科目ナンバリング	U-LAS14 20078 LE68						
授業科目名<英訳>	Introduction to Behavioral Neuroscience-E2 Introduction to Behavioral Neuroscience-E2			担当者所属職名・氏名	医学研究科　助教　VEALE, Richard Edmund		
群	自然科学科目群			分野(分類)	生物学(各論)	使用言語	英語
旧群	B群	単位数	2単位	週コマ数	1コマ	授業形態	講義（対面授業科目）
開講年度・開講期	2026・前期	曜時限	金5	配当学年	全回生	対象学生	全学向

[授業の概要・目的]

Behavioral Neuroscience investigates the neural basis of behavior. This course combines the old Part A and Part B into a single course, and thus accelerates the speed of material.

The first 4 lectures introduce basic neuroanatomy, neural functioning (membrane potential, action potential, synapses), and neuroscience methods (MRI, PET, EEG, electrophysiology).

The next 5 lectures introduce basic sensory and motor circuits: vision, audition, somatosensation and pain, muscle and motor control, and multisensory integration.

The final 5 lectures introduce cognitive behavioral neuroscience, focusing on memory and learning, development, language, consciousness, and neuropsychiatric disorders.

The course will employ an integrative approach by discussing both research results obtained with brain imaging in humans and experiments in animal models.

[到達目標]

- To understand how our brain processes information.
- To understand the methods used to investigate the brain and behavior.
- To be able to critically evaluate research findings in behavioral neuroscience reported in the public and scientific media.

[授業計画と内容]

1) Introduction and Anatomy
2) Cells in the nervous system (Axons, Dendrites, Soma). Membrane Potential.
3) Action Potential and Neurotransmitters/synapses.
4) Methods in Behavioral Neuroscience (MRI, EEG, electrophysiology)
5) Vision
6) Audition
7) Touch and pain
8) Muscles and Motor Control
9) Multisensory Integration (and development)
10) Learning and Memory (Hippocampus, LTP)
11) Language
12) Executive Function and Consciousness
13) Emotion and Social Processing (Mirror Neurons)
14) Diseases and Disorders (Schizophrenia, Dementia, Autism)

Introduction to Behavioral Neuroscience-E2(2)へ続く↓↓↓

Introduction to Behavioral Neuroscience-E2(2)

15) Feedback

[履修要件]

Basic knowledge of high-school level biology, chemistry, and physics is recommended.

[成績評価の方法・観点]

Evaluation will be based on class attendance and active participation (5 points) based on in-class quizzes and discussions, a final report (50 points), 10 random in-class open-note quizzes (10 points), and 15 online open-note quizzes (35 points).

[教科書]

Bear, Connors, Paradiso 『Neuroscience: Exploring the brain』（Lippincott）ISBN:1451109547（textbook not mandatory, lecture notes will be provided.）

[参考書等]

（参考書）

Kandel, Schwartz, et al 『Principles of Neural Science』（McGraw-Hill）ISBN:0071390111（textbook with more detailed information, not mandatory）

[授業外学修（予習・復習）等]

To achieve the course goals students should review the course materials plus optionally the according chapters in the recommended text books after each class. The time necessary for review should be in the range of 1-3 hours per class.

[その他（オフィスアワー等）]

No fixed office hours, but students are welcome to arrange appointments by email.

[主要授業科目（学部・学科名）]