

## 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

KUBOTA YOSHIYUKI

KOBAYASHI KENTA

SOKABE TAKAAKI

TATEYAMA MICHIIRO

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

Optical microscopy  
 Electrophysiological methods  
 Morphological methods  
 Cell biological methods  
 Methods for sensory biology  
 In vivo imaging of the human brain  
 Molecular physiological methods  
 Methods for cardio-vascular functions  
 Methods for neuroimmunology  
 Molecular biological 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.   |
| Lecture Plan                         | Schedule: May 9 – June 20 10:00–11:00, 11:00–12:00 on Thursdays<br>May 9 Optical microscopy 1 (Hideji Murakoshi)<br>May 9 Optical microscopy 2 (Ryosuke Enoki)<br>May 16 Electrophysiological methods 1 (Madoka Narushima)<br>May 16 Electrophysiological methods 2 (Saeka Tomatsu)<br>May 23 Methods for sensory biology (Takaaki Sokabe)<br>May 23 Cell biological methods (Yasushi Izumi)<br>May 30 Morphological methods (Yoshiyuki Kubota)<br>May 30 In vivo imaging of the human brain (Masaki Fukunaga)<br>Jun 6 Molecular physiological methods (Mitsuhiro Tateyama)<br>Jun 6 Methods for cardio-vascular functions (Akiyuki Nishimura)<br>Jun 13 Methods for neuroimmunology (Rie Hasebe)<br>Jun 13 Molecular biological methods (Kenta Kobayashi)<br>Jun 20 Methods for animal experimental modeling (Kazutoshi Nishijima)<br>Jun 20 Electrophysiological methods 3 (Satomi Chiken) |
| 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.<br>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>  |

[Close window](#)