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, Tomomi Nemoto, 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
NEMOTO TOMOMI
KITAJO KEIICHI
TATEYAMA MICHIHIRO
MURAKOSHI HIDEJI
ENOKI RYOSUKE
OTSUKA TAKESHI
SATAKE SHINICHIRO
LUO, Junxiang
KANEKO TAKAAKI
ONODERA KOUN

Outline	Basic knowledge on physiology and anatomy of the brain, computer science and image processing can be learned through 10 lectures.
Learning objectives	·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 of computer science and image processing, which is necessary for performing research on physiology.
Grading policy	·Students must attend at least half of the lectures to get credit. (50%) ·Write a summary report on one of the lectures. The report will be graded by the lecturer based on the level of understanding of the lecture. (50%) ·Reports will be scored out of 100 points and graded on a 4-tier scale: A (100-80), B (79-70), C (69-60), and D (below 60). A passing grade is awarded for levels A, B, or C. ·Report submission deadline: July 31, 2026 ·Where to Submit: (1) Students in the Physiological Sciences Program: Please refer to the following website: https://sites.google.com/nips.ac.jp/sokendaiadm/ (2) Students from other courses: Submit your report via email to the SOKENDAI administration at NIPS: sokendai-adm@nips.ac.jp
Lecture Plan	Schedule: May 13 - July 15, 2026, 10:00-11:30 on Wednesdays (The following schedule is subject to change. Please check the course website for the latest information. The URL is described below.)

	Contents: [1] Chapter 2, 3, 4 (May 13, Tateyama) 2. Neurons and Glia 3. The Neuronal Membrane at Rest 4. The Action Potential [2] Chapter 5, 6, 7 (May 20, Satake) 5. Synaptic Transmission 6. Neurotransmitter Systems 7. The Structure of the Nervous System [3] Chapter 14, 15, 16 (May 27, Otsuka) 14. Brain Control of Movement 15. Chemical Control of the Brain and Behavior 16. Motivation [4] Chapter 11, 12, 13 (June 3, Kaneko) 11. The Auditory and Vestibular Systems 12. The Somatic Sensory System 13. Spinal Control of Movement [5] Chapter 8, 9, 10 (June 10, Onodera) 8. The Chemical Senses 9. The Eye 10. The Central Visual System [6] Chapter 20, 21, 22 (June 17, Luo) 20. Language 21. The Resting Brain, Attention, and Consciousness 22. Mental Illness [7] Chapter 17, 18, 19 (June 24, Enoki) 17. Sex and the Brain 18. Brain Mechanisms of Emotion 19. Brain Rhythms and Sleep [8] Chapter 23, 24, 25 (July 1, Murakoshi) 23. Wiring the Brain 24. Memory Systems 25. Molecular Mechanism of Learning and Memory [9] Basics of computer science. (July 8, Kitajo) [10] Fundamentals of image processing (July 15, 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	Please contact the SOKENDAI administration at NIPS (sokendai-adm@nips.ac.jp) in advance.
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)