

Syllabus

1. Course title, style, and credit:

Neural Mechanism of Cognition and Motor Control

(✓) Lecture () Discussion () Practice

1 credit

2. Appropriate grade level and eligible departments:

(✓) D1, (✓) D2, (Δ) D3, (Δ) D4, (Δ) D5; Δ, optional

(✓) Department of Physiological Sciences, School of Life Science

3. Lecturer(s):

Masaki Isoda (Myodaiji, 6F)

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Phone: 0564-55-7761

4. Time:

(oral) Friday 10:00-12:00 from October 2018 through January 2019 (see below)

5. Place:

(oral) Lecture room, NIPS Myodaiji Building 1F

6. Prerequisites and styles

There is no lecture course that must be completed in advance. Each lecture begins with basic introduction, so that all students can understand the content without prior knowledge. All the lectures are given in English.

7. Contents:

The brain is a highly complex organ. In order to understand how the brain works, knowledge at various levels must be integrated, ranging from the genome and molecules to synapses, cells, local circuits, and global networks. In addition, since physiology and disease are the two sides of the same coin, it is equally important to understand brain dysfunction, such as psychiatric and neurological disorders. In this lecture series, we focus on several aspects of higher brain function that are of crucial importance for cognition and behavior and aim to understand their

neural mechanisms from a systems neuroscience perspective.

8. Course objectives:

- (1) To understand the neural basis of motor behavior.
- (2) To understand the neural basis of reward and learning.
- (3) To understand the neural basis of visual function.
- (4) To understand the neural basis of attention and awareness.
- (5) To understand the neural basis of social cognitive function.

9. Schedule:

- (1) October 19, 2018
Motor behavior 1
Taihei Ninomiya (NIPS)
- (2) October 26, 2018
Motor behavior 2
Masaki Isoda (NIPS)
- (3) November 16, 2018
Reward and learning
Atsushi Noritake (NIPS)
- (4) November 30, 2018
Vision
Taihei Ninomiya (NIPS)
- (5) December 14, 2018
Attention
Masatoshi Yoshida (NIPS)
- (6) December 21, 2018
Awareness
Masatoshi Yoshida (NIPS)
- (7) January 4, 2019
Social cognition 1: psychological viewpoints
Atsushi Noritake (NIPS)
- (8) January 11, 2019
Social cognition 2: neuroscientific viewpoints
Masaki Isoda (NIPS)

10. Lecture materials and suggested readings:

Nothing.

11. Grades:

An assignment will be given at the end of the course on the basis of the five objectives described above. Students are required to submit an essay report on the assignment by a deadline date. The grades are determined by the quality of the report, which is indicated by either 'passed' or 'failed'.

12. Notes:

Nothing.