<table>
<thead>
<tr>
<th>Course title</th>
<th>Brain science step by step Ⅱ</th>
</tr>
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<tbody>
<tr>
<td>Term</td>
<td>前期 1st Half</td>
</tr>
<tr>
<td>Credit(s)</td>
<td>1</td>
</tr>
<tr>
<td>School/Program</td>
<td>School of Life Science</td>
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<tr>
<td>Department/Program</td>
<td>Department of Physiological Sciences</td>
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<td>Category</td>
<td>Physiological Sciences</td>
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<tr>
<td>Lecturers</td>
<td>Atsushi Nambu</td>
</tr>
</tbody>
</table>

**Instructor**

**Full name**

*NAMBU ATSUSHI*

**Outline**

Basic knowledge necessary for brain science can be learned through an e-learning system with lecture and small tests.

**Goal**

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

**Grading system**

01:Four-grade evaluation (A,B,C,D)

**Grading policy**

Students are required to view all the lectures one by one and complete Challenge Quizzes set at the end of respective topics as well as Mini Tests. And 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: 1st semester: from June 1 to August 6, 2021.

**Lecture Plan**

Schedule: At any time within an academic year

URL: https://sakura.nips.ac.jp/moodle/

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 modulatory system composed by astrocyte  
5. Higher brain functions  
   1. Emotion  
   2. Linguistic abilities  
   3. Memory ability

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