REQUIREMENTS

Semmelweis University, Faculty of Medicine
Name of the managing institute (and any contributing institutes):
Department of Anatomy, Histology and Embryology

Name of the subject: Systems Neuroscience VII. Neural rhythms: normal and pathological.

in English: Systems Neuroscience VII. Neural rhythms: normal and pathological.

in German:

Credit value: 2

Number of lessons per week: 28 lecture: 0 practical course: 3 seminar: 25

Subject type: compulsory course elective course optional course

Academic year: 2019/2020. academic year II. semester

Subject code: AOSANT560_7A

(In case of a new subject, it is filled by the Dean's Office, after approval)

Name of the course leader: Dr. Gerber Gábor

His/her workplace, phone number: 53653

Position: Vice Chairman of the dept.

Date and registration number of their habilitation: 04/2019

Objectives of the subject, its place in the medical curriculum:
During this course we set sail adrift brain waves to get better insight into the normal and abnormal functions of the brain. We proceed through wake and sleep oscillations to the pathophysiological features of epilepsy. We will see how these oscillations can be recorded in humans at various scales, beside the bed or within the operating room and we will glance at the exciting horizons opened by neuro-modulatory techniques such as deep brain stimulation.

Place where the subject is taught (address of the auditorium, seminar room, etc.):
library room, Department of Anatomy, Histology and Embryology

Successful completion of the subject results in the acquisition of the following competencies:

Course prerequisites:
Anatomy, Physiology, Medical biophysics and Biostatistics and informatics. Grade point average (GPA) of 3.0 in the last semester.

Number of students required for the course (minimum, maximum) and method of selecting students:
min. 5, max. 7; on the first-come first-served basis

How to apply for the course:
Neptun

Detailed curriculum:
(Theoretical and practical lessons shall be given separately by numbering the lessons (by weeks). Please provide the names of the teachers of the lectures and practical lessons and indicate guest lecturers. Do not use attachments!
Always attach a CV for guest lecturers!)

Dániel Fabó, PhD, guest lecturer
Theoretical lessons

1. Seminar: Physiological oscillations. Human brain anatomy I
2. Seminar: Physiological oscillations. Human brain anatomy II
3. Seminar: EEG basics I
4. Seminar: EEG basics II
5. Seminar: EEG basics III
6. Seminar: Oscillations during diseases. Sleep EEG basics I.
7. Seminar: Oscillations during diseases. Sleep EEG basics II.
8. Seminar: Oscillations during diseases. Sleep EEG and memory functions I
9. Seminar: Oscillations during diseases. Sleep EEG and memory functions II
10. Seminar: Oscillations during diseases. EEG in epilepsy I
11. Seminar: Oscillations during diseases. EEG in epilepsy II
12. Seminar: Oscillations during diseases. EEG in epilepsy III
13. Seminar: Oscillations during diseases. EEG in epilepsy IV
14. Seminar: Oscillations during diseases. EEG in epilepsy V
15. Seminar: Oscillations during diseases. EEG in epilepsy VI
16. Seminar: Oscillations during diseases. EEG in epilepsy VII
17. Seminar: Oscillations during diseases. EEG in epilepsy VIII
18. Seminar: Presentation and discussion I.
19. Seminar: Presentation and discussion II.
20. Seminar: Presentation and discussion III.
21. Seminar: Presentation and discussion IV.
23. Seminar: Presentation and discussion V.
24. Seminar: Written test
25. Seminar: Written test

Practical lessons:

1. Course: Visit to the long term video-EEG unit. Scalp EEG examination with a volunteer.
2. Course: Reviewing epileptic seizures and EEGs.
3. Course: Data acquisition, data pre-processing and fMRI analysis using free or open access research tools.

Consultations: personally with the actual course leader

Other subjects concerning the border issues of the given subject (both compulsory and optional courses!). Possible overlaps of themes:

Special study work required to successfully complete the course:
(E.g. field exercises, medical case analysis, test preparation, etc.)

Requirements for participation in classes and the possibility to make up for absences:
Total absence allowed: 25% of the course hours
Recovering missing hours: studying the material provided by the course leaders, consultation

Methods to assess knowledge acquisition during term time:
(E.g. homework, reports, mid-term test, end-term test, etc., the possibility of replacement and improvement of test results)
Exam on the last day of the course
Additional occasions to be arranged by the teacher for improvement

Requirements for signature:
Succesful written test

Type of examination: colloquium
Requirements of the examination: (*In case of a theoretical examination, please provide the topic list; in case of a practical exam, specify the topics and the method of the exam)* Verbal and electronic etc. material provided by the lecturers. Syllabus is available upon opening the program on the web page**.**
Method and type of evaluation: (*Method of calculating the final mark based on the theoretical and practical examination. How the mid-term test results are taken into account in the final mark.)* Grades are given after obtaining points as follows: 0-50% fail, 51-60% pass, 61-75% fair, 76-90% good, above 90% excellent.
How to register for the examination?: Neptun
Possibilities for exam retake: 2 occasions arranged by the teacher
Printed, electronic and online notes, textbooks, guides and literature (URL address for online material) to aid the acquisition of the material: Buzsaki G (2006). Rhythms of the brain. Oxford University Press, New York. Milton J and Jung P (2003). Epilepsy as a dynamic disease. Springer, New York.
Signature of the habilitated instructor (course leader) who announced the subject:
Signature of the Director of the Managing Institute:
Hand-in date:

Opinion of the competent committee(s):
Comments of the Dean's Office:
Dean's signature: