# Fundamental Neuroscience 1

<table>
<thead>
<tr>
<th>Course title</th>
<th>Fundamental Neuroscience 1</th>
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<tbody>
<tr>
<td>Term</td>
<td>後期 2nd Half</td>
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<tr>
<td>Credit(s)</td>
<td>1</td>
</tr>
<tr>
<td>The main day</td>
<td>The main period</td>
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<tr>
<td>Program/Department</td>
<td>48 Physiological Sciences</td>
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<tr>
<td>Lecturers</td>
<td>Yoshimura, Watanabe, Wake, Nemoto et al.</td>
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<tr>
<td>Grading Scale</td>
<td>A, B, C, D的4段階評価 Four-grade evaluation</td>
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<tr>
<td>Level</td>
<td>Level 3</td>
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<tr>
<td>Competence</td>
<td>専門力 Academic expertise, 独創性 Creativity</td>
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**Instructor**

* YOSHIMURA YUMIKO
* WATANABE EIJI

**Outline**

This lecture series will focus on the properties of individual neurons, glial cells, and neural circuits, several basic brain functions, and the analytical methods in order to understand the mechanisms for information processing in the brain.

**Learning objectives**

1. To understand the neural basis of sensory function.
2. To understand the diversity of neurons and the property of synaptic connections.
3. To understand the properties and functional roles of glial cells.
4. To understand the neural basis of biological rhythms.
5. To understand the analytical methods with fluorescence imaging.

**Grading policy**

Students must attend at least half of the lectures to get credit. Students are requested to submit an essay report on the assignment by the dead line. The grades are determined by the quality of the report.

**Lecture Plan**

1st lecture, October 27 (Fri)
- 'Visual function I' Yumiko Yoshimura

2nd lecture, November 10 (Fri)
- 'Visual function II' Taisuke Yoneda

3rd lecture, November 17 (Fri)
- 'Visual function III (visual illusions and brain model studies)' Eiji Watanabe

4th lecture, November 24 (Fri)
- 'Somatosensory function' Madoka Narushima

5th lecture, December 1 (Fri)
- 'Architecture and functional significance of cortical microcircuit' Yoshiyuki Kubota

6th lecture, December 8 (Fri)
- 'Physiological and pathological functions of glial cells' Hiroaki Wake

7th lecture, December 15 (Fri)
- 'Neural basis of biological rhythms' Ryosuke Enoki

8th lecture, December 22 (Fri)
- 'Fluorescence imaging' Tomomi Nemoto

**Location**

Online using Zoom or onsite (Lecture room, NIPS Wasedai Building 1F or Seminar room B of the Yoyogi 3rd Building B)

**Language**

English

**Textbooks and references**

None

**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

**Others**

O1 and O2 students in the Physiological Sciences course are strongly recommended to take this class. Students from all courses are also welcome.