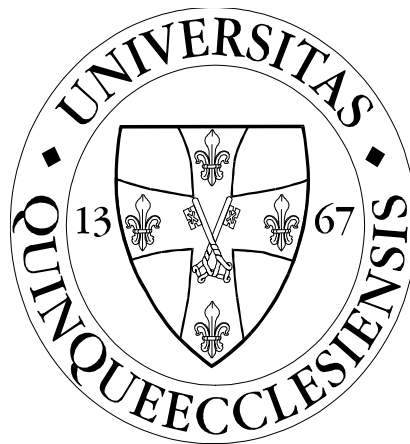


University of Pécs (UP)

**Medical School's (MS)
ongoing doctoral (PhD) training**

optional PhD courses in the 2018-2019 school year



PÉCS

2018

**CHOOSABLE PHD COURSES
IN THE 2018-2019
SCHOOL YEAR**

The list contains the announced courses of all the accredited programs of the UPMS, sorted by the instructors' names. All PhD students can apply (state scholarship holders, correspondence students and individually preparing students).

The "code number" system is used to identify courses belonging to the same program group, maintaining the order sorted by the names of the leading course instructors. The registry published in the appendix is applicable for the collation of the code numbers and programs.

Detailed descriptions of the PhD courses can be found on the UPMS website (PhD and Habilitation Office, Documents, PhD ügyekkel kapcsolatos dokumentumok).

Choosing courses is based on the reconciliation with the topic leaders.

I kindly ask everyone to contact the chosen instructors as soon as possible; you have to come to agreement with them about the details personally. There are no strict class schedules; each instructor comes to terms with each student individually.

**Registrations for the courses happen at the course leaders.
Deadline: 07th September 2018.**

Dr. Zoltán Rékási
PhD secretary
(telephone: 36103, 36104, 36101, 31824)

code	instructor in charge	title	credit	host department
OPKI_B-2/2014_ABH1	Dr. Ábrahám, Hajnalka	The hippocampus and its role in temporal lobe epilepsy	2	Department of Biology
description	The lectures deal with the role of the hippocampus and the temporal lobe structures connected to it in the epileptogenesis. Lectures will discuss the information, the morphology, connections, development of the hippocampus and the morphological and functional changes of it in temporal lobe epilepsy. Topics include the animal models of temporal lobe epilepsy and on the basis of them developed theories of epileptogenesis.			

Declaration of the course:

Semester: spring
Application deadline: 02. 05.
Application: name: Dr. Ábrahám, Hajnalka
telephone: 36216
email: hajnalka.abraham@aok.pte.hu

Maximum number of attending students: 10

Criteria of acceptance in case of overbooking: declaration of acceptance from the leader of the course

Timeframe of education total hours of the course: 14
number of lectures per week: 2

Type of examination: written

Type of remedial exam: written

Criteria of accepting the course (exams, maximum number of absence, etc.): attendance of 80% of the classes, to reach 70% of the scores and the exam

Opportunities for making up for non-attendance: no

List of resources (book, note, other) **required for learning the curriculum:** we will handle out the relevant literature

Topics and instructors of the activities (all lectures, practices, seminars separately):

Lectures:

1. The anatomy and connections of the hippocampus (dr. Ábrahám Hajnalka)
2. Structure of the archicortex and neocortex (dr. Ábrahám Hajnalka)
3. Prenatal development of the hippocampus (dr. Ábrahám Hajnalka)
4. Postnatal morphological and functional developemnt of the hippocampus. (dr. Ábrahám Hajnalka)
5. Diagnosis, differential diagnosis of the temporal lobe epilepsy. Meisal temporal sclerosis. The role of febrile seizure (dr. Janszky József)
6. Visualisation of hippocampal functions with fMRI. (dr. Janszky József)
7. Morphological changes in the hippocampus in temporal lobe epilepsy I. Cell death (dr. Ábrahám Hajnalka)
8. Morphological changes in the hippocampus in temporal lobe epilepsy II. Synaptic reorganization (dr. Ábrahám Hajnalka)
9. Morphological changes in the temporal archicortex. (dr. Ábrahám Hajnalka)
10. Morphological changes in the temporal neocortex. (dr. Ábrahám Hajnalka)
11. Examination of impairments of verbal memory and spatial navigation. (dr. Karádi Kázmér)
12. Functional changes in temporal lobe epilepsy. (dr. Karádi Kázmér)
13. Animal models of temporal lobe epilepsy. (dr. Ábrahám Hajnalka)
14. Theories of epileptogenesis. Test. (dr. Ábrahám Hajnalka)

code	instructor in charge	title	credit	host department
OPGY_A-292/1994_BAM1	Dr. Balaskó, Márta	Pathophysiological mechanisms of the development, prevention and treatment of obesity.	2	Institute for Translational Medicine
description	The aim of the course is to analyze the regulatory alterations in the background of juvenile and middle-aged obesity observed in humans and other mammals. Obesity-induced long-term regulatory alterations in energy metabolism, pathophysiological mechanisms of preventive and therapeutic methods are discussed. During the course, results of animal studies and human observations are discussed and critically analyzed. In addition to the thorough analysis of the literature, animal experiments regarding the complex study of energy balance, also involving spontaneous physical activity (running wheels) and treadmill training will also be carried out.			

Declaration of the course:

Semester: spring
Application deadline: 01-30th September
Application: name: dr. Márta Balaskó
telephone: +36-72-536-246
email: marta.balasko@aok.pte.hu

Maximum number of attending students: 5-7

Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 14 (7 x 2 x 45 min)
number of practices per week: 1
number of seminars per week: 1

Type of examination: oral
Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): 3 x 45 min

Opportunities for making up for non-attendance: Summarizing essay (2-3 pages) on the topic of the missed seminar or practice

List of resources (book, note, other) **required for learning the curriculum:**

Powerpoint presentations used in the seminars, review articles on the topics

Topics and instructors of the activities (all lectures, practices, seminars separately):

1. Epidemiology and consequences of obesity in humans and in laboratory rodents. Gender differences. Experimental methods of the complex study of energy balance. (Dr. Márta Balaskó)
2. Age-related regulatory alterations in energy balance in diet-induced obese (DIO) and diet-induced obesity-resistant (DR) rodents. Animal models. (Dr. Erika Pétervári)
3. Obesity-induced short- and long-term regulatory alterations in the energy balance in laboratory rodents and humans. Their importance in the development and maintenance of metabolic syndrome. (Dr. Szilvia Soós)
4. The effects of pre- and neo-natal over- or under-nutrition on regulatory processes of energy balance, on peripheral metabolism, on functions of the central nervous system in rodents. Evaluation of human observations. (dr. Márta Balaskó)
5. Methods of prevention and/or treatment of obesity: forms and pathophysiological mechanisms of caloric restriction in rodents and humans. (dr. Erika Pétervári)

6. Methods of prevention and/or treatment of obesity: forms and pathophysiological mechanisms of physical activity in rodents and humans. Experimental methods. (dr. Márta Balaskó).
7. Possible corrections of short-term and long-term obesity-induced peptidergic regulatory alterations in experimental rodent models. Potential future treatment strategies of obesity. (dr. Erika Pétervári)

kurzuskód	felelős oktató	elnevezés	kredit	oktató intézet
OPEL_B-139/1993_BET1	Dr. Berki Tímea	Laboratory immune techniques in molecular biology research	6	Immunológiai és Biotechnológiai Intézet
tematika	The aim of the course is to introduce, at skill level, the main immunological techniques frequently used in molecular biology research. The newest and most important methods will be covered during the 5x8 hours of practice with active participation of the students. Besides the classical cellular immunologic and immunoserologic techniques, the new possibilities in cellular and molecular immunology and modern molecular biological applications will also be introduced.			

Declaration of the course:

Semester: autumn
Application deadline: October 1st
Application name: Zoltán Kellermayer
telephone: 36288
email: kellermayer.zoltan@pte.hu

Maximum number of attending students: 20

Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 40
number of practices per week: 5 x 8

Type of examination: written

Type of remedial exam: written

Criteria of accepting the course: active participation in the practices, maximum 3 hours absent

Opportunities for making up for non-attendance: individual make up

List of resources (book, note, other) required for learning the curriculum:

Abul K. Abbas: Cellular and Molecular Immunology 9th ed. 2018

Immunology journals

Topics and instructors of the activities (all lectures, practices, seminars separately):

Péter Németh (PN), Péter Balogh (PB), Tímea Berki (TB), Ferenc Boldizsár (FB), Dia Simon (SD),

Péter Engelmann (PE), Zoltán Kellermayer (ZK)

PhD Course schedule:

Monday

Introduction.

Monoclonal and polyclonal antibodies.

Immunization, hybridoma technique.

Antibody purification and storage.

Antibody modifications: RA isotope labeling, colloid gold labeling, enzymatic labeling, fluorescent labeling, avidin-biotin system

Immunocytochemistry, immunohistochemistry, fluorescent microscopy, confocal microscopy

Immunohistochemistry practice.

Tuesday

Haemagglutination, Coombs-test.

Nephelometry, turbidimetry.

ELISA, RIA.
 Routine diagnostics, automatization.
 Immunodiffusion, immunoelectrophoresis.
 Dot blot, Westen blot.
 Immunoprecipitation.
 ELISA routine diagnostic practice.

Wednesday

Molecular DNA techniques and their immunologic applications I.
 Phage display and its applications in immunology.
 Molecular biology practice.

Thursday

Significance of cell surface CD markers. Flow cytometry.
 Cell surface and intracellular staining for flow cytometry.
 New possibilities in flow cytometry.
 CBA technique.
 Flow cytometry practice.

Friday

Molecular DNA techniques and their immunologic applications II.
 Lentiviral vectors.
 RNA interference and its application areas.
 Consultation
 Exam

kurzuskód	felelős oktató	elnevezés	kredit	oktató intézet
OPEL_B-139/1993_BET2	Dr. Berki Tímea	New trends in molecular and cellular immunology	4	Immunológiai és Biotechnológiai Intézet
tematika	The aim of the course is the presentation and discussion of the newest advances and results of immunology, immunobiology and related research areas. Researchers of the department, together with invited lecturers will give weekly seminars where hot topics of immunology will be covered and discussed (e.g. immunological tolerance, recognition of self vs. non-self, physiologic and pathologic autoimmunity, lymphoid cell differentiation in diseases, animal models etc).			

Declaration of the course:

Semester: spring
Application deadline: February 15
Application: name: Zoltán Kellermayer
telephone: 36288
email: kellermayer.zoltan@pte.hu

Maximum number of attending students: 20

Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 28
 number of lectures per week: 1
 number of seminars per week: 1

Type of examination: oral

Type of remedial exam: oral

Criteria of accepting the course: maximum 3 absences, successful exam

Opportunities for making up for non-attendance: none

List of resources (book, note, other) required for learning the curriculum:

Abul K. Abbas: Cellular and Molecular Immunology 9th edition 2018
 Immunology journals

Topics and instructors of the activities (all lectures, practices, seminars separately):

The exact schedule with lectures will be announced at the beginning of the semester.

Lecturers: Péter Németh, Péter Balogh, Tímea Berki, Ferenc Boldizsár, Diana Simon, Péter Engelmann, József Najbauer, Zoltán Kellermayer, invited lecturers

code	instructor in charge	title	credit	host department
OPMU_B-130/1993_BUB1	Dr. Bugyi, Beáta	Fluorescence microscopic approaches in biological sciences	2	Department of Biophysics
description	The aim of the course is to provide extensive knowledge for the principles and applications of basic and most advanced fluorescence microscopic approaches used in biological sciences. Special applications and their pros and cons will be discussed. The practicals are designed to gain strong experience in handling modern research microscopes, sample preparation and image analysis.			

Declaration of the course:

Semester: spring
Application: name: Beáta Bugyi
telephone: 536265
email: beata.bugyi@aok.pte.hu

Maximum number of attending students: 10

Criteria of acceptance in case of overbooking: order of application

Time frame of education
 total hours of the course: 14
 number of lectures per week: 1
 number of practices per week: 1

Type of examination: written

Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): No more than 3 absences and successful exam.

Opportunities for making up for non-attendance: -

List of resources (book, note, other) **required for learning the curriculum:** The educational material will be provided by the lecturers.

Topics and instructors of the activities (all lectures, practices, seminars separately):

Lectures:

Basics of light microscopy

Fluorescence microscopy

Confocal microscopy

Advanced microscopic approaches: total internal reflection fluorescence microscopy (TIRFM), stimulated emission depletion microscopy (STED), two-photon microscopy, structured illumination microscopy (SIM), single molecule localization microscopy

Advanced microscopic approaches: FRAP, FRET, FLIM, Raman microscopy

Image analysis

Tips, tricks, strategies

Practicals:

Basics of light microscopy

Advanced microscopic approaches: TIRFM, SIM

Advanced microscopic approaches: FRAP, FRET, FLIM, Raman microscopy

Image analysis

Teachers: Beáta Bugyi, Miklós Nyitrai, András Lukács, Edina Szabó-Meleg, Kinga Futó, Katalin Raics Kilián Balázsne, Balázs Visegrády

code	instructor in charge	title	credit	host department
OPKI-3/2014_CZB1	Dr. Czéh, Boldizsár	Stress: From molecules to behavior. The biology of stress response, pathological consequences and coping mechanisms.	2	Institute of Laboratory Medicine
description	The presence of stress in our civilized societies is continuously increasing. The aim of this course is to define the concept of stress and to discuss the biology of stress response and its physiological and psychological consequences. Experiencing traumatic or chronic stress at different periods in our life can have long term consequences on our development and adult health (physical and psychological). We also deal with various somatic and neuropsychiatric disorders that can develop as a consequence of stress. Finally, we discuss and practice potential coping strategies.			

Declaration of the course:

Semester: spring
Application deadline: 1st of February
Application: name: Dr Boldizsár Czéh
telephone: 29151
email: czeh.boldizsar@pte.hu

Maximum number of attending students: 12

Criteria of acceptance in case of overbooking: order of application, declaration of acceptance from the leader of the course

Time frame of education total hours of the course: 14
number of lectures per week: 2
number of practices per week: 2 practices at the end of the course

Type of examination: written
Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): The result of the exam should be better than 60%. One can be absent for a maximum of 2 hours.

Opportunities for making up for non-attendance: Self learning.

List of resources (book, note, other) required for learning the curriculum:

Lucassen PJ et al.: **Neuropathology of stress.** *Acta Neuropathol.* 2014 Jan;127(1):109-35. doi: 10.1007/s00401-013-1223-5.

Koolhaas JM et al.: **Stress revisited: a critical evaluation of the stress concept.** *Neurosci Biobehav Rev.* 2011 Apr;35(5):1291-301. doi: 10.1016/j.neubiorev.2011.02.003.

Robert M. Sapolsky: **Why Zebras Don't Get Ulcers. (Paperback book)**

Elizabeth Lasley and Bruce S. McEwen: **The End of Stress As We Know It. (Hardcover book).**

Topics and instructors of the activities (all lectures, practices, seminars separately):

Lectures:

- 1) The concept of stress. Neuro-hormonal regulation of the stress response and key molecules in the stress response
- 2) Stress research in basic science and clinical practice. (Animal models, current topics).

- 3) Early stress and long term consequences on health and disease.
- 4) Somatic and neuropsychiatric consequences of stress. I.
- 5) Somatic and neuropsychiatric consequences of stress. II. (Dr Maria Simon)
- 6) Treatments strategies and coping with stress. (Dr Maria Simon)

Practices:

Coping strategies in practice. (Dr Maria Simon)

code	instructor in charge	title	credit	host department
OPKL_B-2/2004_FAR1	Dr. Faludi, Réka	Novel echocardiographic techniques for clinical practice and research	2	Heart Institute
description	In addition to the classical, widely used echocardiographic methods, several new, special techniques have been developed during the last years helping to understand the work of the human heart. Some of these techniques are already involved in our clinical practice while the others are used for research purposes only. The aim of the course is to present the theoretical background and the practical aspects of these new techniques.			

Declaration of the course:

Semester: autumn
Application deadline: 15 September
Application: name: Réka Faludi MD
telephone: 72/536-001/35626
e-mail: faludi.reka@pte.hu

Maximum number of attending students: 10

Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 14
number of lectures per week: 1x2

Type of examination: written
Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): participating in min. 70 % of all lectures, successful exam

Opportunities for making up for non-attendance: personal consultation

List of resources (book, note, other) required for learning the curriculum:

W.F. Armstrong, T. Ryan: Feigenbaum's Echocardiography 7th edition, 2010

Topics and instructors of the activities (all lectures, practices, seminars separately):

1. Tissue Doppler imaging (Réka Faludi)
2. Basics of cardiac resynchronisation therapy (Ilona Goják)
3. Myocardial strain and strain rate (Réka Faludi)
4. Investigation of the myocardial torsion (Réka Faludi)
5. Particle Image Velocimetry: visualisation of the intracardiac flow pattern (Réka Faludi)
6. 3D echocardiography (Réka Faludi)
7. Practice (Réka Faludi)

kurzuskód	felelős oktató	elnevezés	kredit	oktató intézet
OPKI_B-1/2005_FEG1	Dr. Fehér, Gergely	The effect of chronic pain on work capacity	2	Centre for Occupational Medicine
tematika	Chronic pain can be difficult for single provider to manage in a busy clinical setting. In this course, we discuss etiology and pathophysiology of chronic pain, along with variables that impact the severity of chronic pain and functional loss, focusing on work ability.			

Declaration of the course:

Semester: both
Application deadline: 01/09/2018 and 01/02/2019
Application: name: Gergely Feher
telephone: 72/507-523
email: feher.gergely@pte.hu

Maximum number of attending students: 10

Criteria of acceptance in case of overbooking: declaration of acceptance from the leader of the course

Time frame of education total hours of the course: 14
number of seminars per week: 2

Type of examination: oral
Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): Participation over 70%, passing the oral exam

Opportunities for making up for non-attendance: in accordance with the instructor

List of resources (book, note, other) **required for learning the curriculum:**

Adams and Victor's Principles of Neurology 10th Edition
Diabetic neuropathies: diagnosis and management.
Deli G, Bosnyak E, Pusch G, Komoly S, Feher G.
Neuroendocrinology. 2013;98(4):267-80.

Topics and instructors of the activities (all lectures, practices, seminars separately):

1st week. Gergely Feher: Neuratomy of pain
2nd week. Gergely Feher: Nociceptive pain
3rd week. Gergely Feher: Neuropathic pain
4th week. Gergely Feher: Treatment strategies in chronic pain
5th week. Antal Tibold: The effect of pain on working ability
6th week. Gabriella Pusch: Chronic pain hurts the brain
7th week. Gergely Feher: Summary, case-reports

kurzuskód	felelős oktató	elnevezés	kredit	oktató intézet
OPKI_B-1/2005_FEG2	Dr. Fehér, Gergely	The effect of cerebrovascular diseases on working capacity	2	Centre for Occupational Medicine
tematika	Stroke is the leading cause of disability and one of the main causes of death worldwide. In this course, we discuss etiology and pathophysiology of stroke, along with variables that impact the acute and chronic management, focusing on work ability.			

Declaration of the course:

Semester: both
Application deadline: 01/09/2018 and 01/02/2019
Application: name: Gergely Feher
telephone: 72/507-523
email: feher.gergely@pte.hu

Maximum number of attending students: 10**Criteria of acceptance in case of overbooking:** declaration of acceptance from the leader of the course

Time frame of education total hours of the course: 14
number of seminars per week: 2

Type of examination: oral
Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): Participation over 70%, passing the oral exam**Opportunities for making up for non-attendance:** in accordance with the instructor**List of resources** (book, note, other) **required for learning the curriculum:**

Adams and Victor's Principles of Neurology 10th Edition
Statintherapy in the primary and the secondary prevention of ischaemic cerebrovascular diseases.
Feher A, Pusch G, Koltai K, Tibold A, Gasztonyi B, Szapary L, Feher G.
Int J Cardiol. 2011;148(2):131-8.

Topics and instructors of the activities (all lectures, practices, seminars separately):

1st week. Gergely Feher: Neuratomy of stroke
2nd week. Gergely Feher: Stroke syndromes
3rd week. Gergely Feher: Acute stroke management
4th week. Gergely Feher: Secondary stroke prevention
5th week. Antal Tibold: The effect of stroke on working ability
6th week. Gabriella Pusch: Post stroke pain, fatigue and depression
7th week. Gergely Feher: Summary, case-reports

code	instructor in charge	title	credit	host department
OPGY_A-292/1994_GAA1	Dr. Garami, András	Theoretical and methodological aspects of complex energy balance (body mass and body temperature) regulation in animal models	2	Institute for Translational Medicine
description	By attending the course students will get detailed insight into the theoretical background and modern aspects of body mass and body temperature regulation, then based on the theoretical background they will see the various methods used to measure these processes in animal models.			

Declaration of the course:

Semester: both
Application deadline: by the end of the 3rd week of the given semester

Application: name: András Garami, M.D., Ph.D.
 telephone: 536-246
 email: andras.garami@aok.pte.hu

Maximum number of attending students: N/A

Criteria of acceptance in case of overbooking: order of application
 declaration of acceptance from
 the leader of the course

Time frame of education total hours of the course: 14
 number of lectures per week 1:
 number of practices per week: 1

Type of examination: oral
Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): Students must attend at least 70% of the lectures/practices and pass the exam at the end of the course.

Opportunities for making up for non-attendance: Based upon individual agreements.

List of resources (book, note, other) **required for learning the curriculum:**

Vanilloid Receptor TRPV1 in Drug Discovery (A. Gomtsyan, C.R. Faltynek), Wiley & Sons, 2010.
 www.FeverLab.net

Chapter 23. Temperature regulation. In: Lecture Notes on Human Physiology, 5th edition, ed. by Petersen O. Oxford, UK: Blackwell, 2007, p. 603-615.

Topics and instructors of the activities (all lectures, practices, seminars separately):

- 1-2. History of the research of complex energy balance regulation.
- 3-4. Principles of the regulatory mechanisms in body mass and body temperature maintenance.
- 5-6. The modern theory of thermoregulation, the role of transient receptor potential (TRP) ion channels in temperature regulation.
- 7-8. The role of the capsaicin receptor (TRPV1) in thermoregulation and energy balance.
- 9-10. Methodological tools for the investigation of body mass regulation in animal models.
- 11-12. Methodological tools for the investigation of body temperature regulation in animal models.
- 13-14. Exam.

code	instructor in charge	title	credit	host department
OPeL_B-134/1993_GBA1	Dr. Gaszner, Balázs	Functional (neuro)morphology: theory and practice. How to use immunolabeling to obtain result with functional value?	4	Department of Anatomy
description	After discussion of the theory of immunohistological techniques, we offer the opportunity to practice these techniques in the laboratory. Fixation by perfusion, sectioning, simple and multiple (fluorescence) labeling will be performed, including digital documentation, image analysis, and statistical evaluation as well. The course, because of the laboratory work will be held in blocks. The preliminary plan is that the course takes place on five consecutive afternoons in five-six teaching hours, respectively. At the end of the course a test will be written, the time point of this will be discussed with the participants.			

Declaration of the course:

Semester: both
Application deadline: 1st of March / 1st of October

Maximum number of attending students: 8 students / semester

Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 28
number of lectures: 4 lectures to be held in one block)
number of practices: (4x6 hours laboratory practice)

Type of examination: written

Type of remedial exam: written

Criteria of accepting the course (exams, maximum number of absence, etc.): Successful test result and attendance at (least) 70% of the classes.

Opportunities for making up for non-attendance: None.

List of resources (book, note, other) **required for learning the curriculum:** Lecture materials will be given as digital hand-outs for the participants.

Topics and instructors of the activities (all lectures, practices, seminars separately):

Lectures are given by Dr. Balázs Gaszner. Laboratory practices are given by Balázs Gaszner with assistance of Miss Izabella Orbán, technician. (The confocal microscope will be presented by Dr. Gergely Berta (Dept. of Medical Biology)

1. Introduction. Routine histological technique (Lecture).
 2. Theoretical background of immunolabeling I. Visualization by enzymatic reactions. Controls. (Lecture)
 3. Theoretical background of immunolabeling II. Combined fluorescent labeling. Controls (Lecture)
 4. Theory of image analysis: cell counting, co-localization studies, densitometry (Lecture)
 5. Preparation of required solutions, buffers. (2hrs laboratory practice)
 6. Perfusion fixation on laboratory animals (1hrs laboratory practice)
 7. Tissue sampling. Post fixation. Basic neuroanatomy in rodents. (2hrs laboratory practice)
 8. Cutting for free floating technique. (2hrs laboratory practice)
 9. Permeabilisation, blocking, antiserum dilutions, preadsorption control (2hrs laboratory practice)
 10. Biotin labeled secondary antibody treatment, fluorescent dye labeled secondary antibody treatment. (2hrs laboratory practice)
 11. Peroxidase conjugated avidin-biotin complex treatment (1 hr laboratory practice).
 12. Visualization of immunolabeling, mounting, covering. (2hrs laboratory practice)
 13. Digital imaging with light microscope. Image analysis. (2 hrs laboratory practice)
 14. Digital imaging, and picture analysis. Fluorescence and confocal microscopy. (2 hrs laboratory practice)
- (The confocal microscope will be presented by Dr. Gergely Berta (Dept. of Medical Biology)

code	instructor in charge	title	credit	host department
OPKL_B-2/2004_GAB1	Dr. Gaszner, Balázs	Non-invasive assessment of arterial function for the determination of cardiovascular risk	2	Heart Institute
description	The leading cause of death worldwide is the cardiovascular disease. Investigation of aortic stiffness has become increasingly important for total cardiovascular risk estimation. Several different methodologies have been proposed to the assessment of arterial stiffness. In our course we overview the different measurement techniques and compare them between high cardiovascular risk patient groups.			

Declaration of the course:

Semester: fall
Application deadline: 30 of September
Application: name: Balázs Gaszner
telephone: *0633
email: gaszner.balazs@pte.hu

Maximum number of attending students: 10**Criteria of acceptance in case of overbooking:** order of application, declaration of acceptance from the leader of the course

Time frame of education total hours of the course: 14
number of lectures per week: 2

Type of examination: written
Type of remedial exam: written

Criteria of accepting the course (exams, maximum number of absence, etc.): successful exams, maximum number of absence: 4 hours**Opportunities for making up for non-attendance:** consultation**List of resources** (book, note, other) **required for learning the curriculum:** hand out**Topics and instructors of the activities** (all lectures, practices, seminars separately):

1. Cardiovascular disease (Balázs Gaszner)
2. Pathophysiology, biomarkers (Balázs Gaszner)
3. Arterial stiffness parameters (Balázs Gaszner)
4. Ultrasound techniques (Balázs Gaszner)
5. Oscillometric techniques (Balázs Gaszner)
6. Prevention of cardiovascular disease (Balázs Gaszner)
7. Practical demonstration (Balázs Gaszner)

code	instructor in charge	title	credit	host department
OPKL_B-2/2004_HEL1	Dr. HejjeL, László	Biomedical measurement technology	2	Heart Institute
description	The application of measurement instrumentation is unavoidable today in medical diagnostics and biomedical research. The theory of operation of the devices will be discussed according to the physical nature of the measured value (voltage, pressure, flow, temperature, optical). Also the electronical background will be detailed both in hardware and software sides. Following the review of theory, on every occasion a practical presentation of the given instrument or a computer-simulation, or bed-side demonstration deepens the knowledge. The correct interpretation of the results provided by the devices or instruments, and the recognition of measurement errors and their parry can be easier after the acquirement of the approach of the course.			

Declaration of the course:

Semester: spring
Application deadline: end of the first week of given semester
Application: name: Dr. HejjeL, László
telephone: 35604, 35605
email: hejjeL.laszlo@pte.hu

Maximum number of attending students: 12

number of lectures per week: 1
 number of seminars per week: 1

Type of examination: written
Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): max. absence: 2, examination on the last occasion

Opportunities for making up for non-attendance: oral referral

List of resources (book, note, other) **required for learning the curriculum:** presentations, issued e-material in pdf

Topics and instructors of the activities (all lectures, practices, seminars separately):
 (one presentation and one seminar in the given topic at every occasion)

1. History of heart rate variability (HRV) analysis. Anatomical, physiological background. Hardware background of measurement
2. HRV analysis in the time domain and frequency domain
3. HRV analysis with non-linear methods (chaos theory). Reliability and correct interpretation of HRV analysis
4. HRV analysis in the research
5. HRV analysis in the clinical practice. Novel parameters, novel potential applications
6. Home monitoring, telemonitoring. Wearable electronics, intelligent clothes, intelligent home
7. Summary. Examination

code	instructor in charge	title	credit	host department
OPEL_A-137/1993_KAZ1	Dr. Karádi, Zoltán	Central taste information processing: the role of taste in feeding control	2	Institute of Physiology
description	Primary taste qualities, peripheral signalling mechanisms. Neuronal coding, „labelled lines”. Tastiness, palatability; taste aversion, taste preference. Gustation and smelling; modulation of adaptive behavior. Taste in health and disease. Involvement of the central glucose-monitoring neural network in taste information processing; neurochemical modulation. The role taste in the maintenance of homeostasis.			

Declaration of the course:

Semester: fall & spring
Application deadline: the end of the 5th week of both semesters
Application: name: Prof. Dr. Zoltán Karádi
telephone: 36243
email: zoltan.karadi@aok.pte.hu

Maximum number of attending students: 20

Criteria of acceptance in case of overbooking: declaration of acceptance from the leader of the course

Time frame of education total hours of the course: 14
 number of lectures per week: 2

Type of examination: oral

Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): absences less than 30%; successful exam

Opportunities for making up for non-attendance: individually arranged personal reporting

List of resources (book, note, other) **required for learning the curriculum:**

Handbook of Olfaction and Gustation (R.L. Doty, Marcel Dekker Inc., 1995.);

Conditioned Taste Aversion (J. Bures, F. Bermudez-Rattoni, T. Yamamoto, Oxford Science Publ., 1998.)

Selected papers of scientific journals.

Topics and instructors of the activities (all lectures, practices, seminars separately):

Taste buds, receptors, peripheral mechanisms. Central taste pathways, gustatory neurons „labelled lines”.

Taste preference and taste aversion, ethological and clinical aspects. Tastiness, palatability. Smelling and

tasting; flavor, adaptive ingestive behavior. Central taste information processing – central glucose-

monitoring neurons. Neurochemical modulation. Human tasting, cultural and pathological aspects.

Course leader, lecturer: Prof. Dr. Zoltán Karádi

code	instructor in charge	title	credit	host department
OPEL_A-137/1993_KAZ2	Dr. Karádi, Zoltán	Central regulation of homeostasis: feeding and metabolism	2	Institute of Physiology
description	Constant condition of the internal environment; the homeostasis theory. Food- and fluid intake; regulation of body weight; metabolic control. Functioning of the central glucose-monitoring neural network. Neuroimmunological modulation, primary cytokine effects. Animal model of diabetes mellitus; the metabolic syndrome.			

Declaration of the course:

Semester: fall & spring
Application deadline: the end of the 5th week of both semesters
Application name: Prof. Dr. Zoltán Karádi
telephone: 36243
email: zoltan.karadi@aok.pte.hu

Maximum number of attending students: 20

Criteria of acceptance in case of overbooking: declaration of acceptance from the leader of the course

Time frame of education total hours of the course: 14
number of lectures per week: 2

Type of examination: oral

Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): absences less than 30%; successful exam

Opportunities for making up for non-attendance: individually arranged personal reporting

List of resources (book, note, other) **required for learning the curriculum:**

Textbook of Medical Physiology (Guyton & Hall), Elsevier Saunders, 2011.

Handbook of Diabetes (G. Williams, J.C. Pickup, Blackwell Science, 1999.)

Selected papers of scientific journals.

Topics and instructors of the activities (all lectures, practices, seminars separately):

Constant state of the internal environment, homeostasis. Neural and humoral processes of the central regulation of food and fluid intake. The central glucose-monitoring (GM) neuronal network. Role of neuropeptides. Neuroimmunological modulation. Interleukin 1beta. Pathological alterations of feeding, body weight control, and metabolism. Diabetes mellitus, metabolic syndrome: shifts in the balance of the central GM network? Clinical consequences.

Course leader, lecturer: Prof. Dr. Zoltán Karádi

code	instructor in charge	title	credit	host department
OPMU_B-130/1993_KEA1	Dr. Kengyel, András	Rapid Kinetic Methods in Biology	2	Department of Biophysics
description	In biology most of the processes are governed by structural and kinetic properties. Therefore, understanding the latter aspects is critical for the proper description of these systems. The aim of the course is to provide knowledge and experience for the principles and basic applications of rapid kinetic methods. In the second part of the course, the PhD students have the opportunity to learn practical applications of rapid kinetic.			

Declaration of the course:

Semester: spring
Application: name: Kengyel, András
telephone: 31651
email: andras.kengyel@aok.pte.hu

Time frame of education

total hours of the course: 14

Topics and instructors of the activities (all lectures, practices, seminars separately):

Lectures:

1. The principles of enzyme kinetics
2. The bases of spectroscopical methods
3. The bases of rapid kinetic applications
4. The application of stopped-flow methods on model systems
5. Transient absorption systems
6. Mathematical analysis of results

Practices

1. Basic stopped-flow experiments, dead time
2. Rapid kinetic characterisation of contractile proteins
3. Rapid kinetics monitored with fluorescence anisotropy

code	instructor in charge	title	credit	host department
OPEL_A-141/1993_KOB1	Dr. Kocsis, Béla	The endotoxic lipopolysaccharides: from the microbiology to clinical aspects	1	Institute of Medical Microbiology and Immunity, Clinical Center
description	The endotoxic lipopolysaccharides (LPS) are important molecules in Microbiology as the serotype of a Gram-negative bacterium is based on the structure of polysaccharide chain of LPS; the lipid A component is responsible for toxic biologic effects and the clinical symptoms of the endotoxic shock. This course deals with the historical			

	background, the cell-wall structure of a Gram-negative bacterium, the methods of endotoxin extraction, genetic and biosynthetic aspects of the LPS, the methods of LPS structural analysis, the connection between structure and biologic function of endotoxin, the clinical symptoms, diagnostic and therapeutic possibilities of endotoxic shock.
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Declaration of the course:

Semester: fall
Application deadline: 31st of October
Application name: Béla Kocsis
Telephone: 31399
email: bela.kocsis@aok.pte.hu

Maximum number of attending students: 15

Criteria of acceptance in case of overbooking: declaration of acceptance
from the leader of the course

Time frame of education total hours of the course: 7
number of lectures per week: 2 + 2 + 3

Type of examination: written

Type of remedial exam: written

Criteria of accepting the course (exams, maximum number of absence, etc.): exams, maximum number of absence: 0

Topics and instructors of the activities (all lectures, practices, seminars separately):

1. lecture: The historic background, development of definition of endotoxin and LPS
2. lecture: The cell-wall structure of a Gram-negative bacterium, the LPS extraction
3. lecture: The structural, genetic and biosynthetic aspects of LPS
4. lecture: The biologic effects and detection of endotoxin
5. lecture: The clinical symptoms
6. lecture: diagnosis
7. lecture: therapy of endotoxin shock

The lecturer is always Bela Kocsis

The site of lectures: Practical Room in Institute of Medical Microbiology and Immunology,
Clinical Center, University of Pécs

code	instructor in charge	title	credit	host department
OPEL_A-137/1993_LEL2	Dr. Lénárd, László	Hunger, satiety and body weight regulation	4	Department of Physiology
description	The incidence of feeding related disorders (obesity, bulimia and anorexia) and appearance of related secondary diseases (arteriosclerosis, diabetes mellitus and stroke) have increased dramatically world-wide. The goal of the course is to review physiological and pathological mechanisms of central regulatory processes of feeding and body weight. The role of newly discovered orexigenic and anorexigenic neuropeptides and dopaminergic mechanisms in food related rewarding-reinforcing processes will be discussed. Mechanisms and consequences of feeding related diseases (obesity, bulimia and anorexia nervosa) will be reviewed.			

Declaration of the course:

Semester: fall & spring
Application deadline: 20, September, 30, January

Maximum number of attending students: 10
Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 14
number of lectures per week: 4

Type of examination: written
Type of remedial exam: written

Criteria of accepting the course (exams, maximum number of absence, etc.): final exam, max. number of absence: 3 h

Opportunities for making up for non-attendance: consultation

List of resources (book, note, other) **required for learning the curriculum:** will be discussed and distributed in the course

Topics and instructors of the activities (all lectures, practices, seminars separately):

Lectures: The role of hypothalamic and limbic structures in hunger and body weight regulation. Monitoring the internal environment. The role of humoral and afferent neural signals in the regulation of hunger and satiety. Glucose-monitoring neurons in the periphery and in the central nervous system. Orexigenic and anorexigenic neuropeptides. The role of monoaminergic systems in the regulation of feeding. Short-term and long-term regulation of body weight. The rewarding value of foods. Obesity, bulimia and anorexia nervosa. Bulimia and drug-addiction behavior.

code	instructor in charge	title	credit	host department
OPEL_A-137/1993_LEL4	Dr. Lénárd, László	The role of monoaminergic systems and neurotransmitters in learning-reinforcing mechanisms and addictive behavior.	3	Department of Physiology
description	The chemical self-stimulation paradigm is the animal model of human addictive behavior. During rewarding learning processes and after intracerebral amphetamine microinjections dopamine is released. The rewarding-reinforcing effects of endogenous opioids and cannabinoids have also been verified. It has been shown that other neuropeptides (such as substance P, neurotensin and oxytocin) can also play essential roles in the rewarding-reinforcing processes. In the course the role of CNS monoaminergic systems, different neuropeptides and their interaction with dopamine will be detailed and discussed and relationship between learning and addictive behavior will be analyzed.			

Declaration of the course:

Semester: fall
Application deadline: 20, September

Maximum number of attending students: 10
Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 12
number of lectures per week: 4

Type of examination: written
Type of remedial exam: written

Criteria of accepting the course (exams, maximum number of absence, etc.): final exam, max. number of absence: 3 h

Opportunities for making up for non-attendance: consultation

List of resources (book, note, other) **required for learning the curriculum:** will be discussed and distributed in the course

Topics and instructors of the activities (all lectures, practices, seminars separately):

Lectures: Brain dopaminergic, noradrenergic and serotonergic systems. The role of amygdala, nucleus accumbens, prefrontal cortex and cingular cortex in learning and addiction. Dopamine release during learning and addiction. Neuropeptides, learning and reinforcement. Receptors and signal transduction processes. Monoaminergic – peptidergic interactions. Amphetamine, cocaine and morphine addiction.

code	instructor in charge	title	credit	host department
OPEL_A-137/1993_LEL5	Dr. Lénárd, László	Neurobiological and behavioral research methods utilized in animal experiments	6	Department of Physiology
description	The main goal of the course is to detail methodological approaches from planning to completion of animal experiments. Examples will be given concerning the criteria of the experimental plan. Different behavioral paradigms will be detailed to study learning and memory processes. Data analysis and the appropriate statistical evaluation methods will be discussed. Advices will be given about interpretation of data and technology to complete research materials for publication.			

Declaration of the course:

Semester: fall
Application deadline: 20, September

Maximum number of attending students: 10

Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 14
number of lectures per week: 4

Type of examination: oral

Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): final exam, max. number of absence: 3 h

Opportunities for making up for non-attendance: consultation

List of resources (book, note, other) **required for learning the curriculum:** will be discussed and distributed in the course

Topics and instructors of the activities (all lectures, practices, seminars separately):

Making an experimental plan. The experimental design. Anaesthesia and stereotaxic brain operation. Metal and glass electrodes and pipettes. Direct brain microinjections. Neurotoxic lesions. Electric brain stimulation and recording methods. Behavioral paradigms (active and passive avoidance, labyrinth learning, place preference, elevated plus maze). Conventional histological methods to verify electrode and cannula placements. Data analysis: parametric and non-parametric statistical methods. Interpretation of data. How to write and publish a paper.

code	instructor in charge	title	credit	host department
OPMU_B-130/1993_LUA3	Dr. Lukács, András	Functional Protein Dynamics: the Application of Luminescence Spectroscopic Methods	4	Department of Biophysics
description	The function of proteins and other macromolecules is governed by their function and interactions. These functions are manifested in close coupling with their actual conformational state and dynamic properties. A powerful arsenal of methods to characterise these properties is offered by luminescence spectroscopy. The course aims to provide the basic principles of these methods and will also give insights into the advantages and limitations of their applications.			

Declaration of the course:

Semester: spring
Application: **name:** Lukács, András
telephone: 536267
email: andras.lukacs@aok.pte.hu

Maximum number of attending students: 12

Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 14
number of lectures per week: 1
number of practices per week: 3

Type of examination: written
Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): successful exam and no more than 3 absences

List of resources (book, note, other) **required for learning the curriculum:** chapters of the Medical Biophysics book is advised

Topics and instructors of the activities (all lectures, practices, seminars separately):

Lectures:
Reaction kinetics, enzyme kinetics;
Luminescence spectroscopy;
Practicals:
Fluorescence spectroscopy;
Fluorescence Resonance Energy Transfer;
Fluorescence quenching;
Polarisation, anisotropy;

OPKL_B-149/1993_MAE1	Dr. Marek, Erika	Medical and healthcare aspects of international migration	4	Department of Operational Medicine
tematika	During this multidisciplinary course students will learn of the medical and healthcare aspects and consequences of the increased migration (especially irregular migration) towards Europe from various aspects. Participants will gain in knowledge regarding the			

- 9-10. Health risks of international migration: prevalence of vaccine preventable diseases (VPDs) and vaccination coverage in countries of origin and transit/ -destination countries. Dr. Zoltán Katz
- 11-12. Age-assessment Dr. Antal Kricskovics
- 13-14. Health-economic aspects of migration. Dr. Kia Golesorkhi
- 15-16. The role of intercultural competencies in healthcare. Dr. Tímea Németh
- 17-20. Assessing medical students' intercultural competency level: methods and theories. Erika Marek
- 21-22. Psycho-social aspects of migration. Dr. Árpád Baráth
- 23-24. Healthcare in multicultural environment. Dr. Árpád Baráth
- 25-26. Migrant-sensitive primary care and secondary care. Introduction of Amsterdam Declaration and the Migrant-friendly Hospitals Program. Dr. István Szilárd
- 27-28. Occupational-health aspects of migration II. Healthy-migrant workforce: intergration of migrant workforce on the European labour market. Dr. István Szilárd
- 29-30. Occupational-health aspects of migration I. Aspects of the care providers: border-police staff, administrative staff, health and social workers. dr. Erika Marek
- 31-32. Healthcare for Victims of Trafficking: specific aspects. Dr. István Szilárd
- 33-34. Health promotion and health education in migrant communities. dr. Erika Marek
- 35-38. Presentation of best practices by participants. Discussions. dr. E. Marek and Dr. I. Szilárd
- 39-40. Final test exam. dr. Erika Marek
- 41-42. Consolidation, final assessment. dr. Erika Marek and Dr. István Szilárd

code	instructor in charge	title	credit	host department
OPGY_A-292/1994_PIE1	Dr. Pintér, Erika	Drug and substance abuse	2	Pharmacology and Pharmacotherapy
description	During the course we will discuss about the nature of the drug and substance abuse and dependence. We will characterize the most important groups of substances with high or moderate abuse potential. The main pharmacological groups are: opioids, CNS depressants, psychomotor stimulants and psychedelic agents.			

Declaration of the course:

Semester: spring
Application deadline: 15 February
Application: name: Dr. Erika Pintér
telephone: 72-536217/35097
email: erika.pinter@aok.pte.hu

Maximum number of attending students: 10

Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 14
number of lectures per week: 2

Type of examination: written

Type of remedial exam: written

Criteria of accepting the course (exams, maximum number of absence, etc.): exams, maximum number of absence

Opportunities for making up for non-attendance: none

List of resources (book, note, other) **required for learning the curriculum:** PPT presentation on the Coospace

Topics and instructors of the activities (all lectures, practices, seminars separately):

1. General terms,
2. Opioids, CNS depressants I.
3. CNS depressants II. (ethanol)
4. Psychomotor stimulants
5. Psychedelics
6. Practical aspects of the drug abuse (Dr. János Szemelyácz)
7. PPT presentations of the students, written exam

code	instructor in charge	title	credit	host department
OPGY_A-292/1994_POJ1	Dr. Pongrácz, Judit	Applied pharmaceutical biotechnology	2	Department of Pharmaceutical Biotechnology
description	Pharmaceutical biotechnology is not restricted to basic research: applied pharmaceutical biotechnology already delivers state-of-the-art treatment options. The aim of the course is to provide an overview on the significance and potential of applied pharmaceutical biotechnology through specific, relevant examples. These include current treatment options for cancer treatment (VEGF signaling, MDR variants) and also test systems for modeling alterations in drug-metabolism activity (changes in CYP450 activity due to ethnicity or age). The course provides synthesis of interdisciplinary pharmaceutical biotechnology knowledge, to obtain skill-level overview.			

Declaration of the course:

Semester: autumn
Application deadline: 10th September 2017
Application: name: Krisztian Kvell MD PhD
telephone: ext. 35551
email: kvell.krisztian@pte.hu

Maximum number of attending students: 15**Criteria of acceptance if overbooked:** order of application

Time frame of education total hours of the course: 14
number of seminars per week: 1

Type of examination: written**Type of remedial exam:** written**Criteria of accepting the course** (exams, maximum number of absence, etc.): according to general applicable rules of the University of Pecs**Opportunities for making up for non-attendance:** according to personal negotiation**List of resources** (book, note, other) **required for learning the curriculum:**

Recommended literature: Pharmaceutical Biotechnology: Drug Discovery and Clinical Applications (2012) by Oliver Kayser and Heribert Warzecha

Topics and instructors of the activities (all lectures, practices, seminars separately):

1. *Introduction to pharmaceutical biotechnology* (methodology, applications, significance)
lecturer: Prof. Judit Pongracz DSc and Krisztian Kvell MD PhD (2x45min. seminar)
2. *Applied pharmaceutical biotechnology – module I.*: evaluation of drug-metabolism kinetics in human model cell line (in vitro assessment of CYP450 variants)
lecturer: Krisztian Kvell MD PhD (3x45 min. seminar)

3. *Applied pharmaceutical biotechnology – module II.:* evaluation of drug-transporter activity in human model cell line (in vitro assessment of MDR variants)

lecturer: Luca Jaromi PhD (3x45 min. seminar)

4. *Applied pharmaceutical biotechnology – module III.:* evaluation of micro-vasculature in human model cell line (in vitro manipulation of VEGF signaling)

lecturer: Gyorgy Miskei PhD (3x45 min. seminar)

5. *Synthesis of pharmaceutical biotechnology modules:* evaluation of all previous module data, consultation, final exam

lecturer: Krisztian Kvell MD PhD (3x45 min. seminar)

code	instructor in charge	title	credit	host department
OPMU_B-1/2013_REG1	Dr. Rébék-Nagy, Gábor	Writing Up Research	4	Dept. of Languages for Specific Purposes
description	Focusing on the language use and conventions, the course is meant to support doctoral students' efforts to write English language medical research articles (MRA) and their dissertation. An overview of the relationship between inductive inquiry and the IMRAD reporting format will be followed by a detailed analysis of each individual subsection of the MRA. Specific features of English scientific prose including impersonal structures, nominalization, the use of reporting words, expressing various types of scientific truth, politeness phenomena and hedging will be discussed in detail.			

Declaration of the course:

Semester: both
Application deadline: 3rd week of the semester
Application name: dr Rébék-Nagy, Gábor (RNG)
email: gabor.n.rebek@aok.pte.hu

Maximum number of attending students: 10

Criteria of acceptance in case of overbooking: declaration of acceptance from the leader of the course

Time frame of education total hours of the course: 24
number of lectures per week: 1
number of seminars per week: 1

Type of examination: written
Type of remedial exam: written

Criteria of accepting the course (exams, maximum number of absence, etc.):

Annotate Medical Research Article chosen by the participant,

Opportunities for making up for non-attendance:

to be determined in each individual case

List of resources (book, note, other) **required for learning the curriculum:**

handouts provided by the course tutor

Topics and instructors of the activities (all lectures, practices, seminars separately):

LECTURES

week	topic	instructor
1	The research process and the Medical Research Article (MRA)	RNG
2	Inductive inquiry and the IMRAD reporting format	RNG
3	Expressing various types of scientific truth in the MRA	RNG
4	Comparing the genres of MRA and doctoral dissertation	RNG

5	Impersonal structures Nominalisation – Verbalisation,	RNG
6	Expressing modality and hedging	RNG
7	Politeness phenomena	RNG
8	The Abstract	RNG
9	The Introduction section	RNG
10	The Methods section	RNG
11	The Results section	RNG
12	The Discussion section	RNG

SEMINARS (offer practical examples and tasks related to the relevant lecture)

week	topic	instructor
1	The research process and the Medical Research Article (MRA)	RNG
2	Inductive inquiry and the IMRAD reporting format	RNG
3	Expressing various types of scientific truth in the MRA	RNG
4	Comparing the genres of MRA and doctoral dissertation	RNG
5	Impersonal structures Nominalisation – Verbalisation,	RNG
6	Expressing modality and hedging	RNG
7	Politeness phenomena	RNG
8	The Abstract	RNG
9	The Introduction section	RNG
10	The Methods section	RNG
11	The Results section	RNG
12	The Discussion section	RNG

kurzuskód	felelős oktató	elnevezés	kredit	oktató intézet
OPMU_B-1/2013_REG2	Dr. Rébék-Nagy, Gábor	Preparing and Delivering English Language Conference Presentations	4	Dept. of Languages for Specific Purposes
tematika	The course is meant to give guidance and help to doctoral students and researchers in creating and delivering professional conference presentations on their research topics at international conferences. The lectures will cover some essential concepts of oral communication and will give an overview of the genre and the conventions related to it. The practicals will provide opportunities for developing and using the major communication skills necessary for delivering scientific conference presentations in English. The practicals are also meant to improve the participants' English language awareness.			

Declaration of the course:

Semester:	spring
Application deadline:	31. January
Application: name:	dr Rébék-Nagy, Gábor (RNG)
telephone:	72 536296
email:	gabor.n.rebek@aok.pte.hu

Maximum number of attending students: 20

Criteria of acceptance in case of overbooking: declaration of acceptance from the leader of the course

Time frame of education

total hours of the course: 28
number of lectures per week: 14
number of seminars per week: 14

Type of examination: oral written
Type of remedial exam: oral written

Criteria of accepting the course (exams, maximum number of absence, etc.):

1/Summary of the Course Content (essay min 5400 characters)

2/Giving a simulated conference presentation of 15 minutes on the PhD topic in class.

Opportunities for making up for non-attendance: To be discussed with the course tutor whenever the problem arises.

List of resources (book, note, other) **required for learning the curriculum:**

In-house materials and handouts will be provided by the course tutor

Topics and instructors of the activities: dr. Rébék Nagy Gábor

LECTURES	
1	Introduction
2	The genre of conference presentation: coherence and cohesion
3	The anatomy of conference presentations
4	The three planes of communication in conference presentations
5	The factual plane: background, methodology and results
6	Communicative tasks in conference presentations
7	Discourse markers: logical patterns
8	Discourse markers: signposts, connectors,
9	Interpersonal communication in conference presentations
10	Hedging in conference presentations
11	Politeness in conference presentations
12	Summarizing, concluding and making recommendations
13	Handling questions from the audience
14	Course evaluation

PRACTICALS	
1	Using signposts
2	Creating text: connectors
3	Creating text: contrasting
4	Creating text: logical patterns
5	Creating text: highlighting
6	Creating text: word order - topicalization
7	Using definitions
8	Expressing cause and effect relationship
9	Using hedging devices
10	Using positive and negative politeness
11	Paraphrasing and summarizing
12	Asking questions about presentation topics
13	Handling questions from the audience
14	Course evaluation

code	instructor in charge	title	credit	host department
OPMU_B-131/1993_SGY2	Dr. Sétáló, György	Steroids' alternative (nongenomic) mechanism of action	1	Department of Biology
description	This course is about steroids' mechanism of action. In the classical interpretation these ligands work as regulators of transcription. In recent decades, however, more and more			

	information has been gathered strengthening the existence of alternative possibilities. These are executed either through membrane-bound receptors or via direct membrane effects, activating various signal transduction pathways.
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Declaration of the course:

Semester: spring
Application deadline: end of semester's first week
Application: name: György Sétáló Jr.
telephone: ext. 36216 or 31566
email: gyorgy.setalo.jr@aok.pte.hu

Maximum number of attending students: 20

Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 7
number of lectures per week: 0.5 (in reality 7 x 1)

Type of examination: written

Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): attending minimum 75% of the classes, then passing the exam successfully

Opportunities for making up for non-attendance: not possible

List of resources (book, note, other) **required for learning the curriculum:** discussed power point presentations will be handed out to participants after the classes

Topics and instructors of the activities (all lectures, practices, seminars separately):

1. Orientation (György Sétáló Jr.)
2. Estrogens (György Sétáló Jr.)
3. Progesterone (György Sétáló Jr.)
4. Androgens (György Sétáló Jr.)
5. Corticosteroids (György Sétáló Jr.)
6. Other, steroid-like ligands (György Sétáló Jr.)
7. Test exam (György Sétáló Jr.)

kurzuskód	felelős oktató	elnevezés	kredit	oktató intézet
OPKL_B-4/2004_SZJ1	Dr. Szalma, József	Thermal damage of the alveolar bone, periodontium and peripheral nerves in relation to oral surgical and dental treatments	2	Department of Oral and Maxillofacial Surgery
tematika	In several dental and oral surgery approaches rotating instruments (drills, burs) or piezoelectric preparations are applied. The course represents different clinical parameters, which can influence or reduce harmful temperatures, such as drilling parameters (spindle speed, axial loading, external-, internal or combined irrigation etc.) or drill characteristics (number and angle of cutting edges, drill material, wear etc.). Lectures discuss the methods and tools of intraoperative temperature measurements (infrared technique, thermocouples) and discuss thermal damage of different tissues (bone, periodontal fibers, and peripheral trigeminal nerves), furthermore including the clinical consequences (osteonecrosis, alveolitis, ankyloses, paresthesia).			

Declaration of the course:

Semester: autumn

Application deadline: 07. 09.

Application: **name:** Dr. Szalma József
telephone: 72/535-924 or 35924
email: szalma.jozsef@pte.hu

Maximum number of attending students: 15

Criteria of acceptance in case of overbooking: declaration of acceptance from the leader of the course

Time frame of education total hours of the course: 14
number of lectures per week: 2x 45 minutes

Type of examination: oral
Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): attendance of 80% of the classes

Opportunities for making up for non-attendance: -

List of resources (book, note, other) **required for learning the curriculum:** The educational material provided by the lecturers.

Topics and instructors of the activities (all lectures, practices, seminars separately):

1. Definition of the osteonecrosis. Clinical consequences of thermal damage of the alveolar bone. Heat tolerance of the periodontium and peripheral nerves and their reaction on thermal damage. (*Szalma József*)
2. The thermal parameters of rotating instruments and piezoelectric preparations used in dentistry, oral surgery and implantology, including literature review of relevant topics of orthopedic-traumatology, neurosurgery. (*Szalma József*)
3. Physical parameters of drills and burs determining intraosseal heat elevations. (*Szalma József*)
4. In vitro bone simulating materials. Comparisons of animal bone and synthetic bone models. (*Szalma József*)
5. The possibilities of registering thermal consequences of rotating and piezoelectric instruments. The accepted heat measurement methods in the literature. Methods of our clinical investigations and its representation. Benefits and limitations. (*Szalma József*)
6. Heat development of composite materials during photo-polymerization and the methods of heat measurements. Harmful temperatures of ultrasonic devices in the periodontium, alveolar bone by removal of endodontic files or intrapulpal posts. (*Lempel Edina and Krajczár Károly*)
7. The harmful intraosseal temperatures of orthodontic mini-implant insertions and heat during the predrilling process. Heat reducing strategies and its effect on the clinical success and survival rates. (*Gurdán Zsuzsanna*)

code	instructor in charge	title	credit	host department
OPEL_A-138/1993_SZL1	Dr. Szereday, László	Principles and techniques of cell separation	4	Medical Microbiology and Immunology
description	No prior knowledge of flow cytometry is assumed. The course will include lectures and practical sessions on applications including Ficoll gradient cell separation, magnetic cell isolation and separation with Miltenyi MACS technique and fluorescent labelled cell separation with BD FACS ARIA cytometer (high purity sorting, single cell sorting, cell separation onto microscope slides).			

Declaration of the course:

Semester: both

Application deadline: 1 October / 1 February
Application: name: László Szereday MD, PhD
telephone: 536001/31907
email: szereday.laszlo@pte.hu

Maximum number of attending students: 6

Criteria of acceptance in case of overbooking: order of application

Time frame of education total hours of the course: 24
number of lectures per week: 8
number of practices per week: 16

Type of examination: oral

Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): oral exam

Opportunities for making up for non-attendance: No make up lectures and practices.

List of resources (book, note, other) **required for learning the curriculum:** Lecture slides and notes.

Topics and instructors of the activities (all lectures, practices, seminars separately):

Day 1.: Lectures: Principles and different techniques of cell separation (László Szereday and Mátyás Meggyes)

1. Mononuclear cell separation from blood
 - 1.1. Sample preparation
 - 1.2. Principle of cell separation
 - 1.3. Cell counting
2. Magnetic cell separation with Miltényi MACS Microbeads
 - 2.1. Principle of magnetic cell separation
 - 2.2. Positive and negative cell separation
3. Fluorescent labelled cell separation with BD FACS ARIA cytometer: high purity sorting, single cell sorting, cell separation onto microscope slides etc.
 - 3.1. Principle of flow cytometric cell separation
 - 3.2. Sample preparation
 - 3.3. Principle of cell separation

Day 2. Practice: Separation of PBMC by Ficoll gradient and magnetic cell isolation and separation with MACS Microbeads (László Szereday and Mátyás Meggyes)

Day 3. Practice: Flow cytometric cell separation (László Szereday and Mátyás Meggyes)

code	instructor in charge	title	credit	host department
OPKL_B-149/1993_VAC1	Dr. Varga, Csaba	Genetic toxicology	4	Department of Public Health Medicine
description	The objective of this interdisciplinary field is to demonstrate the environmental effects of the different chemical agents and their consequences and the strategy of the research. The course provides an up-to-date preventive approach including the role of environmental genotoxic effects as a cause of increasing frequency of cancers and congenital malformations.			

Declaration of the course:

Semester: spring

Application deadline: as general

Application: name: Dr. Varga Csaba

telephone: 31193
email: chemsafety@freemail.hu

Maximum number of attending students: 6

Criteria of acceptance in case of overbooking: order of application
declaration of acceptance from
the leader of the course

Time frame of education total hours of the course: 28

Type of examination: written
Type of remedial exam: oral

Criteria of accepting the course (exams, maximum number of absence, etc.): written exam >60%,
absence: 1/3

Opportunities for making up for non-attendance: -

List of resources (book, note, other) **required for learning the curriculum:** hand-outs

Topics and instructors of the activities (all lectures, practices, seminars separately):

1. lecture: Environmental mutagens, genotoxic carcinogens. Dr. Varga Csaba
2. lecture: DNA primary lesions, levels of mutations. Dr. Varga Csaba
3. lecture: Consequences of mutations, general criteria for genotoxicity tests. Dr. Varga Csaba
4. lecture: Genotoxicological strategies. Dr. Varga Csaba
5. lecture: Genotoxicity in details. Dr. Varga Csaba
6. lecture: Conventional tests: DNA adduct measurements, UDS, Ames test, HPRT in cell cultures, chromosomal aberrations, SCE, micronucleus. Dr. Varga Csaba
7. lecture: Molecular methods: transgenic animals, single cell DNA microgel electrophoresis. Dr. Varga Csaba
8. lecture: Image analysis and computer aided evaluation. Dr. Varga Csaba
9. lecture: Genotoxicological endpoints as biomarkers. Dr. Varga Csaba
10. lecture: Individual risk assessment. Dr. Varga Csaba
11. practice: Bacterial mutagenicity studies. Dr. Varga Csaba
12. practice: Cytogenetic studies. Dr. Varga Csaba
13. practice: Comet assay. Dr. Varga Csaba
14. practice: Biomarker studies. Dr. Varga Csaba

Accredited Doctoral Schools and their leaders at UMSP

The Leader of the Doctoral School

Program leader

Basic Medical Sciences

Dr. Szekeres, Júlia

A-138/1993	Immunological aspects of reproduction	Dr. Szekeres, Júlia
B-139/1993	Essentials of immunology	Dr. Berki, Tímea
B-372/1996	Immunological and clinical aspects of polisystemic autoimmune conditions	Dr. Czirják, László
A-137/1993	Theoretical and practical guidance for the multidisciplinary research of the central neural and humoral regulation	Dr. Karádi, Zoltán
B-134/1993	Neuroendocrinology and neurohistology	Dr. Reglődi, Dóra
B-377/1997	Behavioral sciences	Dr. Kállai, János
A-141/1993	Molecular pathogenesis of bacterial infections	Dr. Kerényi, Mónika

Clinical Medical Sciences

Dr. Bogár, Lajos

A-319/1995	Nephrology - Diabetology	Dr. Wittmann, István
A-442/2000	Reproductive endocrinology	Dr. Gőcze, Péter
A-146/1993	Significance of molecular pathological and laboratory studies in medical diagnostics and therapy	Dr. Miseta, Attila
B-145/1993	Molecular pathomorphology	Dr. Pajor, László
A-327/1995	The investigation of pathological conditions of the circulation in <i>in vivo</i> surgical models and in-patients	Dr. Jancsó, Gábor
B-322/1996	Experimental cardiology	Dr. Tóth, Kálmán
B-149/1993	Molecular epidemiology of tumors	Dr. Kiss, István
B-414/1998	Scientific investigations into nutrition in childhood	Dr. Molnár, Dénes
B-2/2004	The clinical and molecular research of the new mechanisms, diagnostics and therapy of cardiovascular diseases	Dr. Szokodi, István
B-4/2004	Basic studies on dental and oral diseases	Dr. Nagy, Ákos
B-1/2006	Clinical aspects and pathobiochemistry of metabolic and endocrine diseases	Dr. Mezősi, Emese
B-1/2008	Surgery and its border fields	Dr. Bogár, Lajos
B-1/2010	Clinical studies on locomotor system	Dr. Than, Péter
B-2/2013	Acute and chronic injuries of parenchymal organs and the consequences: diagnostics and therapy	Dr. Molnár, F. Tamás

Clinical Neurosciences**Dr. Komoly, Sámuel**

B-1/2005	Clinical neuroimmunology and stroke	Dr. Komoly, Sámuel
B-2/2014	Neuromorphology and neuropathology	Dr. Ábrahám, Hajnalka
B-3/2014	Imaging in neuroscience	Dr. Bogner, Péter
B-4/2014	Neurosurgery	Dr. Büki, András
B-5/2014	Clinical and human neurosciences	Dr. Janszky, József
B-6/2014	Neurology	Dr. Pfund, Zoltan
B-1/2012	Psychiatry	Dr. Tényi, Tamás

Interdisciplinary Medical Sciences**Dr. Sümegi, Balázs**

A-129/1993	Molecular and cellular biochemistry	Dr. Sümegi, Balázs
B-130/1993	Investigating functional protein dynamics using biophysical methods	Dr. Nyitrai, Miklós
B-131/1993	Intracellular signal transduction pathways	Dr. Szeberényi, József
B-299/1995	Hematology	Dr. Alizadeh, Hussain
B-449/1999	Human molecular genetics	Dr. Melegh, Béla
B-2/2008	Evidence-based medicine	Dr. Decsi, Tamás
B-1/2013	Analytic techniques in biochemistry and molecular biology	Dr. Gallyas, Ferenc

Pharmacological and Pharmaceutical Sciences**Dr. Pintér, Erika**

A-148/1993	The isolation and examination of biologically active compounds	Dr. Deli, József
A-143/1993	Optimization of pharmacotherapy	Dr. Botz, Lajos
B-1/2014	Pharmaceutical chemistry	Dr. Perjési, Pál
A-144/1994	Toxicology	Dr. Gregus, Zoltán
B-1/2004	Visceral function and pharmacology of autonomic and sensory nerves	Dr. Barthó, Loránd
A-292/1994	Neuropharmacology	Dr. Pintér Erika
B-1/2016	Translational medicine	Dr. Péter Hegyi