



# 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	Yoshihiro Kubo, Hiromasa Takemura, 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

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"> <li>After completing this course, students can discuss with others on basic neuroscience.</li> <li>After completing this course, students can write a summary of a research paper.</li> <li>After completing this course, students can acquire basic knowledge on computer science and imaging processing which is necessary for performing research on physiology.</li> </ul>
Grading policy	<ul style="list-style-type: none"> <li>Students must attend at least the half of the lectures to get credit.</li> <li>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)</li> </ul>
Lecture Plan	<p>Schedule : May 10 – July 19, 2023, 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. Please note that the order of chapters do not fully correspond with the order of lectures.)</p> <p>Contents:</p> <ol style="list-style-type: none"> <li>Chapter 2, 3, 4 (May 10, Kubo)             <ol style="list-style-type: none"> <li>Neurons and Glia</li> <li>The Neuronal Membrane at Rest</li> <li>The Action Potential</li> </ol> </li> <li>Chapter 14, 15, 16 (May 24, Hatanaka)             <ol style="list-style-type: none"> <li>Brain Control of Movement</li> <li>Chemical Control of the Brain and Behavior</li> <li>Motivation</li> </ol> </li> <li>Chapter 11, 12, 13 (May 31, Tominaga)             <ol style="list-style-type: none"> <li>The Auditory and Vestibular Systems</li> <li>The Somatic Sensory System</li> <li>Spinal Control of Movement</li> </ol> </li> <li>Chapter 8, 9, 10 (June 7, Yoshimura)             <ol style="list-style-type: none"> <li>The Chemical Senses</li> <li>The Eye</li> <li>The Central Visual System</li> </ol> </li> <li>Chapter 17, 18, 19 (June 14, Minokoshi)             <ol style="list-style-type: none"> <li>Sex and the Brain</li> <li>Brain Mechanisms of Emotion</li> <li>Brain Rhythms and Sleep</li> </ol> </li> <li>Chapter 20, 21, 22 (June 21, Takemura)             <ol style="list-style-type: none"> <li>Language</li> <li>The Resting Brain, Attention, and Consciousness</li> <li>Mental Illness</li> </ol> </li> <li>Chapter 23, 24, 25 (June 28, Isoda)</li> </ol>

	23. Wiring the Brain 24. Memory Systems 25. Molecular Mechanisms of Learning and Memory 8. Basics of computer science (July 5, Kitajo) 9. Chapter 5, 6, 7 (July 12, Kenta Maruyama) 5. Synaptic Transmission 6. Neurotransmitter Systems 7. The Structure of the Nervous System 10. Basics of image processing (July 19, 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	<a href="https://www.nips.ac.jp/graduate/curriculum.html">https://www.nips.ac.jp/graduate/curriculum.html</a>
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.

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