

Course title	Principle and Methodology in Brain Science
Term	前期 1st Half
Credit(s)	1
The main day	The main period
Program/Department	48 Physiological Sciences
Lecturers	Mitsuhiro Tateyama, Akiyuki Nishimura, 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 3
力量 Competence	専門力 Academic expertise

Instructor	
Full name	
	* IZUMI YASUSHI
	FUKUNAGA MASAKI
	NISHIJIMA KAZUTOSHI
	KOBAYASHI KENTA
	SOKABE TAKAAKI
	TATEYAMA MICHIIRO
	NARUSHIMA MADOKA
	MURAKOSHI HIDEJI
	ENOKI RYOSUKE
	HASEBE RIE
	NISHIMURA AKIYUKI
	NINOMIYA TAIHEI
	CHIKEN SATOMI
	YUASA KENICHI

Outline	This subject focuses on experimental approaches in brain science. 14 methodologies frequently used in brain science will be introduced to cultivate critical views on scientific data.
Learning objectives	Cell biological methods Methods for sensory biology Electrophysiological methods Noninvasive electromagnetic measurements of the human brain In vivo imaging of the human brain Optical microscopy Molecular biological methods Molecular physiological methods Methods for cardio-vascular functions Methods for neuroimmunology Neurophysiological and neuroanatomical methods Methods for animal experimental modeling
Grading policy	Students must attend at least half of the lectures to get credit. It is also required to write a short paper on a topic related to one of the lectures. The paper will be graded by the lecturer, and it will be used to determine pass/fail. Report Submission Deadline: End of July 2026 Report Submission Address: • Students in the Physiological Sciences Course should refer to https://sites.google.com/nips.ac.jp/sokendaadm/ • Students in courses other than Physiological Sciences should submit by email to the Graduate School Office of the National Institute for Physiological Sciences <sokendaadm@nips.ac.jp>
Lecture Plan	Schedule: May 7 - June 18 10:00-11:00, 11:00-12:00 on Thursdays May 7 Cell biological methods (Yasushi Izumi) May 7 Methods for sensory biology (Takaaki Sokabe) May 14 Electrophysiological methods 1 (Madoka Narushima) May 14 Electrophysiological methods 2 (Satomi Chiken) May 21 Noninvasive electromagnetic measurements of the human brain (Kenichi Yuasa) May 21 In vivo imaging of the human brain (Masaki Fukunaga) May 28 Optical microscopy 1 (Hideji Murakoshi) May 28 Optical microscopy 2 (Ryosuke Enoki) Jun 4 Molecular biological methods (Kenta Kobayashi) Jun 4 Molecular physiological methods (Mitsuhiro Tateyama) Jun 11 Methods for cardio-vascular functions (Akiyuki Nishimura) Jun 11 Methods for neuroimmunology (Rie Hasebe) Jun 18 Neurophysiological and neuroanatomical methods (Taihei Ninomiya) Jun 18 Methods for animal experimental modeling (Kazutoshi Nishijima)
Location	Zoom online
Language	English
Textbooks and references	"Guide to Research Techniques in Neuroscience" edited by Matt Carter and Jennifer Shieh, Academic Press (2010).
Notes for students of other programs	Students in courses other than the Physiological Sciences course should contact the following email address before enrolling in the course. sokendaadm@nips.ac.jp
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	Pre-requisites: No particular background knowledge is required.
Keyword	-
Contact for Course Inquiries	Students in courses other than the Physiological Sciences course should contact the following email address before enrolling in the course. sokendaadm@nips.ac.jp