



CampusPlan Web Service

Syllabus Reference

Course title	Basic physiological and anatomical brain science	
Term	前期 1st Half	
Credit(s)	1	
The main day		The main period
Program/Department	48 Physiological Sciences	
Lecturers	Hiromasa Takemura, Yumiko Yoshimura, and others	
成績評価区分 Grading Scale	A, B, C, Dの4段階評価 Four-grade evaluation	
レベル Level	Level 2	
力量 Competence	専門力 Academic expertise、独創性 Creativity	

Instructor

Full name
* TAKEMURA HIROMASA
YOSHIMURA YUMIKO
NEMOTO TOMOMI
KITAO KEIICHI
TATEYAMA MICHIIRO
MURAKOSHI HIDEJI
ENOKI RYOSUKE
TOMATSU SAEKA
SATAKE SHINICHIRO
HATANAKA NOBUHIKO

Outline	Basic knowledge on physiology and anatomy of the brain, computer science and image processing can be learned through 10 lectures.
Learning objectives	<ul style="list-style-type: none"> After completing this course, students can discuss with others on basic neuroscience. After completing this course, students can write a summary of a research paper. After completing this course, students can acquire basic knowledge on computer science and imaging processing which is necessary for performing research on physiology.
Grading policy	<ul style="list-style-type: none"> Students must attend at least the half of the lectures to get credit. Write a summary report on the one of lectures. The report will be graded by the lecturer on the basis of a level of understandings on the lecture. (50% for each)
Lecture Plan	<p>Schedule : May 8 – July 17, 2024, 10:00-11:30 on Wednesdays (Following schedule is a subject to change. Please check the course website for the latest information. The URL is described below.)</p> <p>Contents:</p> <ul style="list-style-type: none"> [1] Chapter 2, 3, 4 (May 8, Tateyama) 2. Neurons and Glia 3. The Neuronal Membrane at Rest 4. The Action Potential [2] Chapter 5, 6, 7 (May 15, Satake) 5. Synaptic Transmission 6. Neurotransmitter Systems 7. The Structure of the Nervous System [3] Chapter 8, 9, 10 (May 22, Yoshimura)

8. The Chemical Senses
9. The Eye
10. The Central Visual System
[4] Chapter 11, 12, 13 (May 29, Tomatsu)
11. The Auditory and Vestibular Systems
12. The Somatic Sensory System
13. Spinal Control of Movement
[5] Chapter 14, 15, 16 (June 5, Hatanaka)
14. Brain Control of Movement
15. Chemical Control of the Brain and Behavior
16. Motivation
[6] Chapter 17, 18, 19 (June 12, Enoki)
17. Sex and the Brain
18. Brain Mechanisms of Emotion
19. Brain Rhythms and Sleep
[7] Chapter 20, 21, 22 (June 19, Takemura)
20. Language
21. The Resting Brain, Attention, and Consciousness
22. Mental Illness
[8] Chapter 23, 24, 25 (June 26, Murakoshi)
23. Wiring the Brain
24. Memory Systems
25. Molecular Mechanism of Learning and Memory
[9] Basics of computer science. (July 3, Kitajo)
- [10] Fundamentals of image processing (July 17, Nemoto)

Location	Zoom Online
Language	English
Textbooks and references	Neuroscience: Exploring the Brain (4th ed.) Bear, Connors, & Paradiso. However it is not mandatory to bring it to class. Students can request to borrow the textbook.
Notes for students of other programs	Not applicable
Related URL	https://www.nips.ac.jp/graduate/curriculum.html
Explanatory note on above URL	Please keep be updated on the latest schedule from "Schedule of the classes" on the program website.
Others	Assignment: 1. Read the textbook before coming to class.
Contact for Course Inquiries	Hiromasa Takemura (htakemur@nips.ac.jp)

[Close window](#)