

 Syllabus Reference

Course title	Brain science e-learning	
Term	前期 1st Half	
Credit(s)	1	
The main day		The main period
Program/Department	48 Physiological Sciences	
Lecturers		
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 2	
力量 Competence	専門力 Academic expertise、独創性 Creativity	

Instructor		
<table border="1"> <tr> <td>Full name</td> </tr> <tr> <td>* ISODA MASAKI</td> </tr> </table>	Full name	* ISODA MASAKI
Full name		
* ISODA MASAKI		

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	<p>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.</p> <p>The grades will be determined by the progression status of Mini Tests and the scores of the Assessment.</p> <p>Students can take the Assessment only once following period</p> <p>1st semester: from June 1 to August 3, 2026.</p>
Lecture Plan	<p>Schedule: At any time within an academic year</p> <p>URL: <a href="https://sakura.nips.ac.jp/moodle/">https://sakura.nips.ac.jp/moodle/</a></p> <p>Lecture plan :</p> <ol style="list-style-type: none"> <li>1. BASIC Understanding of brain as a system <ol style="list-style-type: none"> <li>1. Clues to understand the brain</li> <li>2. Development of brain and its shape</li> <li>3. Functional elements supporting brain functions</li> <li>4. Mechanisms for brain functions</li> <li>5. Information signals and their managements in brain</li> </ol> </li> <li>2. Functions (Sensation) External recognition systems <ol style="list-style-type: none"> <li>1. Informatization of various sensory signals</li> <li>2. Sensors placed throughout the body " Somatic sensation"</li> <li>3. The mechanism of visual sensation</li> <li>4. The mechanism of auditory sensation</li> <li>5. The mechanism of olfactory sensation</li> <li>6. The mechanism of gustatory sensation</li> </ol> </li> <li>3. Motor Function Transmitting motor command and its regulation <ol style="list-style-type: none"> <li>1. Mechanism by which nerve signals cause movement</li> <li>2. Regulation of skeletal muscle movement by the spinal cord</li> <li>3. Planning of movements and mechanism controlling smooth movements</li> <li>4. Motor control by the cerebellum</li> </ol> </li> <li>4. Integrated Auto-regulator <ol style="list-style-type: none"> <li>1. Hypothalamus</li> <li>2. Autonomic nervous system</li> <li>3. Wide area regulation of brain by neurotransmitter</li> <li>4. Diffuse modulatory system composed by astrocyte</li> </ol> </li> <li>5. Higher brain functions <ol style="list-style-type: none"> <li>1. Emotion</li> </ol> </li> </ol>

	2. Linguistic abilities 3. Memory ability
Location	<a href="https://sakura.nips.ac.jp/moodle/">https://sakura.nips.ac.jp/moodle/</a> Login IDs will be issued to students who have submitted their course registration. Please log in with your ID to engage in self-study.
Language	English
Textbooks and references	工藤佳久『もっとよくわかる! 脳神経科学~やっぱり脳はスゴイのだ! (実験医学別冊 もっとよくわかる! シリーズ)』羊土社、2013年、255p. (ISBN:978-4758122016)
Notes for students of other programs	Please contact the Graduate Student Affairs Section at NIPS in advance: sokendai-adm@nips.ac.jp
Keyword	E-learning
Contact for Course Inquiries	Masaki Isoda (isodam@nips.ac.jp)

## ○ Syllabus Reference

Course title	Brain science e-learning	
Term	後期 2nd Half	
Credit(s)	1	
The main day		The main period
Program/Department	48 Physiological Sciences	
Lecturers		
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 2	
力量 Competence	専門力 Academic expertise、独創性 Creativity	

Instructor
Full name
* ISODA MASAKI

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Lecture Plan	Schedule: At any time within an academic year  URL: <a href="https://sakura.nips.ac.jp/moodle/">https://sakura.nips.ac.jp/moodle/</a>  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

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