: closed tray)

8th week:

Seminar: -Indications, contraindications and planning of dental implants, time of implantation
 - Basics of oral surgery regarding dental implantation
 - Complementary surgical techniques, augmentation, sinus lifting, nerve transposition, etc. (Department of Dentoalveolar Surgery)

12th week:

Seminar: Practice III. (Impression techniques: open tray)

13th week:

Seminar: Prosthetics fixed on dental implants, maintenance, treatment of complications

9th week:

Seminar: -Basic techniques of prosthetics fixed on dental implants

14th week:

Seminar: Test
Self Control Test

Requirements

The aim of the course is to introduce students to the surgical, prosthetic and periodontological basics of dental oral implantology and their application in clinical practice.

Short description of the course:

During the course, students will learn about the history of implantology, the biology of osseal healing and osseointegration, and the surgical basics. They can acquire knowledge on implant materials, designing implant surgery and prosthetics, as well as on the theory of their practical implementation, and the main aspects of aftercare and complications. During the practices students will practice implant planning, and inserting, and will carry out different impression techniques.

CHAPTER 21

Assessment:

AW5, electronic (tablet) test

Requirements of the course:

Attendance of seminars and practices is compulsory. There is no possibility to compensate for missed seminars and practices. All absences must be certified within 3 working days. The ratio of absences cannot exceed the 20% of the total number of seminars and practices.

Conditions of signature in the lecture book:

The signature in the lecture book will be refused in cases of absence from more than 20% of seminars and practices.

Credits points can be given only for students, who attended at least 80% of the seminars, and passed the electronic (tablet) test.

Final five grade practical (AW5) evaluation:

Electronic (tablet) test will be held on the last week of the semester, covering the topics of seminars, practices and reading materials.

The grade of the electronic (tablet) test will be calculated as the following:

0-60%	fail (1)
61-70%	pass (2)
71-80%	satisfactory (3)
81-90%	good (4)
91-100 %	excellent (5)

If the student fails, or does not attend the evaluation, the AW5 grade is „fail”, which can be improved as a „B” or „C” chance during the exam period in the form on an electronic (tablet) test.

Subject: **PRAXIS MANAGEMENT**

Year, Semester: 5th year/2nd semester

Number of teaching hours:

Lecture: **12**

1st week:

Lecture: Course introduction. What is a dental practice?

2nd week:

Lecture: Locating, designing a dental office.

3rd week:

Lecture: Financing a dental practice.
Dental insurance.

4th week:

Lecture: Stock control. Staff management. The working team.

5th week:

Lecture: Time management.

6th week:

Lecture: The appointment book.

7th week:

Lecture: Painless paperwork.

8th week:

Lecture: Performance and achievement.
Stress management.

9th week:
Lecture: Equipment and maintenance.

10th week:
Lecture: Quality management.

11th week:
Lecture: Summary: How to professionally market your dental practice

Department of Behavioural 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: **COMMUNICATION SKILLS**

Year, Semester: 1st year/1st semester

Number of teaching hours:

Practical: **20**

1st week:

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

2nd week:

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

3rd week:

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

4th week:

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

5th week:

Practical: Empathy, problems of empathy, active listening. Significance of the first impression.

6th week:

Practical: Aggressive, passive and assertive communication. Persuasive communication.

7th week:

Practical: Movie (2 hours long)

8th week:

Practical: Movie-analyzing its communicational aspects. The role of confidence.

9th week:

Practical: Presentation of the field practice. Closing the semester, semester-review. Feedbacks.

10th week:

Practical: Presentation of the field study. Feedback for the presenters. Feedback for the teacher. Deadline of giving the essay. Closing the semester.

Requirements

Aims:

Introducing and recognizing fundamental characteristics of human communication and developing basic knowledge, skills and attitudes which are most important in doctor patient relationship. This course serves as a basis for the continuation of third year studies of more specific communicational knowledge needs for healing and curing in the field of medical practice.

Framework and process of learning:

In form of small-group learning discussions, role-plays, observational tasks will be introduced by which students can be active participants in learning by acquiring not only theoretical issues. Because teachers guide semi-structured seminars, student will be facilitated to give feedback, express opinions and propose available topics, which could build into to learning process. During first seminars individual learning objectives can be elaborated together with teacher and classmates and can be achieved alongside the main objectives of the whole group.

Standpoints of the observational task of communication class:

For the purpose of developing so called observational skills, a special task will be introduced. Students will be requested to watch systematically human behaviours at different places where one can perceive various forms of formal and informal communication (two weeks will be given for completing observations instead of attending seminars during this period. Seminars will be continued after two weeks break).

Sensitivity toward relating phenomena can be enhanced by these observational tasks. Several places of health care 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-news-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: **MEDICAL ANTHROPOLOGY**

Year, Semester: 3rd year/1st semester

Number of teaching hours:

Lecture: **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 legitimacy.

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 text analysis.

15th week:

Seminar: Concluding discussion.

Requirements

Participating in seminars, giving a presentation on a given topic.

Evaluation: Based on the activity at seminars and on a 14th week test.

Course Objectives and Course Outline: The object of medical anthropology is the human being, as he/she appears in the context of health and disease, in the healing processes and in the health-care system. The basic method of medical anthropology is historic-hermeneutical in the sense that man is investigated by this discipline in historical and cross-cultural relations; it is an integrative study and in this role it uses the contributions of different forms of knowledge (philosophical anthropology, social philosophy, cultural anthropology, psychoanalysis, sociology, etc.); the problems of health-illness is discussed in socio-economic dynamics; it deals with biomedical approach as a cultural product and in this way it draws the attention to the relation between individual experience, cultural meaning and social structure. The medical anthropology semester consists of 15 hours seminar; these are organised in two-hour seminars in every second week.

Method: Every student should actively participate by presenting a short lecture on a chosen topic (possibly in group-work). One hour from the 15 hour course will be reserved for tutorial discussion with the instructor during the preparation period. Every student should read a given paper for every seminar and is expected to put the presenters questions concerning the topic a few days before the seminar. The seminars can only be successful, if students participate actively in the discussions.

Requirement for the AW5 evaluation: Passing the last week test/essay, which is based on the course

textbook, the compilation of readings and seminar discussions.

Subject: **MEDICAL SOCIOLOGY**
 Year, Semester: 3rd year/2nd semester
 Number of teaching hours:
 Lecture: **8**
 Seminar: **7**

8th week:
Lecture: Basic course information

9th week:
Lecture: Introduction to sociology

10th week:
Lecture: Introduction to medical sociology

11th week:
Lecture: Medicalization

12th week:
Seminar: The concept of health measuring

health at population level civilisation illnesses.
 The concept of risk factor

13th week:
Seminar: Presentations I.

14th week:
Seminar: Presentations II.

15th week:
Seminar: Exam

Requirements

Requirements. Making a presentation is prerequisite for the end of course test.
 Requirements. Making a presentation is no longer prerequisite for the exam.
 EXAM: Written Exam (5AW)

Department of Dentoalveolar Surgery

Subject: **ORAL SURGERY ELECTIVE I. EXTRACTION PRACTICE**
 Year, Semester: 4th year/1st semester
 Number of teaching hours:
 Practical: **14**

3rd week:
Self Control Test

6th week:
Self Control Test

7th week:
Seminar:

8th week:
Seminar:
 Theoretical: Basic rules of the dental office

History taking and examination of oral surgical patients
 Infection control
 Preoperative preparation of the patients.
 Indications and contraindications for extraction

9th week:
Seminar:
 Theoretical: Technique and complications of tooth extraction
 Pre-operative information of patient and written consent form

After-care of the oral surgical patients,
postextraction instructions
Instrumentation.

10th week:

Seminar:

TEST I

Theoretical: Local anaesthetics

Methods of local anaesthesia, possible adverse
reactions and side effects

Self Control Test

11th week:

Seminar:

Theoretical: Treatment of intra- and
postoperative complications of tooth extraction,
Usage of elevators

12th week:

Seminar: Case reports.

13th week:

Seminar: TEST II. Final consultation

Self Control Test

Requirements

Course Objectives:

Understanding the theoretical and practical basics of Dentoalveolar Surgery and their use in the clinical practice.

Brief Course Description:

During the course, the students meet the basic rules of the dentist's office, as well as the essential aspects of patient care such as the history and implementation of anamnesis, infection control, simple and surgical tooth extraction, anesthetic techniques applicable in the maxillofacial region, and so on. By viewing the case reports, the course also helps you to put these into practice.

Required Literature:

Assessment:

Five grade evaluation (AW5) practical grade. Evaluation is based on the results of two written control tests during the semester. (can be electronical SCTs)

Course Requirements:

Active participation on seminars is mandatory. Missed classes cannot be made up for. All of the absences must be verified within 3 business days. The absence rate may not exceed the total 20% of the course-hours.

Signature Requirements:

If the seminar absence exceeds 20%, the course signature will be denied. Credits may be awarded to students only if they attended at least 80% of the seminars and achieved a minimum of 2 (pass) practical grade.

Assessing grades according to test scores:

The grade is based on the result of the 2 SCTs. The test covers the materials of the seminars and the textbook. Tests are evaluated as follows:

- 0-60% Fail (1)
- 61-70% Pass (2)
- 71-80% Satisfactory (3)
- 81-90% Good (4)
- 91-100% Excellent (5)

If the results of the two SCTs do not reach the 2 (pass) grade, the student may, as required, resit the exam (B, C chance) in the exam period in the form of a test at the time designated by the Department.

Department of Foreign Languages

Subject: **LATIN LANGUAGE**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Practical: **28**

1st week:

Practical: Class introduction *and* Chapter 1
Introduction to medical terminology and basic Latin grammar
Pronunciation rules; Dictionary forms of the nouns

2nd week:

Practical: Chapter 2: Parts of the body;
Nominative and Genitive case

3rd week:

Practical: Chapter 3: Anatomical positions, planes and directions, Adjective endings;
Concord of genders

4th week:

Practical: Declensions, Plural Nominative

5th week:

Practical: Chapter 4: The mouth and the teeth

6th week:

Practical: Chapter 5; Regions; Formation of adjectives; Revision

7th week:

Practical: Mid-term test
Self Control Test

8th week:

Practical: Chapter 6: The skeletal system 1

9th week:

Practical: The skeletal system (2); Plural forms of adjectives

10th week:

Practical: Chapter 7: Joints; complex adjectives

11th week:

Practical: Chapter 8: The muscular system;
Latin prepositions and prefixes; Plural Genitive

12th week:

Practical: Chapter 9: Greek roots; Latin and Greek prefixes related to quantities; Latin numerals; Revision

13th week:

Practical: End-term test
Self Control Test

14th week:

Practical: Evaluation

Requirements

Requirements of the course:**Attendance**

Language class attendance is compulsory. The maximum percentage of allowable absences is 10% of the classes. Students arriving more than ten minutes late for the classes are not allowed to enter the class. Being late is counted as an absence. If the number of absences is more than two, the final signature is refused and the student must repeat the course. Making up a missed class with another group is not allowed.

Students are required to bring the coursebook (in a printed or such a digital format in which the student can take notes) or other study material given out for the course with them to each language class. Active participation is evaluated by the teacher in every class. Attendance might be refused if a student's behaviour or conduct does not meet the requirements of active participation or he/she fails to bring the coursebook in a printed or digital format to the class.

Testing, evaluation

In each Latin language course, students must sit for 2 written language tests (40-40%).

A further way of assessment is 5-5 online assignments before the mid-term and the end-term tests (5 -5%). The minimum requirement of a successful assignment is reaching at least 80% of the possible scores.

A further requirement is the knowledge of the core vocabulary of cca. 400 words/medical terms per semester announced in the first week. There is a word quiz in the first 5-10 minutes of the class, every week. The word quiz is passed if the student knows at least 80% of the words asked in the quiz. Students obtain points (5-5%) by taking the word quizzes successfully.

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

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

Coursebook: Répás, László: Latin for Students of Dentistry

Assignments, vocabulary lists and further details can be found on the elearning site of the Department of Foreign Languages (www.elearning.med.unideb.hu).

Department of Human Genetics

Subject: **MEDICAL GENETICS**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **30**

Practical: **26**

1st week:

Lecture: (1) Basic principles of nucleic acid structure and gene expression I. (2) Basic principles of nucleic acid structure and gene expression II. (3) Fundamentals of cells and chromosomes I.

Practical: Introduction to genetics. Basic principles of nucleic acid structure and gene expression.

2nd week:

Lecture: (4) Fundamentals of cells and chromosomes II. (5) Patterns of inheritance I. (6) Patterns of inheritance II.

Practical: Fundamentals of cells and chromosomes.

3rd week:

Lecture: (7) Core DNA technologies: amplifying DNA, nucleic acid hybridization, and DNA sequencing I. (8) Core DNA technologies: amplifying DNA, nucleic acid hybridization, and DNA sequencing II. (9) Genetic testing in healthcare.

Practical: Patterns of inheritance and pedigree analysis.

4th week:

Lecture: (10) Analyzing the structure and expression of genes and genomes. (11) Principles of genetic manipulation of mammalian cells. (12) Gene regulation and the epigenome I.

Practical: Polymorphisms. Theoretical background of PCR and qPCR.

Self Control Test (1st test in extra time on Monday morning.)

5th week:

Lecture: (13) Gene regulation and the epigenome II. (14) Gene regulation and the epigenome III. (15) Uncovering the architecture and workings of the human genome.

Practical: Detection of human polymorphism by polymerase chain reaction.

6th week:

Lecture: (16) An overview of human genetic variation I. (17) An overview of human genetic variation II. (18) Human population genetics.

Practical: Gene regulation and the epigenome.

7th week:

Lecture: (19) Comparative genomics and genome evolution. (20) Human evolution. (21) Chromosomal abnormalities and structural variants I.

Practical: Population genetics.

8th week:

Lecture: (22) Chromosomal abnormalities and structural variants II. (23) Molecular pathology: connecting phenotypes to genotypes I. (24) Molecular pathology: connecting phenotypes to genotypes II.

Practical: Discussion on material of lectures 10-20.

9th week:

Lecture: (25) Mapping and identifying genes for monogenic disorders. (26) Complex disease: identifying susceptibility factors and understanding pathogenesis. (27) Cancer genetics and genomics I.

Practical: Sequencing.

Self Control Test (2nd test in extra time on

Monday morning.)**10th week:****Lecture:** (28) Cancer genetics and genomics II.

(29) Model organisms and modeling disease.

(30) Genetic approaches to treating disease.

Practical: Cell cycle regulation, oncogenetics.**11th week:****Lecture:** Lectures of Medical Genomics compulsory elective course**Practical:** Cytogenetics.**12th week:****Lecture:** Lectures of Medical Genomics compulsory elective course.**Practical:** Study of sex chromatin.

Demonstration of mammalian chromosomes.

Preparation of metaphase spreads.

13th week:**Lecture:** Lectures of Medical Genomics compulsory elective course.**Practical:** Discussion on material of lectures 21-30.**Self Control Test (3rd test in extra time.)****14th week:****Lecture:** Lectures of Medical Genomics compulsory elective course.**Practical:** Practice of Medical Genomics compulsory elective course.**Requirements**

Conditions of signing the subject

The presence of students at practices is obligatory and will be recorded. Students are responsible for signing the list of attendance. The professor refuses his/her signature for the semester's course-work in the case of over two weeks of absence, even if the student has an acceptable excuse. Missed practices can be made up for in the classes with other groups with the permission of the academic advisor. Permission is given only before the original time of the practice.

During the semester there will be three self-control tests offered in the 4th, 9th and 13th weeks. The questions include single and multiple choice and short essay questions, e.g. figures, karyograms, pedigrees, calculations, definitions (glossary), etc. Terms required from the glossary will be made available online. These may be featured as short essay questions in self-control tests. Unlike the rest of the material, glossary terms are cumulative, i.e., terms required for an earlier test may appear in a later one. (So ALL glossary terms will be required for the last self-control test.)

Based on the % average of the three tests a practical grade will be offered according to the next table:

Percentage (%)	Mark
40-59.99	pass (2)
60-69.99	satisfactory (3)
70-79.99	good (4)
80-100	excellent (5)

Those students who want a better mark can take an exam during the exam period. The result of this exam is binding, it can be better, the same or worse than the offered mark. Students with lower achievement than 40% should take a practical exam during the exam periode.

Exam (for improving your practical grade)

The written examination at the end of the semester covers all the material of the semester taken in the lectures, and practices. The examination questions include single and multiple choice and short essay questions, figures, definitions (glossary terms), etc. The marks are based on the student's performance, expressed in percentage (%) as shown in the table below:

Percentage (%)	Mark
0 – 39.99	fail (1)
40-59.99	pass (2)
60-69.99	satisfactory (3)
70-79.99	good (4)
80-100	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 (based on the average result of the three mid-semester tests).

The following table shows the bonus percentage based on the average result of the three mid-semester tests.

Average of the 3 tests (%)	Bonus %
0 – 29.99	0
30 – 34.99	1
35 – 39.99	2
40 – 44.99	3
45 – 49.99	4
50 – 54.99	5
55 – 59.99	6
60 – 64.99	7
65 – 69.99	8
70 – 74.99	9
75 – 100	10

Absence counts as 0%. These bonuses are counted only on the exam. Bonuses are calculated only in the year of acquisition.

The slides of the lectures and up-to-date information can be found at <https://elearning.med.unideb.hu>, username and password is your network-id (same as Neptun-id) and password. You will be able to check the content after the Neptun has registered you to the subject.

Departmental homepage: <https://humangenetics.unideb.hu>

Subject: **MEDICAL GENOMICS**

Year, Semester: 1st year/2nd semester

Number of teaching hours:

Lecture: **12**

Practical: **2**

11th week:

- Lecture:** 1. Introduction and the Human Genome Project
- 2. Genomes of bacteria, plants, fungi, animals and viruses
- 3. Traditional and NG Sequencing

12th week:

- Lecture:** 4. Comparative and functional genomics
- 5. The world of RNAs
- 6. Summary 1.

13th week:

- Lecture:** 7. Genome-wide association studies

(GWAS) in complex genetic diseases,
 Personalized genome analysis
 8. Clinical Laboratory Genetics 1
 9. Clinical Laboratory Genetics 2

14th week:

Lecture: 10. Invasive and non-invasive

approaches for prenatal diagnosis
 11. Pharmacogenomics
 12. Summary 2.
Practical: Expression and comprehensive genomics. GWAS.

Requirements

Conditions for completing the course

- Electronic course enrollment (theory and practical) at Neptun
- Participation in the practical at week 14.
- Getting a grade based on 2 mid-year tests or a final exam.

Preparation for the Quizzes and Exam

- Attendance and note-taking at Lectures is recommended.
- The lecture slides, practical materials and announcements for the students will be available on the website at <https://elearning.med.unideb.hu>. The username and password for the system are the same as the network ID and password used for Neptun.
- Test questions will be available on elearning.

Mid-year Quizzes and the Final exam

- In weeks 12 and 14, students will write quizzes in the time of the lectures.
- Test questions will be available (questions only, without answers) allowing more effective note-taking.
- Based on the average of the two practical tests a final grade will be offered according to the next table:

70% - 100%:	5
60% - 69.9%:	4
50% - 59.9%:	3
40% - 49.9%:	2

- Students, who do not write the two tests or do not accept the offered grade, must take final exam. Three exam dates will be given in the exam period.

• The written exam contains essay(s) and test questions. Calculation of grades:

85% - 100%:	5
75% - 84.9%:	4
60% - 74.9%:	3
50% - 59.9%:	2
0% - 49.9%:	1

Department of Internal Medicine

Subject: **CLINICAL GERONTOLOGY**
 Year, Semester: 3rd year/2nd semester
 Number of teaching hours:
 Lecture: **30**

Department of Oncoradiology

Subject: **RADIOTHERAPY IN THE CLINICAL PRACTICE**
 Year, Semester: 4th year/1st semester
 Number of teaching hours:

1st week:
Seminar: Equipments of teletherapy I.
 Equipments of teletherapy II.

2nd week:
Seminar: Teletherapy (processes, clinical aspects)
 Locoregional treatment, risk organs

3rd week:
Seminar: Role of radiotherapy (case reports)
 Palliative therapy

4th week:
Seminar: Special teletherapy techniques
 Brachytherapy I.

5th week:
Seminar: Brachytherapy II.
 Brachytherapy III.

6th week:
Seminar: Eye plaque brachytherapy
 Isotop therapy

Requirements

The goal is to get to know the process and clinical considerations of radiotherapy (indications, contraindications, equipments).

Department of Operative Dentistry and Endodontics

Subject: **CARIOLOGY ELECTIVE I.(FUNDAMENTALS OF CARIOLOGY)**
 Year, Semester: 3rd year/1st semester
 Number of teaching hours:
 Seminar: **14**

1st week:
Seminar: Morfology 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

Course objectives

The aim of the course: is to learn associations between dental morphology and occlusion and to improve students' occlusion skills to build occlusal morphology of molar teeth.

Short description of the course

During the lectures/seminars the associations between dental morphology and occlusions will be explained. During the practices occlusal morphology of upper and lower first molars will be built up with plastic material, imitating the inversion technique of resin based composite restorative materials.

Requirements for signing the lecture book:

- To attend seminars on a regular basis (there is no place for making up for missed classes.)
- Absences are required to be officially certified which cannot be more than 2 seminars.
- To take the final test of the seminar. The student who does not take this grade offering test his/her lecturebook will be refused to be signed.

Examination: Assessment of work on the 5 grade scale

The method of formation of the assesment of work grade:

Based on the result of the online final test we follow the below conversion to define the grade:

Achieved result in %	Grade
0-39.9%	fail (1)
40-54.9%	pass (2)
55-69.9%	satisfactory (3)
70-84.9%	good (4)
85-100%	excellent (5)

Retake of the final test is not allowed. If the final test is below 40%(pass), then the mid semester grade is a fail. This can be amended with B and C exam chances in the exam period.

Requirements for taking up the subject:

Odontology, Introduction to Prosthodontics I.: Dental Materials, Introduction to Prosthodontics II.: Introduction to the Fixed Prosthodontics

Subject: **CARIOLOGY ELECTIVE II.(DIET AND NUTRITION IN ORAL HEALTH)**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Seminar: **14**

1st week:

Seminar: Nutrition as the foundation of general and oral health.

2nd week:

Seminar: Adequate diet. Energy balance and weight control

3rd week:

Seminar: Nutritions and dietary supplements. I.-II.

4th week:

Seminar: Nutrition implication in chronic health conditions

5th week:

Seminar: Nutrition in the growth and development of oral structures

6th week:

Seminar: Diet, nutrition and teeth

7th week:

Seminar: Nutrition and the periodontium

8th week:

Seminar: Immune compromising conditions and oral lesions

9th week:

Seminar: Nutrition concerns for the dentally compromised patient: oral surgery, orthodontics

10th week:

Seminar: Nutrition concerns for the dentally compromised patient: dentures, dysphagia, temporomandibular disorders

11th week:

Seminar: Nutrition in pregnancy, infancy, childhood and adulthood. The older patient

12th week:

Seminar: Principles of diet screening, assessment and guidance

13th week:

Seminar: How medications and herbal remedies can affect nutrition, diet and oral health

14th week:

Seminar: Self control test

Requirements

Seminar: 15

For information about the module contact: Dr. Kelentey Barna

The module is taught provided at least 5 students sign up for it.

Course objectives

The aim of the course: explanation of diet and nutrition in oral health

Short description of the course

Lectures deal with basic terms of diet and nutrition. Other important themes: nutrition of pregnancy, infancy, childhood, adulthood and older patient. Among other themes: diet and teeth, nutrition and the periodontium.

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 assesment of work grade:

Based on the result of the final test we follow the below conversion to define the grade:

Achieved result in %	Grade
0-39.9%	fail (1)
40-54.9%	pass (2)
55-69.9%	satisfactory (3)
70-84.9%	good (4)
85-100%	excellent (5)

Retake of the final test is not allowed. If the final test is below 40%(pass), then the mid semester grade is a fail. This can be amended with B and C exam chances in the exam period.

Requirements for taking up the subject: Restorative Dentistry I. (Cariology)

Subject: **CARIOLOGY ELECTIVE III. (ESTHETICS IN RESTORATIVE DENTISTRY)**

Year, Semester: 5th year/2nd semester

Number of teaching hours:

Seminar: **12**

1st week:

Seminar: Esthetics. Proportions, rules, symmetry and individualisation during composite restorations and build ups. Effects of ageing. Primary, secondary and tertiary morphology.

2nd week:

Seminar: Bioemulation. Direct or indirect methods, Advantages, disadvantages.

3rd week:

Seminar: The four dimension of color. Optical characteristics of enamel and dentin. Optical characteristics of composites.

4th week:

Seminar: Wax-up, mock-up, silicone key and it's Importance before the final build up.

5th week:

Seminar: Composites with high esthetics. Traditional and modern layering techniques. The importance of finishing and polishing.

6th week:

Seminar: Tooth form corrections, diatema

closure, veneers associated with case presentations.

7th week:

Seminar: Upper first incisor build up with Vanini's layering technique.

8th week:

Seminar: Upper first incisor build up with Vanini's layering technique.

9th week:

Seminar: Upper first incisor build up with Vanini's layering technique.

10th week:

Seminar: Upper first incisor build up with Vanini's layering technique.

11th week:

Seminar: Upper first incisor build up with Vanini's layering technique.

12th week:

Seminar: Online test

Requirements

Seminar: 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

Course objectives

The aim of the course: the introduction of esthetic principles in the field of dentistry and the materials, techniques and methods used for biomimetic build up of first upper incisor.

Short description of the course

During the seminars the following topics will be discussed: esthetic principles in the field of dentistry, detailed morphology of upper first incisors, and the concept of biomimetic tooth build-up. Practical part involves direct composit tooth build up with silicon key and according to the

biomimetic layering approaches followed by finishing and polishing procedures.

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 aesthetic restorative dentistry competition.

The method of formation of the assesment 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 assey is below 40% (pass), and the practical part is acceptable the mid semester grade is pass (2). The mid semester grade is a fail (1), can be amended with B and C exam chances in the exam period.

Requirements for taking up the subject: Restorative Dentistry III. (Cariology and Endodontics)

Subject: **ENDODONTICS ELECTIVE I.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Seminar: **14**

1st week:

Seminar: Endodontic guidelines I.

2nd week:

Seminar: Endodontic guidelines II.

3rd week:

Seminar: One-visit endodontics I.

4th week:

Seminar: One-visit endodontics II.

5th week:

Seminar: Avulsion I.

6th week:

Seminar: Avulsion II.

7th week:

Seminar: Endodontic adjuncts I.

8th week:

Seminar: Endodontic adjuncts II.

9th week:

Seminar: Endodontic adjuncts III.

10th week:

Seminar: Endodontic adjuncts IV.

11th week:

Seminar: Endodontic case presentation I.

12th week:

Seminar: Endodontic case presentation II.

13th week:

Seminar: Endodontic monoblocks I.-II.

14th week:

Seminar: Test

Requirements

Seminar: 15

The module is taught provided at least 5 students sign up for it.

For information about the module contact: Dr. Juhász Alexander

Course objectives

The aim of this course is to give a guidelines and analyze the common parts of the endodontics with the other dental fields.

Short description of the course

The seminars and written test with simple choice questions to evaluate the given knowledge.

Requirements for signing the lecture book:

-To attend seminars on a regular basis (there is no place for making up for missed classes.)

-Absences are required to be officially certified which cannot be more than 2 seminars.

-To take the final test of the seminar. The student who does not take this grade offering test his/her lecturebook will be refused to be signed .

Examination: Assessment of work on the 5 grade scale

The method of formation of the assesment of work grade:

Based on the result of the final test we follow the below conversion to define the grade:

Achieved result in %	Grade
0-39.9%	fail (1)
40-54.9%	pass (2)
55-69.9%	satisfactory (3)
70-84.9%	good (4)
85-100%	excellent (5)

Retake of the final test is not allowed. If the final test is below 40%(pass), then the mid semester

grade is a fail. This can be amended with B and C exam chances in the exam period.

Requirements for taking up the subject:

Restorative Dentistry Propedeutics II. (Endodontics), Preventive Dentistry I.

Subject: **ENDODONTICS ELECTIVE II. (MICROSCOPE IN DENTAL PRACTICE)**

Year, Semester: 5th year/1st semester

Number of teaching hours:

Seminar: **14**

1st week:

Seminar: Microscopy from the beginning (history, magnification, illumination, types). The dental microscopes. I.

2nd week:

Seminar: Microscopy from the beginning (history, magnification, illumination, types). The dental microscopes. II.

3rd week:

Seminar: Ergonomics in dentistry. I.

4th week:

Seminar: Ergonomics in dentistry. II.

5th week:

Seminar: Musculoskeletal Disorders (MSDs) in dentistry. I.

6th week:

Seminar: Musculoskeletal Disorders (MSDs) in dentistry. II.

7th week:

Seminar: Four handed treatment. I.

8th week:

Seminar: Four handed treatment. II.

9th week:

Seminar: Dental microscope in endodontic and restorative dentistry. I.

10th week:

Seminar: Dental microscope in endodontic and restorative dentistry. II.

11th week:

Seminar: Dental microscope in the other fields of dentistry. I.

12th week:

Seminar: Dental microscope in the other fields of dentistry. II.

13th week:

Seminar: Digital photodocumentation and the dental operating microscope. I.-II.

14th week:

Seminar: Writing test.

Requirements

Seminar: 15

The module is taught provided at least 5, max. 10 students sign up for it.

For information about the module contact: Dr. Bágyi Kinga

Course objectives

The aim of the course is to get to know the theoretical possibilities of magnification in dentistry and

their applications in practice.

Short description of the course

During the course, students will learn about the history of the microscope, the possibilities provided by magnification, the importance of ergonomics in connection with microscopic treatment, the importance of four-handed treatment, the possible applications of the microscope in dentistry, and musculoskeletal disorders. In addition to the theoretical part, there is also opportunity to learn various exercises from a physiotherapist and and to try out the dental operating microscope.

Requirements for signing the lecture book:

- To attend seminars on a regular basis (there is no place for making up for missed classes.)
- Absences are required to be officially certified which cannot be more than 2 seminars.
- To take the final test of the seminar. The student who does not take this grade offering test his/her lecturebook will be refused to be signed.

Examination: Assessment of work on the 5 grade scale

The method of formation of the assesment of work grade:

Based on the result of the final test we follow the below conversion to define the grade:

Achieved result in %	Grade
0-39.9%	fail (1)
40-54.9%	pass (2)
55-69.9%	satisfactory (3)
70-84.9%	good (4)
85-100%	excellent (5)

Retake of the final test is not allowed. If the final test is below 40%(pass), then the mid semester grade is a fail. This can be amended with B and C exam chances in the exam period.

Further reading

Rick Schmidt, Martin Boudro: The Dental Microscope (Why and How)
<http://www.kennewickfamilydental.com/the-dental-microscope.html>

Requirements for taking up the subject: Restorative Dentistry II. (Endodontics)

Department of Pathology

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

Department of Pediatric and Preventive Dentistry

Subject: **PEDIATRIC DENTISTRY ELECTIVE**

Year, Semester: 5th year/2nd semester

Number of teaching hours:

Seminar: **12**

1st week:

Seminar: Praxis management in pediatric dentistry. Organizing a dental screening.

2nd week:

Seminar: Anamnesis, patient charts, dental screening in pediatric dentistry (describing symptoms, diagnostics).

3rd week:

Seminar: How to write a referral letter?

4th week:

Seminar: Common dental materials and instruments used in pediatric dentistry.

5th week:

Seminar: Common mistakes in pediatric dentistry.

6th week:

Seminar: Adolescent problems in pediatric dentistry.

7th week:

Seminar: Problem Based Learning, case analysis.

8th week:

Seminar: Problem Based Learning, case analysis.

9th week:

Seminar: Problem Based Learning, case analysis.

10th week:

Seminar: Problem Based Learning, case analysis.

11th week:

Seminar: Problem Based Learning, case analysis.

12th week:

Seminar: Problem Based Learning, case analysis.

Requirements

The aims and objectives of this course:

The goal of the course is widen and deepen the knowledge obtained during the compulsory pediatric dentistry lectures and practicals.

Short description of the course:

Problem based learning will be used to analyze cases, establish diagnosis and make treatment plan for pediatric dental patients.

Assessment:

AW5 grade practical mark

Requirements:

Active participations on the seminars.

With acceptable written certificate students may miss 2 hours, there is no possibility to compensate the missed seminars.

The missed seminars shall be verified within 3 working days.

Course exemption:

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

Conditions of signing the index:

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.

Department of Periodontology

Subject: **PERIODONTOLOGY ELECTIVE I.**

Year, Semester:

Number of teaching hours:

Lecture: **14**

Department of Physiology

Subject: **PROBLEM BASED LEARNING IN PHYSIOLOGY**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Practical: **28**

1st week:

Practical: The practices are listed at the web site of the elearning.med.unideb.hu web site

(Department of Physiology menu item).

Requirements

1. Signature of the semester

This is an individual project oriented program. The signature of the semester may be refused if the project report is not submitted before to the deadline.

2. Evaluation during the semester

No mid-semester evaluation.

3. Examination

The evaluation is based on the project report submitted before the deadline. For specifics, see the rules below and consult with the elearning.med.unideb.hu web site (Department of Physiology menu item).

Aims of the course: The program offers carefully selected and designed problems from the field of Physiology. Students can learn how to apply problem solving approach, self-conducted strategy and analytic thinking in resolving selected problems. Skill in team-work is helpful in the program.

RULES FOR THE PROBLEM BASED LEARNING (PBL) CREDIT COURSE

1. The program is conducted between 3rd and 11th academic weeks of the second semester.

2. Students must have a tutor, this is the prerequisite for the program. Tutor can be any professor of the Department, not only the student's seminar/practical instructor. The applicant should contact the chosen professor and request him/her to undertake the tutorship. Professors of the Department maintain the right to accept or refuse to be the tutor of an applicant.

3. Special Rule: the applicant has to organize the chosen project and register at the tutor (NOT via NEPTUN) until the end of first academic week. Applications after the first week are not accepted.

4. Preconditions for the program: mark three (3) or better in Physiology I and permission of the Department (arranged by the tutor).

5. The maximum number of participants in the program cannot exceed 100 students. In case, the number of applicants is higher than 100, the seminar/practical instructor or the course coordinator can refuse applicants with mark three or better.

6. Two students works in team on one project, and prepare one mutual report, thus they get the same score at the end of the program regardless their contribution. The Journal Club and Lab Visit programs are carried out individually.

7. Evaluation of the students is based on the written report or the oral presentation using five grade score system (1-5). Grades are final, no make-up is allowed.

8. The list of offered programs is available at the practical lab of the elearning.med.unideb.hu web site (Department of Physiology menu item).

9. The deadline for the program is the end of the 11th academic week. Reports should be submitted to the tutor. Missing the deadline automatically results grade 1 (fail).

10. Detailed information for the program can be accessed on the elearning.med.unideb.hu web site (Department of Physiology menu item).

Subject: **THE REGULATORY ROLE OF THE CELL MEMBRANE IN PHYSIOLOGICAL AND PATHOLOGICAL CONDITIONS**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **20**

1st week:

Lecture: Introduction, a general characterisation of the cell membrane. The electrical and biochemical characteristics of the surface membrane.

2nd week:

Lecture: General description of cardiac ionic currents. The connection between excitatory processes and the regulation of $[Ca^{2+}]_i$

3rd week:

Lecture: $[Ca^{2+}]_i$ dependent excitatory processes in the surface membrane of cardiac cells.

4th week:

Lecture: The structure of the skeletal muscle. Ionic channels underlying the excitability of the skeletal muscle. Molecular structure of ionic channels.

5th week:

Lecture: Changes in surface membrane function in inherited skeletal muscle disorders: degenerative forms (muscle dystrophies). Changes in surface membrane function in inherited skeletal muscle disorders: alterations in

the muscle tone (myotonies).

6th week:

Lecture: The role of the surface membrane in the regulation of calcium homeostasis in neurons. Pathological conditions arising from abnormal calcium handling in neurons.

7th week:

Lecture: Changes in the membrane properties of the neurons under pathological conditions. Pathological conditions arising from the hyperexcitability of neurons.

8th week:

Lecture: The role of TRP channels in the regulation of biological processes of human skin cells. TRP-pathies.

9th week:

Lecture: The role of the endocannabinoid system in the transmembrane signaling of skin-derived cells. Is the human skin always "high"?

Requirements

1. Signature of the semester

Lecture attendance may be followed up by the Department. The lecture will not be delivered if 5 or fewer students show up. Nevertheless, the lecture material is going to be asked in the final assessment.

For continuous updates on all education-related matters, please check the elearning.med.unideb.hu web site (Department of Physiology menu item).

2. Evaluation during the semester

None.

3. Examination

At the end of the course a written final assessment will be organized in the form of multiple choice questions. The result of this assessment will determine the verification mark of the credit course using the following conversion table:

0-39.9%-Failed

40-54.9%-Pass

55-69.9%-Satisfactory

70-84.9%-Good

85-100%-Excellent

Department of Psychology

Subject: **MODERN TECHNIQUES ALLOWING THE INVESTIGATION OF PHYSIOLOGICAL PHENOMENA**

Year, Semester: 2nd year/2nd semester

Number of teaching hours:

Lecture: **30**

1st week:

Lecture: Application of electrophysiological techniques in the investigation of the electric activities of living cells.

2nd week:

Lecture: Methods allowing the monitoring of the intracellular Ca²⁺ concentration in living cells.

3rd week:

Lecture: Analysis, evaluation and interpretation of current recordings. Biostatistics.

4th week:

Lecture: Preparation of neurones for functional investigation. Possible advantages and disadvantages of the applicable methods.

5th week:

Lecture: Investigation of the signal transducing proteins at the levels of proteins, RNA or DNA (immunocytochemistry, immunohistochemistry, confocal microscopy, Western blot, quantitative

[real-time] PCR).

6th week:

Lecture: Cell and tissue culture (primary cultures, cell lines, organ cultures).

7th week:

Lecture: Isolation and identification of contractile proteins by biochemical methods.

8th week:

Lecture: Measurements conducted on isolated ion channels: the bilayer technique.

9th week:

Lecture: tutorial

10th week:

Lecture: Final Assessment.

Requirements

1. Signature of Lecture Book

Lecture attendance may be followed up by the Department. The lecture will not be delivered if 5 or fewer students show up. Nevertheless, the lecture material is going to be asked in the final assessment.

For continuous updates on all education-related matters, please check the departmental web-site (<http://phys.med.unideb.hu>)

2. Evaluation during the semester

None.

3. Examination

At the end of the course a written final assessment will be organised in the form of multiple choice questions. The result of this assessment will determine the verification mark of the credit course using the following conversion table:

- 0-39.9% -Failed
- 40-54.9 -Pass
- 55-69.9% -Satisfactory
- 70-84.9% -Good
- 85-100% -Excellent

Division of Biomathematics

Subject: **COMPUTER SCIENCE**
 Year, Semester: 1st year/2nd semester
 Number of teaching hours:
 Practical: **28**

<p>1st week: Practical: Exemption Tests.</p>	<p>7th week: Practical: Internet.</p>
<p>2nd week: Practical: Word processor programs, MS Word I.</p>	<p>8th week: Practical: Spreadsheets programs, MS Excel I.</p>
<p>3rd week: Practical: Word processor programs, MS Word II.</p>	<p>9th week: Practical: Spreadsheets programs, MS Excel II.</p>
<p>4th week: Practical: Word processor programs, MS Word III.</p>	<p>10th week: Practical: Spreadsheets programs, MS Excel III.</p>
<p>5th week: Practical: Fundamentals and basic concepts of informatics.</p>	<p>11th week: Practical: Spreadsheets programs, MS Excel IV.</p>
<p>6th week: Practical: Logical and physical realization of networks.</p>	<p>12th week: Practical: Computerised presentation, MS PowerPoint.</p>
	<p>13th week: Practical: Summary.</p>
	<p>14th week: Practical: Test.</p>

Requirements

The acquisition of fundamental theoretical and practical knowledge from the function of the modern personal computers. Course description: PC architecture, operating systems, file management,

network knowledge, internet and its opportunities of application, word processor, spreadsheet, the usage of presentational programs, the achievement of scientific databases and its use.

Without registration, there is no way to do the course! First year students who missed/skipped the exemption test, but signed up for the course in the Neptun must attend the course and do the final test at the end. For students attending the informatics course a maximum of 4 absences are allowed during the semester to receive a signature (we recommend to use as few as possible, in case an emergency comes up). This is taken very seriously! Missing more than 4 classes automatically means losing the chance to pass the course. There will be a final test at the end of the semester. Students are allowed to make up the missed practices with another group but only on the given week, if there are enough free seats in the room.

The course start with an exemption test. Only first year students are allowed to write the exemption test at the first week of the given semester with their group (appointment should be checked in the given timetable). In any other cases (students older than first year/repeaters/students who are not exempted) students have a final test at week 14 of the given semester. There is no other self control test during the semester. At the end of the course students will write a final test. The exemption and the final tests covers topics and skills in connection with Microsoft office Word, Excel, and PowerPoint (versions:2016) programs, as written in the curriculum. Both of the tests (exemption and the final test) are written tests. The tests are practical tests, conducted in the computer room. Students passing the exemption test will automatically receive 5 (excellent) grade at the end of the semester. Final grades based on the final test score will be given according to the followings: 0-60% = garde 1 (fail); 61%-70% = grade 2 (pass); 71%-80% = grade 3 (satisfactory); 81%-90% = grade 4; (good) 91% = garde 5 (excellent). Students should download free Office guide books from the internet offered at the webpage of the course (Email registration is required for downloading files). Students who did not get exemption/did not show up at the exemption test/repeaters/students older than first year **MUST ATTEND** on the course. They should join to one of the groups mentioned in the timetable. The number of the seats is limited in the classroom. Students who has informatics course in the given appointment (according to the timetable) have priority to attend the lesson. Others are allowed to join to the given group if there are free seats. Older students have to do the whole course as well. Students passing the exemption test will automatically receive 5 (excellent) grade at the end of the semester. Students who failed the exemption test must attend the course and do the final test at the end. Students having ECDL (European Computer Driving Licence) or are not required to write the exemption test, they should show their ECDL certificate to the educational manager of the deparatment and they will be exempted automatically.

Division of Biophysics

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

Reasonance 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.

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.

Division of Clinical Physiology

Subject: **CLINICAL PHYSIOLOGY**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Lecture: **14**

Seminar: **20**

1st week:

Lecture: Introduction, cellular and molecular factors of pathologic cardiac excitability.

2nd week:

Lecture: Pathologic contractile function of the heart (contractile proteins, intracellular Ca²⁺-homeostasis and cardiac pumping).

3rd week:

Lecture: Myocardial ischemia, myocardial infarction and new ischemic syndromes (hibernation, preconditioning, stunning).
Seminar: The basics of ECG.

4th week:

Lecture: Cardiac hypertrophy and failure.
Seminar: ECG diagnosis of arrhythmias I.

5th week:

Lecture: Heart failure (molecular pathophysiology).
Seminar: ECG diagnosis of arrhythmias II.

6th week:

Lecture: Endothelium, smooth muscle, vessels.
Seminar: Differential diagnostics or arrhythmias, evaluation of ECG recordings.

7th week:

Lecture: Hypertension.
Seminar: Conduction disorders, ECG signs 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.))

<p>10th week: Lecture: Cellular and molecular elements of the respiratory system with clinical significance. Seminar: Electronic pacemakers, mechanisms of arrhythmias.</p> <p>11th week: Lecture: Clinical physiology of the respiratory system. Seminar: ECG signs of electrolyte disorders, differential diagnostics, practicing.</p> <p>12th week: Lecture: Clinical physiology of nutrition and metabolism Seminar: Evaluation of ECG recordings (oral</p>	<p>ECG exam).</p> <p>13th week: Lecture: Clinical physiology of the nervous system I.</p> <p>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.)</p>
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Requirements

Students are expected to attend lectures and obliged to attend seminars. The Department may refuse the acknowledgement of the semester from this subject if a student is absent for more than two seminars. Seminar attendance is recorded electronically during the first 5 minutes of the seminars, thereby late arrivals by 6 or more minutes result in seminar absences. A successful oral ECG test (during the 12th week 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.

Faculty of Dentistry

Subject: **4-HAND TREATMENT**

Year, Semester: 3rd year/2nd semester

Number of teaching hours:

Seminar: **10**

Subject: **THESIS CONSULTATION I.**

Year, Semester: 4th year/1st semester

Number of teaching hours:

Seminar: **75**

Subject: **THESIS CONSULTATION II.**

Year, Semester: 4th year/2nd semester

Number of teaching hours:

Seminar: **75**

Subject: **THESIS CONSULTATION III.**

Year, Semester: 5th year/1st semester

Number of teaching hours:

Seminar: **75**

Subject: **THESIS CONSULTATION IV.**

Year, Semester: 5th year/2nd semester

Number of teaching hours:

Seminar: **75**

CHAPTER 22

TITLES OF THESES

Division of Human Surgery and Operative Techniques

1. Title: Treatment options for perianal abscess
Tutor: Ferenc Győry M.D.
2. Title: Cell-based therapeutic options for burns
3. Title: Difficult-to-treat basal cell cancer: therapeutic possibilities in the era of targeted therapies
4. Title: Forehead reconstructions following skin cancer removal
5. Title: The most common skin tumors in the perioral region and their treatment
6. Title: Therapeutic options for dermal substitution in burns and their importance
7. Title: Treatment options for scars. Current conservative, surgical or combined therapeutic strategies
Tutor: István Juhász M.D., Ph.D., C.Sc.

Division of Dental Medicine

1. Title: Alcoholic liver diseases
2. Title: Diagnosis and treatment of primary biliary cirrhosis
3. Title: Diagnostics and therapy of chronic hepatitis B
4. Title: Epidemiology, diagnostics and therapy of chronic hepatitis C
5. Title: Signs, diagnostics and treatment of portal hypertension
Tutor: István Tornai M.D., Ph.D. habil.

Division of Dental Biochemistry

1. Title: Involvement of the impaired clearance of apoptotic cells in the control of insulin sensitivity
2. Title: Molecular mechanisms participating in the clearance of apoptotic cells
3. Title: Signaling pathways mediating the effect of adenosine in the macrophage chemotaxis
4. Title: The role of apoptotic clearance in muscle regeneration
Tutor: Zsuzsa Szondy M.D., Ph.D., D.Sc.

Department of Anatomy, Histology and Embryology

1. Title: Possible applications of morphofunctional matrices for classification of neurons (computer modelling)
Tutor: Ervin Wolf M.Sc., Ph.D.
2. Title: Correlation analysis of functional brain maps
3. Title: Investigation of contour integration processing in the primary visual cortex using voltage sensitive dye imaging
Tutor: Zoltán Kisvárdy M.Sc., Ph.D., D.Sc.
4. Title: Investigation of signalling mechanisms that regulate cartilage development and maturation
Tutor: Róza Zákány M.D., Ph.D.
5. Title: Interrogation of spinal dorsal horn circuits with electrophysiological and optogenetic tools
6. Title: Light- and electron microscopy level analysis of the axons and axon collaterals of spinal lamina I projection neurons
7. Title: Local synaptic connections of projection neurons in spinal lamina I
8. Title: Morphometric analysis of excitatory and inhibitory interneurons in the spinal dorsal horn
Tutor: Péter Szücs M.D., Ph.D.
9. Title: Extracellular matrix in the developing brainstem
Tutor: Ildikó Wéber M.Sc., Ph.D.
10. Title: Matrix metalloproteases in vestibular lesion
Tutor: Botond Gaál M.Sc., Ph.D.
11. Title: Investigation of neuronal network development in the spinal cord
Tutor: Zoltán Mészár M.Sc., Ph.D.
12. Title: The role of the molecular clock in healthy and osteoarthritic chondrocytes
Tutor: Csaba Matta M.Sc., Ph.D.

13. Title: Role of PACAP signalling in cartilage differentiation and regeneration
Tutor: Tamás Juhász M.Sc., Ph.D.

14. Title: Distribution of the extracellular matrix in the red nucleus and parabrachial area
Tutor: Éva Rácz M.Sc., Ph.D.

15. Title: The endocannabinoid-mediated modulation of spinal nociception

16. Title: The role of astrocytes in spinal pain processing
Tutor: Zoltán Hegyi M.Sc., Ph.D.

17. Title: Quantitative morphological studies of primary afferent-motoneuron connections in the frog's brainstem
Tutor: András Birinyi M.Sc., Ph.D.

18. Title: Role of pro-inflammatory cytokines in neuron-glia interaction during inflammatory pain states
Tutor: Krisztina Holló M.Sc., Ph.D.

19. Title: Mapping of synapses on dendrites of GABAergic neuron subtypes in the cerebral cortex
Tutor: Petra Talapka Ph.D.

Department of Biophysics and Cell Biology

1. Title: Biophysical analysis and functional significance of cell surface protein patterns in T cell-mediated immune responses
Tutor: Andrea Dóczy-Bodnár M.Sc., Ph.D.

2. Title: Study of ion channels pharmacology with animal venoms
Tutor: Béla Péter Hajdú M.Sc., Ph.D.

3. Title: Cytometry of cytotoxic lymphocytes
Tutor: József Bacsó M.D., Ph.D.

4. Title: Elucidation of the catalytic mechanism of ABC transporters
Tutor: Mrs. Klára Katalin Goda M.Sc., Ph.D.

5. Title: Epigenetic regulation of nucleosome-DNA cohesion
Tutor: Gábor Szabó M.D., Ph.D., D.Sc.

6. Title: Interactions between ABC transporters and their membrane environment.
Tutor: Gábor Szabó M.D., Ph.D., D.Sc.

7. Title: Investigations of cell surface distribution of erbB-2 oncoprotein in breast tumor cell lines.
Tutor: János Szöllősi M.Sc., Ph.D., D.Sc., M.H.A.Sc

8. Title: Mathematical analysis and computer modelling of the topology of cell surface proteins
Tutor: László Mátyus M.D., Ph.D., D.Sc.

9. Title: Characterization of multicomponent primary human cell cultures produced for regenerating stem cell deficient corneas
Tutor: György Vereb M.D., Ph.D., D.Sc.

10. Title: Role of molecular interactions between receptor tyrosine kinases and integrins in the therapy resistance tumors
Tutor: György Vereb M.D., Ph.D., D.Sc.

11. Title: Molecular interactions in histopathological diagnosis: development of a FRET application for a confocal fluorescence digital slide scanner.
Tutor: György Vereb M.D., Ph.D., D.Sc.

12. Title: Molecular mechanism of anticancer immune therapy
Tutor: György Vereb M.D., Ph.D., D.Sc.

13. Title: Optimizing efficacy and in vivo persistence of reprogrammed (chimeric antigen receptor-transduced) human immune cells.
Tutor: György Vereb M.D., Ph.D., D.Sc.

14. Title: Physiological roles of the multidrug resistance transporter P-glycoprotein
Tutor: József Zsolt Bacsó M.D., Ph.D.

15. Title: Quantitative investigation of the associations of ErbB proteins using biophysical and molecular biological methods
Tutor: Viktor Péter Nagy M.D., Ph.D., D.Sc.

16. Title: Role of MHC in the organization of cell surface proteins
Tutor: László Mátyus M.D., Ph.D., D.Sc.

17. Title: Role of tumor stem cells in trastuzumab resistant breast tumors
Tutor: János Szöllősi M.Sc., Ph.D., D.Sc., M.H.A.Sc.
18. Title: Studying nuclear receptor function by modern microscopy techniques
Tutor: György Vámosi M.Sc., Ph.D.
19. Title: Studying the inactivation of voltage gated potassium ion channels in heterologous expression systems
Tutor: György Panyi M.D., Ph.D., D.Sc.
20. Title: The correlation between the metastatic potential and chemoresistance of breast tumors with the expression level and association state of ErbB proteins
Tutor: Viktor Péter Nagy M.D., Ph.D., D.Sc.
21. Title: Role of T cell ion channels in tumor cell elimination
Tutor: Béla Péter Hajdu M.Sc., Ph.D.
22. Title: Making point mutations in ion channels
Tutor: Ferenc Papp M.Sc., Ph.D.
23. Title: Examination of the membrane dipole potential in hypercholesterolemic mice
Tutor: Tamás Kovács M.D., Ph.D.
24. Title: Investigation of direct-like effects of cyclodextrins on KV7.4 ion channel
Tutor: Mrs. Florina Zákány M.D., Ph.D.

Department of Anesthesiology and Intensive Care

1. Title: Experimental testing of the neuromuscular junction
Tutor: Ákos Fábián M.D., Ph.D.
2. Title: Preemptive and preventive analgesia
Tutor: Béla Fülesdi M.D., Ph.D., D.Sc.
3. Title: The role of hypothermia in neuroprotection
Tutor: Csilla Molnár M.D., Ph.D.
4. Title: Clinical studies in the field of neuromuscular block and its reversal
Tutor: Adrienn Pongrácz M.D., Ph.D.

Department of Biomaterials and Prosthetic Dentistry

1. Title: Diagnosis of temporomandibular disorders
Tutor: Tünde Radics D.M.D., Ph.D.
2. Title: CAD/CAM technology in fabricating total removable dentures
3. Title: Treatment options for total edentulism
Tutor: István Lampé M.D., L.D.S.
4. Title: Experimental dental composites, what is the direction of the development of modern esthetic dental filling materials?
5. Title: The latest applied technologies in dental composites
6. Title: Treatment of patients suffering from Temporomandibular Joint Problem
Tutor: Katalin Bukovinszky D.M.D.
7. Title: CAD-CAM systems in partial removable prosthodontics
8. Title: In office bleaching
9. Title: Tooth whitening in clinical practice.
Tutor: Tamás Bistey D.M.D., Ph.D.
10. Title: Bruxism and prosthetics treatment
Tutor: Anita Pétercsák D.M.D.
11. Title: Application of pulp derived stem cells in dentistry.
12. Title: Comparative analysis of one- and two-piece dental implants.
13. Title: Growth factors involved in osteogenic differentiation and their application in dentistry.
Tutor: Edit Hrubí D.M.D.
14. Title: 3D printability of biocompatible or biodegradable polymers (SSS)
15. Title: Electrspinning applicability in dentistry (SSL)
16. Title: Polimers and addition materials in 3D printing (SSL)
17. Title: Roles of initiators in 3D printing (SSL)
Tutor: József Bakó M.Sc., Ph.D.
18. Title: Indirect restorations for molars
Tutor: Márta Szegedi D.M.D.

19. Title: Accuracy of subtractive technologies in dentistry

20. Title: CAD/CAM technologies in dentistry

21. Title: Development of intraoral scanners

Tutor: Márton Suta D.M.D.

Department of Behavioural Sciences

1. Title: End of life decisions

Tutor: Sándor Kőműves M.A., Ph.D.

2. Title: Bioethical and biopolitical challenges of modern health care (Faculty of Medicine)

3. Title: Ethical and health policy aspects of the research and clinical use of controlled substances (Faculty of Medicine)

Tutor: János Kristóf Bodnár M.A., Ph.D.

Division of Cardiac Surgery

1. Title: Mid-term results of transcatheter aortic valve implantations -review of the literature

Tutor: Tamás Maros M.D.

2. Title: Composite grafts in coronary surgery - review of the literature

Tutor: Ambrus Horváth M.D.

3. Title: Sutureless aortic valve implantation - review of the literature

Tutor: Lehel Palotás M.D.

4. Title: Non-occlusive mesenteric ischaemia after cardiac surgery-review of the literature

Tutor: Tamás Debreceni M.D.

Department of Public Health and Epidemiology

1. Title: 1. Migration of health workers in the European Union with a focus on regulation 2. Mutual recognition of diplomas in the European Union: a historical overview 3. Prevention and management of diabetes in the EU Member States, with reference to regulation 4. The burden of diabetes in the EU Member States 5. Burden of disease of complications of diabetes mellitus in the EU Member States

Tutor: Orsolya Varga M.D., Ph.D. habil.

2. Title: 1. Mental health of youth 2.

Interventions to improve the mental health of youth 3. Mental health of health care workers 4.

Interventions to improve the mental health of health care workers 5. Relationship between

health literacy and health status (only for dentist students) 6. Relationship between health literacy and medication adherence (only for pharmacist students) 7. Social support among university students

Tutor: Éva Bíró M.D., Ph.D.

3. Title: 1. Sociodemographic, environmental and lifestyle determinants of obesity 2. The effect of neighborhood environment on physical activity and diet 3. The effect of dietary interventions on the risk of chronic non-

communicable diseases 4. Use of Healthy Eating index for the characterization of diet quality 5. Prevalence and determinants of dietary supplement use (only for pharmacist students) 6. Patterns and correlates of anabolic androgenic steroid use (only for pharmacist students) 7. Associations between diet quality and dental caries (only for dentist students) 8. Socioeconomic and lifestyle determinants of dental caries (only for dentist students)

Tutor: Helga Bárdos M.D., M.Sc., Ph.D.

4. Title: 1. Contaminants of traditional Chinese and Indian medicines 2. Morbidity and mortality from oral cavity cancers in selected European countries 3. Toxicology of fluorides 4. Effect of smoking on drug metabolism 5. Toxicology of zinc

Tutor: Sándor Szűcs M.Sc., Ph.D.

5. Title: 1. Conducting systematic review on selected diagnostic research topics 2. Conducting systematic review on selected prognostic research topics 3. Conducting systematic review on selected intervention research topics

Tutor: Szilvia Fiala M.D., Ph.D.

6. Title: 1. Evaluation of chronic care for adult overweighted in general medical practice 2. Evaluation of chronic care for adult smokers in general medical practice 3. Evaluation of chronic care for diabetes mellitus in general medical practice 4. Evaluation of chronic care for hypertension in general medical practice 5. Social inequalities in health 6. Disease burden of rare diseases 7. Evaluating effectiveness of population based screenings 8. Nutritional habit in the first trimester of pregnancy
Tutor: János Sándor M.D., Ph.D.

7. Title: 1. Assessment of health risks of micro- and nano-encapsulated plant protection products: a systematic literature review 2. Investigation of the DNA damaging potential of plant protection products using genotoxicological methods 3. Comparative assessment of the cytotoxic effect of glyphosate and glyphosate based herbicides 4. Assessment of health risks of micro- and nanoencapsulated plant protection products: a systematic literature review 5. Assessment of ergonomic risk factors among workers in different professions
Tutor: Károly Nagy Ph.D.

8. Title: 1. Alcohol consumption and human immunodeficiency virus infection 2. Pharmacological treatment of alcohol use disorders 3. Alcohol use by adolescents in Europe between 1993 and 2019 4. Alcohol use in the European Union 5. Health effects of flame retardants
Tutor: László Pál Ph.D.

9. Title: 1. Mental disorders as a public health issue 2. Screening and counselling interventions for unhealthy alcohol use
Tutor: Judit Diószegi M.D., Ph.D.

10. Title: 1. Analyses of workforce crisis in Hungarian general practices 2. Frequency of influenza vaccination among chronic diseased patients in Hungary: A general practice based investigation 3. Frequency of influenza vaccination among the elderly: A general practice based investigation 4. The effectiveness of hypertension care in Hungary 5. Are serum uric acid levels are associated with cardiovascular risk score among hypertonic patients? 6. Investigation of stroke frequency in adult and mixed general practices 7. Investigation of AMI frequency in adult and mixed general practices
Tutor: Ferenc Vincze M.Sc., Ph.D.

11. Title: 1. Investigation of the global burden of chronic non-communicable diseases 2. Investigation of the global burden of chronic non-communicable diseases regarding socio-economic development 3. Trends in mortality from non-communicable diseases 4. Prevalence of complications due to diabetes mellitus in Europe 5. Socioeconomic determinants of diabetes mellitus complications across Europe
Tutor: Nóra Kovács M.Sc., Ph.D.

12. Title: 1. Health and health behaviour of adolescents 2. Problematic internet use among adolescents 3. Health promotion opportunities among school-aged children
Tutor: Gabriella Péntzes M.Sc., Ph.D.

Division of Cardiology

1. Title: Evaluation of "Flow separation resistance index" in coronary artery disease.
Tutor: Zsolt Kőszegi M.D., Ph.D.

2. Title: Pericardial fat tissue

3. Title: Safety antidiabetic therapy
Tutor: Tibor Fülöp M.D., Ph.D.

4. Title: Novel approaches in the treatment of acute and chronic heart failure
Tutor: Attila Borbély M.D., Ph.D., Arnold Ráduly M.D., Ph.D.

5. Title: Investigating the effects of comprehensive disease-modifying pharmacological therapy in doxorubicin-induced cardiomyopathy

Tutor: Dániel Czuriga M.D., Ph.D.

6. Title: Structural interventions in cardiology

Tutor: Attila Kertész M.D., Ph.D.

7. Title: Pre-TAVI investigations, CT in focus.

8. Title: The role of cardiac-CT -general overview.

Tutor: Rudolf Kolozsvári M.D., Ph.D.

9. Title: Assessment of the right heart side by 3D echocardiography

10. Title: The role of 3D echocardiography in mitral valve disease

Tutor: Csaba Jenei M.D.

11. Title: Vascular disease in patients post myocardial infarction

Efficacy of platelet aggregation inhibitors after acute coronary syndrome

Tutor: Orsolya Tímár M.D., Ph.D.

12. Title: Comparison of STEMI and NSTEMI cases after primary PCI: the role of secondary prevention

Tutor: László Fülöp M.D., Ph.D.

13. Title: Atrial fibrillation and new oral anticoagulant therapy

Tutor: Gábor Kolodzey M.D.

14. Title: Gestational hypertension management at the Department of Cardiology, University of Debrecen.

Tutor: Alexandra Kiss M.D., Ph.D.

15. Title: Investigating the effects of therapeutic hypothermia in patients after out-of-hospital arrest.

Tutor: Árpád Kovács M.D., Ph.D.

Division of Clinical Physiology

1. Title: Improvement of myocardial inotropy under physiological and pathological conditions

Tutor: Zoltán Papp M.D., Ph.D., D.Sc.

2. Title: The role of angiotensin II in cardiovascular diseases

3. Title: Vascular alterations leading to hypertension.

Tutor: Attila Tóth M.Sc., Ph.D., D.Sc.

4. Title: Angiotensin converting enzymes in the laboratory diagnostics

5. Title: Endogenous regulation of the renin-angiotensin-aldosterone system and its clinical significance

Tutor: Miklós Fagyas M.D., Ph.D.

6. Title: Investigating mechanisms contributing to the myogenic tone of the coronary arteries

Tutor: Viktória Csató M.Sc., Ph.D.

Division of Nuclear Medicine and Translational Imaging

1. Title: Importance of FDG PET/CT in cardiology

2. Title: Metabolic parameters in correlation with different oncological therapies

3. Title: Targeted radionuclide therapies in metastatic prostate cancer

4. Title: Targeted radionuclide therapies in neuroendocrin tumors

Tutor: Ildikó Garai M.D., Ph.D.

Department of Medical Imaging

1. Title: Posttherapeutic I-131 whole body SPECT/CT in patients with thyroid cancer

2. Title: The role of Tc99m-Tektrotyd SPECT/CT to evaluate metastatic

neuroendocrine tumors

Tutor: Ildikó Garai M.D., Ph.D.

3. Title: Localisation of anatomical regions of CT scans with machine learning methods

Tutor: Zoltán Barta M.D.

Department of Human Genetics

1. Title: Transcriptional regulation of immune responses.

Tutor: Lajos Széles M.Sc., Ph.D.

2. Title: Analysis of mono-ADP-ribosylated proteins from pro- and eukaryotic cells.
Tutor: András Penyige M.Sc., Ph.D.

3. Title: Analysis of miRNA profile in tissue and plasma samples of glioblastoma patients.
Tutor: Zsuzsanna Birkó M.Sc., Ph.D.

4. Title: Application of genome editing with the CRISPR-Cas9 system in the treatment of genetic diseases.
Tutor: Krisztina Szirák M.Sc., Ph.D.

5. Title: Overview of the background of an arbitrary genetic disorder.

6. Title: Overview of the genetic background influencing the pharmacokinetics and pharmacodynamics of a drug.
Tutor: Judit Keserű M.Sc., Ph.D.

7. Title: Studying the expression of miR-184, miR-194-5p and miR-203a-3p in Wilms' tumor samples.
Tutor: Gergely Buglyó M.D., Ph.D.

8. Title: Cell-free nucleic acids as liquid biopsy biomarkers for diagnosis and treatment of diseases.

9. Title: Exosomes, as possible biomarkers.

10. Title: Study the role of non-coding RNAs in cancers.
Tutor: Beáta Soltész M.Sc., Ph.D.

11. Title: Study the role of microRNAs in ovarian cancer.
Tutor: Melinda Szilágyi-Bónizs M.Sc., Ph.D.

Department of Immunology

1. Title: The role of the HOFI/SH3PXD2B adaptor protein in the regulation of the tumor microenvironment
Tutor: Árpád Lányi M.Sc., Ph.D.

2. Title: The role of innate immune cells in the development of allergic responses

3. Title: The role of innate lymphoid cells (ILC) in human diseases
Tutor: Attila Bácsi M.Sc., Ph.D., D.Sc.

4. Title: Possible use of non-polimorphic MHC-like CD1 molecules in diagnostics.
Tutor: Péter Gogolák M.Sc., Ph.D.

5. Title: Investigation of phytocannabinoid effects on human monocyte-derived dendritic cells

6. Title: Investigation of transient receptor potential channels on human monocyte-derived dendritic cells
Tutor: Attila Szöllősi M.D., Ph.D.

7. Title: Identification of new viral sensors and new regulatory mechanisms in the antiviral responses of human dendritic cells

8. Title: Role of dendritic cells in the development of autoimmune diseases
Tutor: Kitti Pázmándi M.Sc., Ph.D.

9. Title: Study of non-apoptotic cytotoxic processes during immune response, new way of killing apoptosis resistant tumor cells
Tutor: Gábor Koncz M.Sc., Ph.D.

Department of Clinical Oncology

1. Title: Prognostic factors in colorectal cancer
Tutor: Csilla András M.D., Ph.D. habil.

2. Title: Treatment modalities in pancreas cancer
Tutor: Péter Árkosy M.D., Ph.D. habil.

3. Title: Current treatment of metastatic bladder cancer

4. Title: Treatment options of metastatic castration-resistant prostate cancer
Tutor: Balázs Juhász M.D.

5. Title: Cardiological side effects of fluorouracyl in oncological patients
Tutor: Anita Árokszállási M.D., Ph.D.

6. Title: Palliation in oncology
Tutor: Éva Szekanecz M.D., Ph.D.

7. Title: Prognostic factors in low grade and high grade gliomas

8. Title: Treatment options in advanced and metastatic breast cancer

Tutor: József Virga M.D., Ph.D.

Department of Laboratory Medicine

1. Title: Evaluation of known and novel autoantibodies in the diagnostics of autoimmune and immune-mediated disorders

2. Title: Identification of novel biomarkers for the detection and prediction of cirrhosis associated infections

Tutor: Péter Antal-Szalmás M.D., Ph.D.

3. Title: Vitamin D status in colorectal carcinoma

Tutor: Harjit Pal Bhattoa M.D., Ph.D.

4. Title: Cytogenetic aberrations in infertility

5. Title: Genetic examinations in t(12;21) positive childhood acute lymphoblastic leukemia

Tutor: Anikó Ujfalusi M.D., Ph.D.

6. Title: Analysis of serum human epididymis protein 4 (HE4) in the follow-up of cystic fibrosis patients

7. Title: Investigation of platelet microRNA expressions in septic conditions

Tutor: Béla Nagy Jr. M.D., Ph.D.

Division of Clinical Laboratory Science

1. Title: Effect of alfa2-plasmin inhibitor heterogeneity on the risk of thrombosis

2. Title: Method development for the detection of various antithrombin isoforms

Tutor: Éva Katona M.Sc., Ph.D. habil.

3. Title: Inherited hemostasis disorders; laboratory and molecular genetic aspects

4. Title: Laboratory monitoring of the new generation oral anticoagulants

Tutor: Zsuzsanna Bereczky M.D., Dr. habil., Ph.D.

5. Title: Characterization of the heparin-antithrombin interaction with surface plasmon resonance

6. Title: New methods for investigating the interactions of blood coagulation proteins

Tutor: Krisztina Péntes-Daku M.Sc., Ph.D.

7. Title: Next-generation sequencing in rare, inherited coagulation diseases

Tutor: Réka Gindele M.Sc., Ph.D.

8. Title: COVID-19 associated coagulopathy in pregnancy

9. Title: Fibrinolytic marker levels and polymorphisms in inflammatory bowel diseases

10. Title: Investigation of fibrinolytic markers on the outcome of thrombolytic therapy in patients with ischaemic stroke

Tutor: Zsuzsa Bagoly M.D., Dr. habil., Ph.D.

Department of Dermatology

1. Title: Ablative laser treatment in Hailey-Hailey disease

2. Title: DNA repair mechanisms

3. Title: Indications in ablative Er:YAG laser

4. Title: Methods of sunprotection

Tutor: Éva Remenyik M.D., Ph.D., D.Sc.

5. Title: Chemical burns-special features and treatment options

6. Title: Dermatofibrosarcoma protuberans-therapeutic possibilities

7. Title: Possibilities of skin grafting in the reconstruction of defects after removal of skin tumors

8. Title: Role of NPWT (Negative Pressure Wound Therapy) in the treatment of burns

9. Title: Role of subcutaneous island pedicle flap in the reconstruction of defects after removal of skin tumors

Tutor: István Juhász M.D., Ph.D., C.Sc.

10. Title: Deformities and discolorations of the nails: relation to other medical conditions.

Overview of the literature and case reports.

Tutor: Éva Szabó M.D., Ph.D.

11. Title: Different applications of the latissimus dorsi musculocutaneous flap

Tutor: Zoltán Péter M.D.

12. Title: Characteristics of chronic urticaria – analysing our patients' data

13. Title: Methotrexate use in psoriasis – the diagnosis of liver fibrosis as a possible side effect

Tutor: Krisztián Gáspár M.D., Ph.D.

14. Title: Lipid disorder associated dermatological symptoms

15. Title: Pathogenesis and therapy of acne

16. Title: Role of lipid environment in the activation of dermal macrophages

Tutor: Dániel Töröcsik M.D., Ph.D.

17. Title: Drug hypersensitivity reactions: types and diagnostic approach

18. Title: Penicillin allergy: diagnostics and management

Tutor: Irina Sawhney M.D.

19. Title: Correlation of clinicopathological classification of melanoma with disease outcome

Tutor: Gabriella Emri M.D., Ph.D.

20. Title: New therapies in atopic dermatitis

21. Title: New therapies in severe psoriasis vulgaris

22. Title: Omalizumab therapy in chronic urticaria

Tutor: Andrea Szegedi M.D., Ph.D., D.Sc.

Department of Medical Chemistry

1. Title: Investigation of Ser/Thr protein phosphatase in pathogenic fungi (literature review)

Tutor: Viktor Dombrádi M.Sc., Ph.D., D.Sc.

2. Title: Interaction of protein phosphatase 1 catalytic subunit with regulatory proteins

Tutor: Ferenc Erdódi M.Sc., Ph.D., D.Sc.

3. Title: Regulation of macrophage activation

Tutor: László Virág M.D., Ph.D., D.Sc.

4. Title: Signal transduction pathways in pulmonary endothelial cells

Tutor: Csilla Csontos M.Sc., Ph.D., D.Sc.

5. Title: Study of metabolic processes with special regard to the involvement of mitochondrial activity.

Tutor: Péter Bay M.Sc., Ph.D., D.Sc.

6. Title: Application of High-Content Imaging technology in Life Sciences

Tutor: Endre Kókai M.Sc., Ph.D.

7. Title: Overcoming insulin resistance by SMTNL1-mimicking peptide

8. Title: Signalling pathways in endometriosis

Tutor: Beáta Lontay M.Sc., Ph.D.

9. Title: Inhibition of sodium-glucose cotransporter of kidney by glucose-based compounds also interfering with glycogenolysis

Tutor: Tibor Docsa M.Sc., Ph.D.

10. Title: Regulation of protein phosphatase-1 by inhibitory proteins and the translocation of the targeting subunit

Tutor: Andrea Kiss M.Sc., Ph.D.

11. Title: High-Throughput Screening

Tutor: Csaba Hegedűs M.D., L.D.S., Ph.D.

12. Title: Autophagy in physiological and pathological processes

Tutor: Katalin Kovács M.Sc., Ph.D.

13. Title: Posttranslational modifications of the mitochondrial fission protein Drp1 and their role on mitochondrial morphology.

14. Title: The effect proteasomal inhibition in Huntington's disease.

Tutor: Krisztina Tar M.Sc., Ph.D.

15. Title: The effects of bacterial metabolites on intestinal motility.

16. Title: The role of HCN2 inhibition in the development of ileus.

17. Title: The role of mechanotransduction in the upregulation of CXCL1 in the small intestine

Tutor: Karen Uray M.Sc., Ph.D.

Department of Medical Microbiology

1. Title: Antimicrobial cell-mediated immunity measured by mRNA tests

Tutor: József Kónya M.D., Ph.D., D.Sc.

2. Title: Evaluation of fungicidal effect of antifungal agents using time-kill curves

3. Title: New and older agents in antifungal chemotherapy

Tutor: László Majoros M.D., Ph.D.

4. Title: Prevalance of human polyomaviruses

Tutor: Eszter Csoma M.Sc., Ph.D.

5. Title: Effects of human papillomavirus oncoproteins on cellular signaling pathways in keratinocytes

Tutor: Anita Szalmás M.Sc., Ph.D.

6. Title: Intratype variation of human papillomaviruses

Tutor: György Veress M.Sc., Ph.D.

7. Title: The roles of non-coding RNA molecules in infectious diseases

Tutor: Brigitta László M.Sc., Ph.D.

8. Title: Phylogenetic and functional analysis of sequence variation of high-risk human papillomaviruses

Tutor: Eszter Gyöngyösi M.Sc., Ph.D.

9. Title: The examination of biology of microbial biofilms

Tutor: Renátó Kovács M.Sc., Ph.D.

Department of Internal Medicine

1. Title: Immunotherapy of B cell lymphomas.

2. Title: Safety profile of prolonged rituximab therapy in lymphomas.

3. Title: Targeted therapy in non-Hodgkin's lymphomas

Tutor: Lajos Gergely M.D., D.Sc.

4. Title: Lipid abnormalities in hypothyroidism.

5. Title: The function of LDL in lipid metabolism

Tutor: György Paragh M.D., Ph.D., D.Sc.

6. Title: Diagnostic tests and imaging techniques in endocrinology.

Tutor: Endre Nagy M.D., Ph.D., D.Sc.

7. Title: Adipokines and Insulin Resistance

8. Title: Insulin resistance and non-alcoholic fatty liver disease

9. Title: Obesity: Diagnosis and Treatment

10. Title: Obesity: Etiology and Co-morbidities

Tutor: Péter Fülöp M.D., Ph.D. habil.

11. Title: Diabetic neuropathy and oxidative stress

Tutor: Ferenc Sztanek M.D., Ph.D.

12. Title: Familial antiphospholipid syndrome

Tutor: Pál Soltész M.D., Ph.D., D.Sc.

13. Title: Autoimmune disorders and GI tract

Tutor: Zsolt Barta M.D., Ph.D.

14. Title: The disease course after stent implantation in peripheral arterial disease

Tutor: György Kerekes M.D., Ph.D.

15. Title: Novel therapeutical approaches in multiple myeloma

16. Title: The impact of multi-drug resistance genes in the prognosis of lymphoproliferative disorders

Tutor: László Váróczy M.D., Ph.D. habil.

17. Title: Inherited and acquired thrombophilia

18. Title: New direct oral anticoagulants

19. Title: Stem cell therapy in peripheral arterial disorders

Tutor: Zoltán Boda M.D., Ph.D., D.Sc.

20. Title: Gastric cancer: clinics and treatment

21. Title: Gastrointestinal bleeding

22. Title: Gluten sensitive enteropathy

23. Title: Inflammatory bowel diseases.

24. Title: Lymphomas in the gastrointestinal tract.

Tutor: István Altorjay M.D., Ph.D., D.Sc.

25. Title: Epidemiology, diagnostics and therapy of chronic hepatitis C

26. Title: Pathomechanism of alcoholic hepatitis
27. Title: Signs, diagnostics and treatment of portal hypertension.
28. Title: Therapeutic options in primary sclerotizing cholangitis
29. Title: Treatment of autoimmune hepatitis
Tutor: István Tornai M.D., Ph.D. habil.
30. Title: A case history of an interesting acute myeloid leukaemia patient in the 2nd Department of Medicine (connection with the literature data)
Tutor: Attila Kiss M.Sc., Ph.D. habil.
31. Title: Chronic neutrophilic leukaemia
Tutor: Béla Telek M.D., Ph.D.
32. Title: Biological treatment of ulcerative colitis
33. Title: Extraintestinal association in IBD
Tutor: Károly Palatka M.D., Ph.D. habil.
34. Title: Bacterial infection in liver cirrhosis
35. Title: Clinical significance of chronic pancreatitis
36. Title: Current therapeutic options of acute pancreatitis
Tutor: Zsuzsa Vitális M.D., Ph.D.
37. Title: Philadelphia negative chronic myeloproliferative neoplasms-novel genetic and therapeutic improvements
38. Title: Recent advances in the management of chronic ITP
Tutor: Péter Batár M.D., Ph.D.
39. Title: Are the bacterial infections predictable in liver cirrhosis?
40. Title: Role of serological markers in prediction of disease course and response to therapy in inflammatory bowel diseases.
Tutor: Mária Papp M.D., Ph.D., D.Sc.
41. Title: Gastroesophageal reflux disease
Tutor: László Dávida M.D.
42. Title: Ischemic colitis.
Tutor: Zoltán Csiki M.D., Ph.D.
43. Title: Life quality of Raynaud syndrome
Tutor: Zoltán Csiki M.D., Ph.D.

Department of Pathology

1. Title: Molecular classification of glial neoplasms
2. Title: Overview of non-adenohypophysaer neoplastic lesion within and around the sella
3. Title: Use of IDH-1 immunohistochemistry in surgical neuropathology
Tutor: Péter Molnár M.D., D.Sc.
4. Title: Functional analysis of malignant lymphomas using image analysis
5. Title: Mitotic failures and cancer progression
6. Title: Molecular diagnostics of solid tumors
Tutor: Gábor Méhes M.D., D.Sc.

Department of Pharmacology and Pharmacotherapy

1. Title: Cardiovascular risk factors
2. Title: Metabolic link between obesity and insulin resistance
Tutor: Zoltán Szilvássy M.D., Ph.D., D.Sc.
3. Title: Anxiety in the dental chair: pharmacological treatment
4. Title: Arrhythmic patient in dentistry
5. Title: Optional title in pharmacology
6. Title: Parkinson patient in the dental chair
7. Title: Pharmacological and clinical significance of adenosine receptor antagonists
8. Title: Pharmacological and non-pharmacological treatment of endothelial dysfunction
9. Title: Pharmacology of antidepressive drugs: dental implications
10. Title: Pharmacotherapy of trigeminal neuralgia
Tutor: József Szentmiklósi M.D., Ph.D.
11. Title: Emerging roles of prostaglandin DP1 and DP2 receptors in acute and chronic aspects of allergic diseases
12. Title: Optional title in pharmacology
13. Title: Pharmacological treatment of acute decompensated heart failure (ADHF)
14. Title: Pharmacology of herbal remedies
15. Title: Pharmacology of neurogenic inflammation
16. Title: Pharmacotherapy of Amyotrophic

Lateral Sclerosis (ALS)

17. Title: Pharmacotherapy of Duchenne Muscular Dystrophy (DMD)

18. Title: Possible pharmacological exploitations of TRPV1 receptors

19. Title: Use of Histone deacetylase inhibitors (HDI): Novel advances in cancer treatment

Tutor: Róbert Pórszász M.D., Dr. habil., MBA, Ph.D.

20. Title: Effect of colony stimulating factors or other drugs on bone marrow-derived cell lines

21. Title: How insulin resistance influences drug effects

22. Title: Selected topic in field experimental hemato-oncology

Tutor: Ilona Benkő M.D., Ph.D.

23. Title: Connections between rheumatoid arthritis and periodontal disease with a focus on pharmacotherapy

24. Title: Immune checkpoint inhibitors in advanced oral cancer

25. Title: Optional title on cancer chemotherapy
Tutor: Attila Megyeri M.D., Ph.D.

26. Title: Class I antiarrhythmic agents: dental implications

27. Title: COX-3 inhibitors in the dental practice

28. Title: Optional title in pharmacology

29. Title: Pharmacotherapy of bronchial asthma: dental implications

30. Title: Reflux disease and the dental patient
Tutor: Ágnes Cseppentő M.D.

31. Title: Optional title on antibacterial chemotherapy

Tutor: Zsuzsanna Gál M.Sc., Ph.D.

32. Title: Optional title in pharmacology

Tutor: Béla Juhász D.Pharm., Dr. habil., Ph.D.

33. Title: Optional title in pharmacology

Tutor: Balázs Varga D.Pharm., Ph.D.

34. Title: Optional title in pharmacology

Tutor: Mariann Bombicz D.Pharm.

35. Title: Optional title in pharmacology

Tutor: Dániel Priksz D.Pharm.

Department of Physiology

1. Title: Expression and significance of the TASK channels in physiological and pathological conditions

Tutor: Péter Szücs M.D., Ph.D.

2. Title: Alterations of intracellular calcium concentration in pathological conditions

Tutor: László Csernoch M.Sc., Ph.D., D.Sc.

3. Title: Regional differences in the electrophysiological properties of cardiomyocytes

Tutor: Péter Nánási M.D., Ph.D., D.Sc.

4. Title: Role of afterdepolarization mechanisms in the arrhythmogenesis

Tutor: Tamás Bányász M.D., Ph.D., D.Sc.

5. Title: Electrophysiological properties of mammalian cardiac tissues

Tutor: János Magyar M.D., Ph.D., D.Sc.

6. Title: Beat-to beat variability of cardiac repolarization

Tutor: Norbert Szentandrassy M.D., Ph.D.

7. Title: Studies on ion channels incorporated into artificial membranes

Tutor: István Jóna M.Sc., Ph.D., D.Sc.

8. Title: Role of late sodium current in the arrhythmogenesis

Tutor: Balázs Horváth M.D., Ph.D.

9. Title: Role of potassium channels in neuron function

Tutor: Balázs Pál M.D., Ph.D.

10. Title: Properties of vanilloid receptors

Tutor: István Balázs Tóth M.Sc., Ph.D.

11. Title: Role of Protein Kinase C isoforms in cell function.

Tutor: Gabriella Czifra M.Sc., Ph.D.

Department of Emergency Medicine

1. Title: Cardiac rhythm disturbances.
Hypertensive emergencies.
Tutor: Zoltán Szabó M.D., Ph.D.

Division of Endocrinology

1. Title: Diagnostic tests and imaging techniques in endocrinology
Tutor: Endre Nagy M.D., Ph.D., D.Sc.

2. Title: Clinical aspects and management of insulinomas

3. Title: Current treatment of Acromegaly
Tutor: Miklós Bodor M.D., Ph.D.

4. Title: Treatment of Graves' disease
Tutor: Annamária Erdei M.D., Ph.D.

Division of Gastroenterology

1. Title: Gastric cancer: clinics and treatment
2. Title: Gastrointestinal bleeding
3. Title: Gluten sensitive enteropathy
4. Title: Inflammatory bowel diseases
5. Title: Lymphomas in the gastrointestinal tract
Tutor: István Altorjay M.D., Ph.D., D.Sc.

6. Title: Epidemiology, diagnostics and therapy of chronic hepatitis C

7. Title: Pathomechanism of alcoholic hepatitis

8. Title: Signs, diagnostics and treatment of portal hypertension

9. Title: Statins and liver diseases.

10. Title: The haemostasis system and liver cirrhosis

11. Title: Therapeutic options in primary sclerosing cholangitis

12. Title: Treatment of autoimmune hepatitis
Tutor: István Tornai M.D., Ph.D. habil.

13. Title: Biological treatment of ulcerative colitis

14. Title: Extraintestinal association in IBD
Tutor: Károly Palatka M.D., Ph.D. habil.

15. Title: Hemostases disorder in liver cirrhosis

16. Title: Impaired renal function in liver cirrhosis

17. Title: Reflux disease and complications
Tutor: Zsuzsa Vitális M.D., Ph.D.

18. Title: Are the bacterial infections predictable in liver cirrhosis?

19. Title: Biomarkers of gut-hepatobiliary crosstalk in primary sclerosing cholangitis

20. Title: Laboratory diagnosis of autoimmune hepatitis

Tutor: Mária Papp M.D., Ph.D., D.Sc.

Division of Haematology

1. Title: Immunotherapy of B-cell lymphomas

2. Title: Infections in allogenic transplantation

3. Title: Salvage treatment outcome in diffuse large B-cell lymphoma

4. Title: The role of PET/CT imaging in lymphomas

Tutor: Lajos Gergely M.D., D.Sc.

5. Title: Diagnosis and types of autoimmune hemolytic anaemias

6. Title: Diagnosis of rare hereditary connective tissue diseases

Tutor: Boglárka Brúgós M.D., Ph.D.

7. Title: Coagulation tests in multiple myeloma

8. Title: Monoclonal antibody-based therapies in multiple myeloma

9. Title: The importance of Fc gamma receptor polymorphism in anti CD38 therapy for multiple myeloma

Tutor: László Váróczy M.D., Ph.D. habil.

10. Title: COVID, post-COVID and haemostasis
Tutor: György Pfliegler M.D., Ph.D. habil.

11. Title: Assessment of cardiovascular risk factors and comorbidities in patients with haemophilia

Tutor: Ágota Schlamadinger M.D., Ph.D.

12. Title: Philadelphia negative myeloproliferative neoplasms - novel genetic and therapeutic improvements

13. Title: Recent advances in the management of chronic ITP

Tutor: Péter Batár M.D., Ph.D.

14. Title: New agent for the treatment of TTP and our practice

Tutor: Katalin Rázsó M.D.

15. Title: Genetic abnormalities in chronic lymphocytic leukaemia

16. Title: Implication of the minimal residual disease chronic lymphocytic leukaemia

17. Title: Modern treatment modalities in chronic lymphocytic leukaemia

Tutor: Róbert Szász M.D.

18. Title: Novel therapies in the treatment of T-cell lymphomas

19. Title: Our experiences with transplantation of T-cell lymphoma patients

Tutor: Edit Páyer M.D.

20. Title: Erdheim-Chester disease: diagnostics, treatment and follow-up

21. Title: Features of COVID-19 in hematology patients

22. Title: Fertility after chemotherapy for Hodgkin's lymphoma

23. Title: Prognostic value of FDG-PET/CT in patients with mantle cell lymphoma

Tutor: Ferenc Magyari M.D., Ph.D.

24. Title: Infectious complications and immunosuppression following hematopoietic stem cell transplantation

Tutor: Zita Radnay M.D.

25. Title: Clinical and biological prognostic factors in the treatment of patients with follicular lymphoma

Tutor: Ádám Jóna M.D., Ph.D.

26. Title: The prognostic value of Δ SUV max in the first-line treatment of Hodgkin's lymphoma

Tutor: László Imre Pinczés M.D.

Division of Metabolism

1. Title: Significance of lipoprotein(a) in the development of cardiovascular disease

Tutor: György Paragh M.D., Ph.D., D.Sc.

2. Title: Adipokines and insulin resistance

3. Title: Hypertriglyceridemia, cardiovascular risk and pancreatitis: causes and consequences

4. Title: Obesity: diagnosis and treatment

5. Title: Obesity: etiology and consequences

6. Title: The role of adipokines in the complications of obesity

Tutor: Péter Fülöp M.D., Ph.D. habil.

Division of Nephrology

1. Title: Vascular calcification

Tutor: József Balla M.D., Ph.D., D.Sc.

2. Title: Atherosclerosis and chronic kidney disease

Tutor: István Kárpáti M.D., Ph.D.

3. Title: Cardiovascular risk modification in PD patients

Tutor: Réka P. Szabó M.D., Ph.D.

4. Title: Primary Membranous Nephropathy - after the PLA2-RA era

Tutor: Csilla Markóth M.D.

Division of Rheumatology

1. Title: Osteoporosis in systemic sclerosis

2. Title: Quality of life in systemic sclerosis

Tutor: Szilvia Szamosi M.D., Ph.D.

3. Title: Diagnosis and therapy of early arthritis

4. Title: Modern therapy of vasculitides

Tutor: Edit Végh M.D.

5. Title: Extra-articular manifestations in ankylosing spondylitis

Tutor: Nóra Bodnár M.D., Ph.D.

6. Title: Clinical and serological features, therapeutic possibilities of myositis-overlap syndromes at the Department of Rheumatology, University of Debrecen
Tutor: Levente Bodoki M.D., Ph.D.

7. Title: Therapeutic opportunities in psoriatic arthritis
Tutor: Zsófia Pethő M.D.

Department of Neurology

1. Title: Cerebral hemodynamics and cognitive dysfunction in treated and non-treated stroke patients
2. Title: Misdiagnosis in neurology: causes and consequences
3. Title: Neurosonological investigations in acute and chronic stroke patients
4. Title: Non-invasive investigation of endothelial dysfunction.
5. Title: The autopsy as the ultimate yardstick of medicine. Is it still true?
Tutor: László Csiba M.D., Ph.D., D.Sc., M.H.A.Sc.

6. Title: COVID-19 and Multiple Sclerosis
7. Title: Diagnosis and differential diagnosis of multiple sclerosis
8. Title: Exercise in Multiple Sclerosis
9. Title: Multiple sclerosis-treatment in 2022
10. Title: Pregnancy in multiple sclerosis
Tutor: Tünde Csépany M.D., Ph.D.

11. Title: Cerebral vasoreactivity after epileptic seizure
12. Title: Cerebral vasoreactivity after sleep deprivation
13. Title: Clinical outcome of patients with acute ethanol consumption and acute ischemic stroke out of the time window
14. Title: COVID and stroke
15. Title: Effect of rheology abnormalities on neurovascular coupling
16. Title: Effect of sleep deprivation on neurovascular coupling
17. Title: Short-term changes in cerebral vasoreactivity after decrease of elevated blood pressure
Tutor: László Oláh M.D., Ph.D., D.Sc.

18. Title: Immunological relations of narcolepsy
19. Title: Sleep and the glymphatic system
20. Title: Wearable devices in epilepsy and sleep disorders
Tutor: Norbert Kozák M.D., Ph.D.

Department of Neurosurgery

1. Title: Treatment of silent cerebral aneurysms
Tutor: Sándor Szabó M.D., Ph.D.

2. Title: Craniocerebral injuries of early childhood
3. Title: Surgical strategies in meningiomas invading venous sinuses

4. Title: The role of extracellular matrix in neurosurgical pathologies
Tutor: Álmos Klekner M.D., Ph.D. habil.

5. Title: Treatment of trigeminal neuralgia, the role of stereotactic radiosurgery
Tutor: József Dobai M.D.

6. Title: Epidemiology and treatment strategies of spinal tumors
7. Title: Treatment options of spinal metastatic tumors
Tutor: Péter Ruszthi M.D.

8. Title: Diffusion tensor imaging possibilities in deep brain stimulation
Tutor: Gábor Fekete M.D., Ph.D.

9. Title: Instrumentation in spinal degenerative pathologies
Tutor: Rahmani Mohammad Tayeb M.D.

Department of Obstetrics and Gynecology

1. Title: Clinical trials of new drugs for the treatment of osteoporosis
Tutor: Ádám Balogh M.D., Ph.D., D.Sc.

2. Title: Diagnosis and Treatment of Endometrial Cancer
3. Title: Diagnosis and Treatment of Ovarian Cancer

4. Title: Screening /Diagnosis and Treatment of Cervical Cancer
Tutor: Zoltán Hernádi M.D., Ph.D., D.Sc.
5. Title: Non-invasive prenatal testing for chromosomal aneuploidies
Tutor: Olga Török M.D., Ph.D. habil.
6. Title: Efficiency and safety of first line chemotherapy in ovarian cancer
7. Title: Efficiency and safety of second and subsequent line chemotherapy in ovarian cancer
8. Title: Efficiency of HPV vaccination
Tutor: Róbert Póka M.D., Dr. habil., Ph.D.
9. Title: Meiotic abnormalities and their clinical significance in human reproduction
10. Title: Role of Doppler ultrasound in antenatal care
Tutor: Tamás Szilveszter Kovács M.D., Ph.D.
11. Title: Anovulatory infertility
12. Title: Examination of genetic concerns about the safety of assisted reproduction
13. Title: Role of antimüllerian hormone (AMH) in clinical practice
14. Title: Ultrasound dating in pregnancy
Tutor: Attila Jakab M.D., Ph.D. habil.
15. Title: Cervical cancer prevention: the role and the future of HPV vaccination besides conventional screening
16. Title: New treatment strategies in ovarian cancer
Tutor: Zoárd Krasznai M.D., Ph.D. habil.
17. Title: Pregnancy in unknown location (PUL)
Tutor: Péter Daragó M.D.
18. Title: Analysis of perioperative results of endometriosis surgery
19. Title: Role of endoscopy in infertility work-up
Tutor: Péter Török M.D., Ph.D. habil.
20. Title: Autoimmune diseases in human reproduction
Tutor: Szilvia Vad M.D., Ph.D.
21. Title: Screening of preeclampsia in the first trimester of pregnancy
Tutor: László Orosz M.D., Ph.D.
22. Title: Pregnancy care in PCOS patients
23. Title: Special aspects of pregnancy care in patients with endocrine disorders
24. Title: Thyroid autoimmunity-clinical significance, prevention and treatment in human reproduction
Tutor: Tamás Deli M.D., Ph.D.
25. Title: Diagnosis and therapy in urogynecology
Tutor: Bence Kozma M.D., Ph.D.
26. Title: Laparoscopic techniques in benign gynecologic pathologies
27. Title: New surgical methods in gynecologic oncology
28. Title: Types and methods of labour induction and correlation with caesarean section rate
Tutor: Rudolf Lampé M.D., Ph.D. habil.
29. Title: Contraception in the 21st century
Tutor: Balázs Erdódi M.D.
30. Title: New methods in radical surgery of ovarian cancer
Tutor: Szabolcs Molnár M.D., Ph.D.
31. Title: Comparative study of caesarean sections in Europe
32. Title: The influence of mode of delivery on neonatal and maternal health
Tutor: Jashanjeet Singh M.D.
- Division of Gynecological Oncology**
1. Title: Chemotherapy of ovarian cancer
2. Title: Prognostic relevance of HPV-infection in cervical cancer
3. Title: Surgical treatment of HPV-infection
4. Title: The prognostic role of CA-125 in ovarian cancer
Tutor: Zoltán Hernádi M.D., Ph.D., D.Sc.
5. Title: Chemotherapy of cervical cancer
6. Title: Epidemiology and therapy of vulvar cancer

7. Title: Epidemiology of metastatic ovarian cancer
 8. Title: Follow-up of endometrial cancer patients, analysis of prognostic factors
 9. Title: Prothrombotic states in gynaecologic cancer
 10. Title: Superoxid anion production of granulocytes in gynecologic cancer
 Tutor: Róbert Póka M.D., Dr. habil., Ph.D.

11. Title: Prognostic factors and treatment of cervical cancer
 12. Title: The role of CA125 and HE4 in the follow-up of ovarian cancer
 Tutor: Zoárd Krasznai M.D., Ph.D.

Department of Ophthalmology

1. Title: Advanced dry eye diagnostics
 2. Title: Corneal topography/tomography
 3. Title: Ocular manifestations of COVID infection
 Tutor: László Módis M.D., Ph.D., D.Sc.
4. Title: Changes in visual acuity and macular oedema after anti-VEGF injections and grid photocoagulation in central retinal vein occlusion
 5. Title: The role of the latest anti-VEGF injections in the treatment for macular oedema following central retinal vein occlusion
 Tutor: Valéria Nagy M.D., Ph.D.
6. Title: Examination of keratoconus progression
 7. Title: Longitudinal non-contact evaluation of the anterior segment of the eye in healthy humans
 8. Title: Ophthalmological manifestations of immune-mediated diseases
 9. Title: Treatment of non-infectious uveitis
 Tutor: Mariann Fodor M.D., Dr. habil., Ph.D.
10. Title: Contact lens wear and complications
 11. Title: Orthokeratology
 Tutor: Beáta Kettesy M.D., Ph.D.
12. Title: Corneal measurements with Pentacam
 13. Title: Refractive laser-surgical interventions
 Tutor: Bence Lajos Kolozsvári M.D., Ph.D.

14. Title: Treatment of Graves' orbitopathy
 Tutor: Zita Steiber M.D., Ph.D.

15. Title: Change in treatment of intraocular tumors from the first application of brachytherapy till now in Hungary
 16. Title: Investigation of vascular endothelial growth factor level in the tear of uveal melanoma patients
 Tutor: Éva Surányi M.D., Ph.D.

17. Title: Pathogenesis of Graves' orbitopathy
 18. Title: Proliferation and hyaluronan production of retrobulbar fibroblasts in thyroid associated orbitopathy
 Tutor: Bernadett Ujhelyi M.D., Ph.D.

19. Title: Assessing the safety and efficacy of intravitreal ranibizumab as a preoperative adjunct treatment before vitrectomy surgery in severe proliferative diabetic retinopathy (PDR) compared to standard vitrectomy alone
 20. Title: Evaluate and demonstrate the results of the Hungarian Lucentis National Patient Registry
 Tutor: Attila Vajdas M.D.

21. Title: Ocular manifestations in systemic autoimmune diseases
 Tutor: Anikó Rentka M.D., Ph.D.

22. Title: Dry eye in blepharospasm
 Tutor: Annamária Nagy M.D., Ph.D.

23. Title: BCVA change after intravitreal ranibizumab injection
 24. Title: IOP change after intravitreal ranibizumab injection
 Tutor: Erika Papp M.D.

25. Title: Clinical characteristics and etiopathogenesis of keratoconus
 26. Title: Experiences with the treatment of uveal melanomas in Hungary
 27. Title: Uveal melanoma: epidemiology, etiology, and treatment
 Tutor: Dorottya Polyák-Pásztor M.D., Ph.D.

28. Title: Treatment options for intraocular vascular disorders.

Tutor: Szabolcs Balla null

29. Title: Artificial intelligence in ophthalmology, review of the literature

Tutor: Beáta Bajdik M.D.

30. Title: Examination and treatment of diabetic maculopathy

31. Title: Stem cells of the cornea

32. Title: Surgical treatment of retinal diseases

Tutor: Lili Takács M.D., Ph.D.

33. Title: Refractive changes after cataract surgery

Tutor: Lilla Simon M.D.

34. Title: Biometry characteristics of high myopic eyes

Tutor: Noémi Széll M.D., Ph.D.

Department of Orthopedic Surgery

1. Title: Topic will be discussed personally

Tutor: Zoltán Karácsonyi M.D.

2. Title: Topic will be discussed personally

Tutor: Csenge Szeverényi M.D., Ph.D.

3. Title: Topic will be discussed personally

Tutor: Tamás Bazsó M.D.

4. Title: Topic will be discussed personally

Tutor: Zsolt Hunya M.D.

Department of Otorhinolaryngology and Head and Neck Surgery

1. Title: The role of cochlear implant

2. Title: The role of the bone anchored hearing aids

Tutor: László Tóth M.D., Ph.D. habil.

3. Title: Analysis of the aetiology and patomechanism of the development of the otitis media with effusion

4. Title: Modern aspects of tonsillectomy versus tonsillotomy

5. Title: Rehabilitation of speech after total laryngectomy

6. Title: The effectiveness of surgical treatment of focal oto-rhino-laryngological diseases on dermatologic diseases

7. Title: The utility of the neuromonitor during surgeries of the big salivary glands

Tutor: Szilárd Gyula Rezes M.D., Ph.D.

8. Title: Diagnostic possibilities of hearing loss and rehabilitation of sensorineural hearing loss

Tutor: Judit Szilvássy M.D., Ph.D. habil.

Department of Pediatrics

1. Title: Prognostic factors in childhood acute lymphoblastic leukemia

Tutor: Csongor Kiss M.D., Ph.D., D.Sc.

2. Title: Adding an Electrocardiogram to the Pre-participation Examination in Competitive Athletes. Review.

Tutor: Gábor Mogyorósy M.D., Ph.D.

3. Title: Malformations of the central nervous system in newborns.

Tutor: Andrea Nagy M.D.

4. Title: Anti-TNF use in pediatric inflammatory bowel disease

Tutor: Éva Nemes M.D., Ph.D.

5. Title: Characteristics of Graves' disease in childhood

6. Title: Primary immunodeficiency in childhood: case reports

7. Title: Systemic autoimmune diseases in childhood

Tutor: Rita Káposzta M.D., Ph.D.

8. Title: Mutational analysis of x-linked hyperphosphatemic ricket (XLH) in children

Tutor: Tamás Szabó M.D., Ph.D.

9. Title: Treatment options of resistant/relapsed pediatric Hodgkin lymphoma

Tutor: István Szegedi M.D., Ph.D.

10. Title: Implantable venous access systems in pediatric use: implantation, management and complications

Tutor: Ágnes Magyar M.D.

11. Title: Controversies in the surgical management of congenital diaphragmatic hernias
Tutor: László Sasi Szabó M.D.

12. Title: Prognostic importance of ultrasound in small bowel invagination
Tutor: Klára Nagy-Erdei M.D.

13. Title: Laparoscopic versus open pyeloplasty in children - A single centre experience and review of the literature
Tutor: Levente Szabó M.D.

14. Title: Negative pressure wound therapy (NPWT) in pediatric surgery
Tutor: Péter Juhász M.D.

15. Title: Cytogenetic and molecular genetic alterations in pediatric acute leukemias between 2015 and 2020
Tutor: Zsuzsanna Gaál M.D., Ph.D.

16. Title: Bioinformatic systems in childhood acute lymphoblastic leukemia
Tutor: Katalin Megyesán null

Division of Neonatology

1. Title: Neurodevelopmental outcome in preterm and low birth weights infants
Tutor: Nóra Katona M.D.

2. Title: In utero circulation and preterm birth

3. Title: Perinatal consequences of maternal autoimmune diseases

4. Title: Respiratory and circulatory adaptation after birth

5. Title: Respiratory treatment of preterm neonates

6. Title: Screening and treatment of perinatal infections

7. Title: Special nutrition of neonates with congenital heart defect

Tutor: Balázs Kovács-Pászthy M.D.

8. Title: Mortality and morbidity of very low birth weight preterm infants

Tutor: Magdolna Riszter M.D.

9. Title: Less Invasive Surfactant Administration -a narrative review

10. Title: Lung ultrasound in the Critically Ill Neonate

Tutor: Gergely Balázs M.D.

DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION

1. Title: Studying the effectiveness of physiotherapy modalities after botulinum toxin treatment for post-stroke and spasticity

2. Title: Testing the effectiveness of the upper-extremity repetitive task practice and forced aerobic training added to ergotherapy to improve upper limb and cognitive functions

3. Title: The efficiency test of the electromyogram-triggered FES treatment in hemiparetic patients and the visual feedback training in the development of upper limb functions

4. Title: The relationship of physiological and functional changes observed in complex rehabilitation programs (obesity and stroke rehabilitation) with adipocytes
Tutor: Zoltán Jenei M.D., Ph.D.

Department of Psychiatry

1. Title: The dietetic and gastrointestinal basis of autism

Tutor: Csaba Móri E. M.D.

2. Title: Cognitive theory and therapy of depression

3. Title: Cognitive theory and therapy of generalized anxiety disorder

4. Title: Effectiveness of Cognitive Behaviour Therapy in OCD

5. Title: Effectiveness of schema therapy in personality disorders

6. Title: Emotion dependent and independent cognitive functions in unipolar depression

7. Title: Significance of dysfunctional attitudes in depression and anxiety disorders

8. Title: Theory of mind and mentalization deficits in patients with personality disorders
Tutor: Anikó Égerházi M.D., Ph.D.

9. Title: The psychosocial effects of obesity
Tutor: Katalin Tolvay M.D.

- 10. Title: Brain imaging in psychiatry.
- 11. Title: Oxidativ stress and chronic inflammation in psychiatric disorders
- 12. Title: Post-traumatic stress disorder and post-traumatic growth.
- 13. Title: The neurobiology of depression.
- 14. Title: The role of mikrobiota in mental health
- 15. Title: The therapeutic potentials of psychodelics
Tutor: Ede Frecska M.D., M.A., Ph.D.

Department of Pulmonology

- 1. Title: New perspectives in the treatment of lung cancer
Tutor: Andrea Fodor M.D.

- 2. Title: New perspectives in the treatment of community acqiured pneumonia
Tutor: László Brugós M.D., Ph.D.

- 3. Title: The role of bronchoscopy in the therapy of lung cancer
Tutor: Imre Varga M.D., Ph.D.

- 4. Title: Modern Therapy of NSCLC
Tutor: Tamás Kardos M.D.

- 5. Title: Cachexia as prognostic factor in treatment of NSCLC
- 6. Title: Therapic possibilities in lung cancer treatment, side effects
Tutor: Attila Lieber M.D.

Department of Surgery

- 1. Title: Surgical treatment of Graves disease with ophthalmopathy
Tutor: Ferenc Gyóry M.D.

- 2. Title: Surgical treatment of bowel obstruction in colorectal diseases
Tutor: László Damjanovich M.D., Ph.D., D.Sc.

- 3. Title: Surgical and endovascular interventions in critical limb ischemia
Tutor: Sándor Olvasztó M.D.

- 4. Title: Histopathologic examination of the carotid plaques regarding their possible prognostic value
Tutor: Krisztina Litauszky M.D.

- 5. Title: Liver resections for metastases of colorectal cancer
Tutor: János Pósan M.D.

- 6. Title: Prevention of bronchial stump insufficiency after lung resections
Tutor: István Takács M.D.,Ph.D.

- 7. Title: The surgical treatment of hyperparathyroidism
Tutor: Roland Fedor M.D., Ph.D.

- 8. Title: Different forms of hereditary colorectal cancer among our patients.
Tutor: Miklós Tanyi M.D.,Ph.D.

- 9. Title: Mesh implantation in the surgical treatment of thoracic defects
Tutor: Attila Enyedi M.D.

Department of Operative Techniques and Surgical Research

- 1. Title: Anesthesia in experimental animals
- 2. Title: Experimental animal models for metabolic diseases (diabetes, metabolic syndrome) in research
- 3. Title: Laser-Doppler in experimental surgery
Tutor: Ádám Deák D.V.M., Ph.D.

- 4. Title: Changes of red blood cells' micro-rheology in surgical pathophysiological processes
- 5. Title: Microvascular anastomosis techniques
Tutor: Norbert Németh M.D., MBA, Ph.D., D.Sc.

- 6. Title: Hemostatic agents (bioplasts) in surgery
- 7. Title: Ischemia-reperfusion injury and its prevention with different methods -experimental models
Tutor: Katalin Pető M.D., Ph.D.

- 8. Title: Analysis for laparoscopic skills assessment

9. Title: Hand hygiene and surgical scrub
Tutor: Erzsébet Ványolos M.Sc., Ph.D.

10. Title: Instruments and devices used in pharmacological care
Tutor: Tamás Lesznyák M.D., D.Pharm.

11. Title: Basic Microsurgical Training course at the Professor István Furka Microsurgical Education and Training Center of the Department of Operative Techniques and Surgical Research

12. Title: Famous surgeons: William Halsted, Halsted principles
Tutor: Irén Mikó M.D., Ph.D.

Department of Urology

1. Title: Role of laparoscopy in urology
Tutor: Tibor Flaskó M.D., Ph.D.

2. Title: Assessment of urinary incontinence
Tutor: László Lőrincz M.D.

3. Title: Different topics regarding prostate and kidney cancer
Tutor: Csaba Berczi M.D., Ph.D.

4. Title: Bladder replacement after radical cystectomy
Tutor: Antal Farkas M.D., Ph.D.

5. Title: Different topics regarding andrology
Tutor: Mátyás Benyó M.D., Ph.D.

6. Title: Pathology of clear cell renal cancer
Tutor: Krisztián Szegedi M.D.

7. Title: Treatment of urethral stricture
Reconstructive urological surgeries
Tutor: Mihály Murányi M.D.

8. Title: Assessment of benign prostate hyperplasia
Tutor: József Zoltán Kiss M.D.

9. Title: Effect of orchidopexy on male fertility
Tutor: Gyula Drabik M.D.

Department of Oral and Maxillofacial Surgery

1. Title: Dental treatment prior to radiotherapy in the head and neck region

2. Title: Treatment of N0 neck in oral cavity squamous cell carcinoma

3. Title: Tumors of odontogenic origin
Tutor: Adrienne Szabó M.D., Ph.D.

4. Title: Orthognathic surgery

5. Title: Reconstructive surgery in maxillo-facial region
Tutor: Róbert Boda M.D.

6. Title: Possible flap design in dentoalveolar surgery

7. Title: Radial forearm flap

8. Title: Tumors of the parotid gland
Tutor: Dóra Horváth M.D.

9. Title: A ten-year retrospective study of microbiology and antibiotic treatment in odontogenic infections of head and neck

10. Title: Ameloblastoma
Tutor: Petronella Révész M.D.

11. Title: Mandibular distraction osteogenesis

12. Title: Odontogenic keratocyst

13. Title: Treatment modalities of mandibular fractures in elder population
Tutor: Levente Czompa M.D.

Department of Orthodontics

1. Title: Development and Physiology of the Temporomandibular Joint (TMJ)

2. Title: Imaging in Orthodontics

3. Title: Primary failure of eruption (PFE)
Tutor: Judit Török D.M.D.

4. Title: Auxiliary elements of fixed orthodontic treatments

5. Title: Extra and intraalveolarly fixed temporary anchorage devices in orthodontics

6. Title: Importance of bone maturity examinations in orthodontics
Tutor: Géza Vitályos D.M.D., Ph.D.

7. Title: Genetics and orthodontics

8. Title: Pseudoprognathia

9. Title: Treatment of tooth- size/arch- size discrepancy problems

Tutor: Eszter Faragó-Ládi D.M.D.

10. Title: Effectiveness of orofacial myofunctional therapy

11. Title: Orthodontics archwires

12. Title: Prevention and early treatment in orthodontics

Tutor: Leila Hamid D.M.D.

13. Title: Acceleration of orthodontic tooth movement

14. Title: Biomechanical considerations of Class II. patients in adults

15. Title: Tooth stabilization after orthodontic treatment

Tutor: Judit Hevesi D.M.D.

16. Title: Canine retraction

17. Title: Diagnostics of TMJ disfunctions

18. Title: Molar uprighting

Tutor: Éva Berecz D.M.D.

Department of Periodontology

1. Title: Mucosal vaccination against periodontal disease

2. Title: The potential impact and importance of salivary peptides in periodontitis

Tutor: István Varga D.M.D., Ph.D.

3. Title: Aging and periodontitis

4. Title: Th17 cell function and periodontitis

Tutor: János Angyal D.M.D., Ph.D.

5. Title: Association of probable bruxism with periodontal status.

6. Title: Periodontal consequences of traumatic toothbrushing

Tutor: Katinka Hernádi D.M.D., Ph.D.

7. Title: The relationship between the oral and intestinal microbiome and their effects on the body

8. Title: Treatment options of multiple gingival recessions

Tutor: Fábrián Tar D.M.D.

Department of Operative Dentistry and Endodontics

1. Title: History of composite filling

2. Title: History of dental drills

3. Title: Types of caries and filling techniques in aged people

Tutor: Barna Kelentey D.M.D., Ph.D., C.Sc.

4. Title: Barodontology

5. Title: Flare-up management

6. Title: Guttapercha in endodontics

Tutor: Alexander Juhász D.M.D.

7. Title: Apically extruded sealers

8. Title: New technologies to improve root canal disinfection

Tutor: Kinga Bágyi Dr. habil., D.M.D., Ph.D.

9. Title: Effect of surface treatment on composite repair (TDK)

10. Title: Effects of thermocycling on the conversion rate of wear resistant nanohybrid composites(TDK)

11. Title: Influence of preheating on nanohybrid composite wear (TDK)

Tutor: Renáta Martos D.M.D., Ph.D.

12. Title: Evaluation of different matrix bands

13. Title: TRIP around the oral cavity

Tutor: Rita Marincsák D.M.D., Ph.D.

14. Title: Environmental impact of dentistry

15. Title: Etiology of dental erosion -intrinsic factors

16. Title: Temporary filling materials in restorative dentistry

Tutor: Bettina Balogh D.M.D.

17. Title: Endodontic treatment in case of special root canal morphology

Tutor: László Nagy M.D., Ph.D.

18. Title: Invasive cervical resorption

19. Title: Removal possibility of sealers

Tutor: László Nagy D.M.D.

20. Title: Laser Activated Irrigation techniques in endodontics

21. Title: Smear layer formation in the root canal

22. Title: Use of CBCT in endodontics
Tutor: Enikő Tóth D.M.D.

23. Title: Coronal leakage of temporary filling materials in endodontics

24. Title: Periodontal aspects in endodontics

25. Title: Posts in endodontics

Tutor: Péter Suta D.M.D.

26. Title: Odontoblasts: significant cells in the dentin-pulp complex

27. Title: Root perforation repair

28. Title: TRP channels in the dental pulp

Tutor: Judit Bohács D.M.D.

Department of Oral Medicine

1. Title: Micro RNA in periodontal disease

Tutor: Ildikó Tar D.M.D., Ph.D.

Department of Pediatric and Preventive Dentistry

1. Title: Dental patients with hypophosphatasia

2. Title: Minimal intervention dentistry for managing carious lesions in primary teeth

3. Title: Oral health of children with osteogenesis imperfecta

Tutor: Judit Nemes D.M.D., Ph.D.

4. Title: Cellular and molecular mechanisms of eruption

5. Title: Pulpitis; neuroinflammation in trigeminal ganglion

6. Title: SHED: Stem cells from human exfoliated deciduous teeth

Tutor: Gabriella Kovalecz D.M.D., Ph.D.

7. Title: Apexification: Comparison of Ca(OH)₂ and MTA

8. Title: Effects of early childhood malnutrition on oral health

Tutor: Zsuzsa Kapusi-Papp D.M.D.

Department of Dentoalveolar Surgery

1. Title: Clinical aspects of tooth replantation

2. Title: Sialolithiasis of salivary glands

3. Title: Trigeminal neuralgia

Tutor: Etelka D. Tóth D.M.D.

4. Title: Dental treatment of patients receiving allogeneic peripheral blood stem cell transplantation

Tutor: Enikő Gebri D.M.D.

5. Title: Intraoral wounds and their oral surgical management

6. Title: MRONJ: prevention and therapy

7. Title: Usage of resorbable and non-resorbable sutures in oral surgery

Tutor: Levente Lukács D.M.D.

8. Title: Biofilm removing therapies

9. Title: Genetical disorders associated with periodontitis

10. Title: Genome sequencing in dentistry

Tutor: Boglárka Skopkó D.M.D.

11. Title: Intraoral foreign bodies and their oral surgical considerations

12. Title: Oral surgical aspects of elderly age

13. Title: Potential therapies that aim to help the intraoral wound healing

Tutor: Adrienn Tóth D.M.D.

14. Title: Polymer allergy in dentistry

Tutor: Márta Szepesi D.M.D.

15. Title: Coronectomy

16. Title: Embryology, clinical appearance and treatment of non-odontogen cysts in the maxillofacial region

17. Title: Possible treatment options of sinus perforation

Tutor: Orsolya Liska D.M.D.

18. Title: Local anaesthetic techniques in dento-alveolar surgery

19. Title: Local complications of local anaesthesia and their treatment

20. Title: Soft tissue complications of tooth removal

Tutor: Nándor Kalas D.M.D.

21. Title: Dental and dento-alveolar treatment of intraoral cysts

22. Title: Iatrogenic injuries of the inferior alveolar and lingual nerve

CHAPTER 22

23. Title: Sialolithiasis dentoalveolar treatment options

Tutor: Dóra Szakács D.M.D.

24. Title: Antibiotic prophylaxis in dentoalveolar surgery

25. Title: Antithrombotic drugs: pharmacology and implications for dental practice

26. Title: Dental aspect of pregnancy
Tutor: Georgina Farkas D.M.D.

27. Title: Acute anterior TMI luxation

28. Title: Osteoradionecrosis

29. Title: Sinus elevation techniques

Tutor: Nándor Hegedűs 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., Csontos: 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., Csontos: Organic Chemistry for
Premedical Students.
University of Debrecen, 2011.

Introduction to Biology:

Sadava, Hillis, Heller, Berenbaum: Life: The
Science of Biology.
10th edition. Sinauer Macmillan, 2013. ISBN:
978-1-4641-4124-9.

1st year**Odontology:**

B.G. Jansen van Rensburg: Oral Biology.
Quintessence, 1995. ISBN: 0-86715-271-0.
Geoffrey C van Beek: Dental Morphology an
illustrated guide.

Wright, 2005. ISBN: 0723606668.

S.J.Nelson, M. M. Ash: Wheeler's Dental
Anatomy, Physiology, and Occlusion. .

9th ed. Saunders, 2010. ISBN: 978-1-4160-6209-

7.

Basics of behavioural sciences:

Segerstrale, U., Molnár, P.: Nonverbal Communication: Where Nature Meets Culture. 1st edition. Psychology Press, 1997. ISBN: 0-8058-2179-1.

Alan Stoudemire: Human Behavior. An Introduction for Medical Students. J.B. Lippincott Company, Philadelphia, 1994. Márta Csabai and Péter Molnár: Medical Psychology. Background material. Reprint University of Debrecen, 2008.

Medical Chemistry Lecture:

McMurry, J., Fay, R.C.: Chemistry. 7th edition. Pearson Education, 2015. ISBN: 978-0321943170.

Gergely, P.: Organic and Bioorganic Chemistry for Medical Students. 3rd edition. Medical and Health Science Center, University of Debrecen, 2008.

Ed. Dombrádi, V.: Laboratory Practicals in Medical Chemistry. Medical and Health Science Center, University of Debrecen, 2009.

László Virág, Ferenc Erdődi, Pál Gergely: Bioinorganic Chemistry for Medical Students 2020.

URL:
https://elearning.med.unideb.hu/pluginfile.php/140349/mod_resource/content/1/Bioinorganic-Chemistry/index.html

Physical foundations of biophysics:

Halliday-Resnick-Walker: Fundamentals of Physics.

Biophysics Lecture:

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

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Biostatistics:

Wayne W. Daniel: Biosatistics, A foundation for analysis in the Health Sciences. 7th edition. John Wiley and Sons, New York, 1991. ISBN: 0-471-52988-5.

Hungarian Crash Course:

Gerő Ildikó-Kovács Judit: Színesen magyarul. 2017.

Hungarian Language I/1.:

Mezei Zsuzsa Livia- Fodor Marianna: Szívből magyarul.

Medical Chemistry Practical:

Ed. Dombrádi, V.: Laboratory Practicals in Medical Chemistry. Medical and Health Science Center, University of Debrecen, 2009.

Oral Anatomy, Histology and Embryology I. Lecture:

K. L. More: Clinically Oriented Anatomy. 4th edition. Lippincott Williams & Wilkins, 2004. ISBN: 0-683-06141-0.

Sobotta: Atlas of Human Anatomy I.-II.. 14th edition. Urban & Schwarzenberg, . ISBN: 978-0-443-10349-0.

Sadler, T. W. : Langman's Medical Embryology. 12th edition. Lippincott Williams & Wilkins, 2012. ISBN: 978-1-4511-4461-1.

Ross, M.H.: Histology. A Text and Atlas. 7th edition. Lippincott Williams & Wilkins, 2016. ISBN: 978-14698-8931-3.

D.J. Johnson: Anatomy for Dental Students. Oxford University Press, 1983. ISBN: 0-19-261348-0.

B.K.B. Berkovitz, G.R. Holland, B.J. Moxham: A Color Atlas and Text of Oral Anatomy. 2nd edition. Mosby-Wolfe, 1992. ISBN: 0-7234-1688-5.

J.K. Avery: Essentials of oral histology and embryology. A clinical approach . 2nd edition. Mosby-Wolfe, London, 2000. ISBN: 0-323-00460-1.

Eric W. Baker: Anatomy for Dental Medicine.

Thieme, . ISBN: 978-1626223-238-9.
Richard L. Drake, A. Wayne Vogl, Adam W. M. Mitchell: Gray's Basic Anatomy.
2nd edition. Elsevier, 2018. ISBN: 978-0-323-47404.

Molecular Biology Lecture:

Alberts et al.: Molecular Biology of the Cell.
5th edition. Garland Public Inc., 2007.
T. Á. Brown: Genomes.
3rd edition. Garland Public Inc., ISBN: 0-8153-4138-5.

First aid and reanimation:

The St. John Ambulance Association and Brigade, The British Red Cross society: First Aid Manual.
Dorling Kisnerdsley Ltd., 1992. ISBN: 0-863-18-4.
József Betlehem: First Things to Be Done in Emergencies – Providing First Aid for Health Professionals.
Medicina Könyvkiadó Zrt. , 2012.

Preventive Dentistry I. :

N. O. Harrais, F. Garcia-Godoy: Primary Preventive Dentistry.
7th edition. Prentice Hall, 2009. ISBN: 13 9780132412230.
Limeback H: Comprehensive Preventive Dentistry.
Wiley-Blackwell, 2012.

Medical Genetics:

Practical Courses in Genetics.
University Medical School of Debrecen, 2002.
Tom Strachan, Andrew P. Read: Human molecular genetics.
5th. CRC Press, Taylor & Francis Group, 2019. ISBN: 978-0-815-34589-3.

Cell Biology Lecture:

Alberts et al.: Essential Cell Biology.
5th edition. Garland Public Inc., 2019. ISBN-13: 978-0393-6803-62
Lodish et al.: Molecular Cell Biology.
7th edition, W.H. Freeman, 2013
Alberts et al.: Molecular Biology of the Cell

6th edition, Garland Publ. Inc., 2015
Cell Biology Laboratory Manual-latest version on the subject's e-Learning site

Hungarian Language I/2.:

Györfy Erzsébet-Mezei Zsuzsa Lívía:
Magyarules.
2018.

Medical Genomics:

Lesk, Arthur: Introduction to Genomics.
3rd edition. Oxford University Press, 2017. ISBN: ISBN-13: 978-0198754.

Oral Anatomy, Histology and Embryology I. Practical:

Richard L. Drake, A. Wayne Vogl, Adam W. M. Mitchell: Gray's Basic Anatomy.
2nd edition. Elsevier, 2018. ISBN: 978-0-323-47404.
Sobotta: Atlas of Human Anatomy I.-II..
14th edition. Urban & Schwarzenberg, . ISBN: 978-0-443-10349-0.
Moore K.L., Dalley, A.F., Agur, A. M. R.: Clinically Oriented Anatomy.
6th edition. Lippincott Williams & Wilkins, 2009. ISBN: 978-1-60547-652-0.
E.K. Sauerland: Grant's Dissector.
11th edition. Williams & Wilkins, 2000. ISBN: 0-683-03701-3.

Computer Science:

Greg Perry: Microsoft Office .
2007. ISBN: 9789-6396-3737-5.

Latin Language:

Répás László: Latin for Students of Dentistry.
2017.

Latin Medical Terminology I.:

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

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.
- Richard L. Drake, A. Wayne Vogl, Adam W. M. Mitchell: Gray's Basic Anatomy. 2nd edition. Elsevier, 2018. ISBN: 978-0-323-47404.
- 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. Quintessence 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 differentiation:**
- Scott F. Gilbert: Developmental Biology . 6th edition..

Hungarian Language II/1.:

Fodor Marianna - Rozman Katalin: Beszélék magyarul?! I.
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