

Course title	Principle and Methodology in Brain Science		
Term	前期 1st Half		
Credit(s)	1		
The main day		The main period	
School/Program	School of Life Science		
Department/Program	Common Subjects of Life Science		
Category	Common		
Lecturers	Mitsuhiro Tateyama, Akiyuki Nishimura, and others		

## Instructor

Full name

\* NAMBU ATSUSHI

## Outline

This subject focuses on experimental approaches in brain science. 13 methodologies frequently used in brain science will be introduced to cultivate critical views on scientific data.

## Goal

Understanding the basic principles in  
 molecular physiological methods,  
 methods for cardio-vascular functions,  
 molecular biological and biochemical methods,  
 electro physiological methods,  
 optical microscopy,  
 methodology in genome science,  
 methods for mammalian transgenesis,  
 morphological methods,  
 cell biological methods,  
 optical methods to read and manipulate neural circuits,  
 behavioral methods,  
 methods for sensory biology,  
 in vivo imaging of the human brain.

## Grading system

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

## 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 20 – July 8 10:00–11:00, 11:00–12:00 on Thursdays

May 20 Molecular physiological methods (Mitsuhiro Tateyama)  
 May 20 Methods for cardio-vascular functions (Akiyuki Nishimura)  
 May 27 Molecular biological and biochemical methods 1 (Yuko Fukata)  
 May 27 Molecular biological and biochemical methods 2 (Kenta Kobayashi)  
 Jun 3 Electrophysiological methods 1 (Madoka Narushima)  
 Jun 3 Electrophysiological methods 2 (Saeka Tomatsu)  
 Jun 10 Optical microscopy 1 (Hideji Murakoshi)  
 Jun 10 Optical microscopy 2 (Ryosuke Enoki)  
 Jun 17 Methodology in genome science (Yasuhiro Go)

	Jun 17 Methods for mammalian transgenesis (Masumi Hirabayashi) Jun 24 Morphological methods (Yoshiyuki Kubota) Jun 24 Cell biological methods (Yasushi Izumi) Jul 1 Optical methods to read and manipulate neural circuits (Masakazu Agetsuma) Jul 1 Behavioral methods (Kenichiro Nakajima) Jul 8 Methods for sensory biology (Takaaki Sokabe) Jul 8 In vivo imaging of the human brain (Masaki Fukunaga)
Location	Zoom online
Language	Japanese
Textbooks and references	“Guide to Research Techniques in Neuroscience” edited by Matt Carter and Jennifer Shieh, Academic Press (2010).
Related URL	<a href="http://sbsjp.nips.ac.jp/schedule/">http://sbsjp.nips.ac.jp/schedule/</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	SOKENDAI Integrative Brain Science Course