<table>
<thead>
<tr>
<th>Course title</th>
<th>Brain science e-learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term</td>
<td>後期 2nd Half</td>
</tr>
<tr>
<td>Credit(s)</td>
<td>1</td>
</tr>
<tr>
<td>Program/Department</td>
<td>48 Physiological Sciences</td>
</tr>
<tr>
<td>Lecturers</td>
<td>Masaki Isoda</td>
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<tr>
<td>Grading Scale</td>
<td>A,B,C,D四段階評価 Four-grade evaluation</td>
</tr>
<tr>
<td>Level</td>
<td>Level 2</td>
</tr>
<tr>
<td>魅力</td>
<td>Academic expertise, 創新性 Creativity</td>
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</tbody>
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**Outline**
Basic knowledge necessary for brain science can be learned through an e-learning system with lecture and small tests.

**Learning objectives**
To obtain the foundation of the brain science and understand the fundamental subjects correctly.

**Grading policy**
Students are required to view all lectures one by one and complete Challenge Quizzes set at the end of respective topics as well as Mini Tests. Students will be assigned to take the Assessment in the designated period. The grades will be determined by the progression status of Mini Tests and the scores of the Assessment. Students can take the Assessment only once following period 2nd semester: from November 1, 2023 to January 31, 2024.

**Lecture Plan**
1. BASIC Understanding of brain as a system
   1. Clues to understand the brain
   2. Development of brain and its shape
   3. Functional elements supporting brain functions
   4. Mechanisms for brain functions
   5. Information signals and their managements in brain
2. Functions (Sensation) External recognition systems
   1. Informatization of various sensory signals
   2. Sensors placed throughout the body "Somatic sensation"
   3. The mechanism of visual sensation
   4. The mechanism of auditory sensation
   5. The mechanism of olfactory sensation
   6. The mechanism of gustatory sensation
3. Motor Function Transmitting motor command and its regulation
   1. Mechanism by which nerve signals cause movement
   2. Regulation of skeletal muscle movement by the spinal cord
   3. Planning of movements and mechanism controlling smooth movements
   4. Motor control by the cerebellum
4. Integrated Auto-regulator
   1. Hypothalamus
   2. Autonomic nervous system
   3. Wide area regulation of brain by neurotransmitter
   4. Diffuse regulatory system composed by astrocyte
5. Higher brain functions
   1. Emotion
   2. Linguistic abilities
   3. Memory ability

**Location**
https://sakura.nips.ac.jp/moodle/
Login ID will be given to each registrant. Students may login with the ID to the web page and conduct a self-study.

**Language**
English

**Textbooks and references**

**Notes for students of other programs**
Nothing particular

**Keyword**
E-learning