

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	
KUBOTA YOSHIYUKI	
KOBAYASHI KENTA	
SOKABE TAKAAKI	
TATEYAMA MICHIIHIRO	
NARUSHIMA MADOKA	
MURAKOSHI HIDEJI	
ENOKI RYOSUKE	
TOMATSU SAEKA	
HASEBE RIE	
NISHIMURA AKIYUKI	
CHIKEN SATOMI	

Outline	This subject focuses on experimental approaches in brain science. 1 methodologies frequently used in brain science will be introduced to cultivate critical views on scientific data.
Learning objectives	<p>Optical microscopy</p> <p>Electrophysiological methods</p> <p>Morphological methods</p> <p>Cell biological methods</p> <p>Methods for sensory biology</p> <p>In vivo imaging of the human brain</p> <p>Molecular physiological methods</p> <p>Methods for cardio-vascular functions</p> <p>Methods for neuroimmunology</p> <p>Molecular biological methods</p> <p>Methods for animal experimental modeling</p>

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.
Lecture Plan	<p>Schedule: May 9 – 10:00–11:00, 11:00–12:00 on Thursdays</p> <p>May 9 Optical microscopy 1 (Hideji Murakoshi)  May 9 Optical microscopy 2 (Ryosuke Enoki)  May 16 Electrophysiological methods 1 (Madoka Narushima)  May 16 Electrophysiological methods 2 (Saeka Tomatsu)  May 23 Cell biological methods (Yasushi Izumi)  May 30 Methods for sensory biology (Takaaki Sokabe)  May 30 In vivo imaging of the human brain (Masaki Fukunaga)  Jun 6 Molecular physiological methods (Mitsuhiro Tateyama)  Jun 6 Methods for cardio-vascular functions (Akiyuki Nishimura)  Jun 13 Methods for neuroimmunology (Rie Hasebe)  Jun 13 Molecular biological methods (Kenta Kobayashi)  Jun 20 Methods for animal experimental modeling (Kazutoshi Nishijima)  Jun 20 Electrophysiological methods 3 (Satomi Chiken)  Morphological methods (Yoshiyuki Kubota)</p>
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. sokendai-adm@nips.ac.jp
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	Pre-requisites: No particular background knowledge is required.
Keyword	–
Contact for Course Inquiries	Hideji Murakoshi <murakosh@nips.ac.jp>; Madoka Narushima <narumado@nips.ac.jp>; Yoshiyuki Kubota <yoshiy@nips.ac.jp>; Takaaki Sokabe <sokabe@nips.ac.jp>; Mitsuhiro Tateyama <tateyama@nips.ac.jp>; Rie Hasebe <hasebe@nips.ac.jp>; Kazutoshi Nishijima <kanish@nips.ac.jp>; Ryosuke Enoki <enoki@nips.ac.jp>; Saeka Tomatsu <tomatsu@nips.ac.jp>; Yasushi Izumi <yizumi@nips.ac.jp>; Masaki Fukunaga <fuku@nips.ac.jp>; Akiyuki Nishimura <aki@nips.ac.jp>; Kenta Kobayashi <kobaya@nips.ac.jp>; Satomi Chiken<chiken@nips.ac.jp>