

Graduate Program of Brain Science Comprehensive Curriculum

Call for Enrollment in Hokkaido University Inter-Graduate School Classes for 2025

Basic Brain Science

To help understanding the basics of brain science, faculty members of the Research and Education Center for Brain Science (RECBS) offer Basic Brain Science I – VI

- **Eligibility:** Master's and doctoral students in all graduate schools (elective compulsory subject for the Graduate Program of Brain Science)
- **Term:** First semester
- **Course structure:** The course consists of 6 subjects. Students are free to choose

Lectures / Practice classes

I Neural Signaling

Lecture

- **Responsible faculty:** Haruyuki Kamiya (Faculty of Medicine)
- **Description:** Learn how information is transmitted in the nervous system
- **Date and time:** April 7– June 2 (Mon, 5th period)
- **Place:** Lecture Room III (Clinical Medicine Lecture Building 1F)

II Brain Structure and Function

Lecture

- **Responsible faculty:** Miwako Yamasaki(Faculty of Medicine)
- **Description:** Learn about the composition, cell types, and main functions of the brain.
- **Date and time:** April 11 May 23 (Fri, 5th period)
- **Place:** Lecture Room III (Clinical Medicine Lecture Building 1F)

III Systems Neuroscience

Lecture

- **Responsible faculty:** Masaki Tanaka (Faculty of Medicine)
- **Description:** Overview of the functions of the CNS
- **Date and time:** June 9 – June 30 (Mon and Fri, 5th period)
- **Place:** Lecture Room III (Clinical Medicine Lecture Building 1F)

IV Molecular and Cellular Basis of Neurotransmission

Lecture

- **Responsible faculty:** Masabumi Minami (Faculty of Pharmaceutical Sciences)
- **Description:** Learn about the molecular basis of brain signaling
- **Date and time:** June 10 – July 22 (Tue, 5th period)
- **Place:** Lecture Room II, School of Pharmaceutical Sciences (Clinical Pharmaceutical Lecture Building 1F)

V Practice for Human Brain Anatomy

Practice class

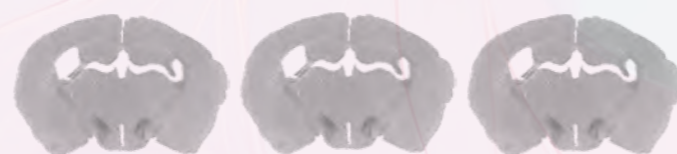
- **Responsible faculty:** Miwako Yamasaki(Faculty of Medicine)
- **Description:** Understanding the brain structure through human brain dissection (Students must take at least two subjects from lectures I – IV and VI)
- **Date and time:** July 18 (Fri, 9 a.m.-3 p.m.)
- **Place:** Histopathology Lab (3st floor of the Biomedical and Dental Sciences Research Building)

VI The Foundations of Cognitive Sciences and Functional Imaging

Lecture

Practice class

- **Responsible faculty:** Koichi Yokosawa (Faculty of Health Sciences)
- **Description:** Consider the state of the mind based on the function of the brain, experience representative functional brain imaging methods
- **Date and time:** 【Lecture】 June 2– (Mon, 2nd period)
【Practice class】 Intensive course in summer
- **Place:** 【Lecture】 Seminar Room 3-1 of the School of Medicine (Central Research Building, 3rd floor)
【Practice class】 MRI rooms (B1 floor of the Biomedical and Dental Sciences Research Building)



Advanced Brain Science Research

As an introduction to cutting-edge brain science research, the faculty members of the Research and Education Center for Brain Science (RECBS) offer Brain Science I – IV

- **Eligibility:** Master's and doctoral students in all graduate schools (elective compulsory subject for the Graduate Program of Brain Science)
- **Term:** First (I, IVa) or second (II, III, IVb) semester
- **Course structure:** The course consists of 7 subjects. Students are free to choose

Lectures

Lecture I is held on Thursday (4th period) in the first semester and Lecture II is held on Monday (5th period) in the second semester. Both are at the Seminar Room 3-1 of the School of Medicine (Central Research Building, 3rd floor)

I Brain Science 2025

- **Responsible faculty:** Masaki Tanaka (Faculty of Medicine)
- April 17 : Higher-order brain functions regulated by cortico-cerebellar linkage (Masaki Tanaka)
- April 24 : Neural mechanism for integration of different sensory information to produce negative emotion (Masabumi Minami)
- May 1 : The neural bases of learning and decision-making (Iku Kimura)
- May 8 : Morphological analysis for elucidating neural circuits (Taisuke Miyazaki)
- May 15 : Astrocyte function and disease (Ken-ichi Otsuguro)
- May 22 : Methodology of research in the performance sciences (Mayumi Adachi)
- June 5 : Diversity and changeability of color vision and cognition (Yasuhiro Kawabata)

II Brain Science 2025

- **Responsible faculty:** Miwako Yamasaki(Faculty of Medicine)
- October 6 : Various methods of analyzing synaptic structure and function (Miwako Yamasaki)
- October 20 : Neural mechanisms underlying metacognition and social cognition (Kazuki Yoshida)
- October 27 : Functional analysis of neurons in the brainstem (Makoto Funahashi)
- November 10 : Brain functions related to reading skills and developmental dyslexia (Ayumi Seki)
- November 17 : Cognitive Neuroscience and Rehabilitation (Daisuke Sawamura)
- December 1 : Drug development targeting histaminergic nervous system (Takeo Yoshikawa)
- December 8 : The acquisition and analysis of magnetic resonance imaging (Hiroyuki Sugimori)

Practice classes

For each of the practice classes I and II, students must complete at least one practical training in the methodologies covered in the lectures. The date, time, place, and content of the practical training will be given in the lecture.

I Brain Science 2025

- **Responsible faculty:** Masaki Tanaka (Faculty of Medicine)
- The class will be offered in the first semester.

II Brain Science 2025

- **Responsible faculty:** Miwako Yamasaki(Faculty of Medicine)
- The class will be offered in the second semester.

Seminar

Participation in the training camp hosted by the RECBS. Details will be posted on the website.

Seminar

Participation in designated lectures, symposia, and presentations hosted by the RECBS.

III Presentation Skills of Brain Science2025

2nd semester

- **Responsible faculty:** Koichi Yokosawa (Faculty of Health Sciences)

IV-a/b Advanced Brain Science Seminar2025

1st and 2nd semester

- **Responsible faculty:** Masaki Abe (Faculty of Education)

- **Course registration:** Register the class numbers listed in the inter-graduate course syllabus (web syllabus) according to the instructions by the Academic Affairs Office of your graduate school. The deadline is indicated by the graduate school.
- **Course Details:** See the website of the Research and Education Center for Brain Science ("For Student") at https://www.hokudai.ac.jp/recbs/05_student/student.html
- **Course coordinator:** Masaki Tanaka Department of Physiology, Faculty of Medicine (Tel: 706-5022, brain@med.hokudai.ac.jp)