Syllabus Reference

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 MICHIHIRO
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-vasucular 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/sokendaiadm/ ・Students in courses other than Physiological Sciences should submit by email to the Graduate School Office of the National Institute for Physiological Sciences <sokendai-adm@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-vasucular 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 Jennifier 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. sokendai-adm@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. sokendai-adm@nips.ac.jp