Syllabus

1. Course Title, Style and Credit
“Fundamental neuroscience II”, Lecture, 1 Credit

2. Appropriate grade level and Eligible Departments
Department of Physiological Sciences, School of Life Science
(✓) D1, (✓) D2, (△) D3, (△) D4, (△) D5; △, optional

3. Lectures
Yumiko Yoshimura, Kenji Hayashi, Taisuke Yoneda, Madoka Narushima, Yoshiyuki Kubota, Tomomi Nemoto, Ryosuke Enoki, Kohei Otomo

4. Time
November, 2021- December, 2021.
Every Friday, 10:00-12:00.

5. Place
Lectures will be delivered on-line (zoom) or on the site: NIPS Myodaiji 1F Lecture room, Yamate 9F Seminar room B. The style and the location may change depending on the situation of COVID-19.

6. Prerequisites and styles
No special preparation is required to take the course.
All the lectures will be conducted in English.

7. Contents
We will cultivate knowledge of development and plasticity of brain functions. This lecture will focus on the development of neural cells and circuits, the plasticity and activity-dependent reorganization of synapses, the biological homeostasis, the biological rhythm, and the imaging methodology.

8. Course objectives
Students will explain neuronal development and neural circuit development mechanisms, neural activity-dependent synaptic plasticity and reorganization, biological homeostasis, biological rhythms, imaging methods, and finally, get an ability to discuss development and plasticity of brain functions.

9. Schedule
The 1st: November 5, 2021
“Function and developmental plasticity of visual system 1”
Yumiko Yoshimura（Visual Information Processing）

The 2nd: November 12, 2021
“Function and developmental plasticity of visual system 2”
Kenji Hayashi （Visual Information Processing）

The 3rd: November 19, 2021
“Function and developmental plasticity of visual system 3”
Taisuke Yoneda （Visual Information Processing）

The 4th: November 26, 2021
“Mechanisms of homeostatic maintenance and remodeling of neuronal circuits”
Madoka Narushima （Homeostatic Development）

The 5th: December 3, 2021
“Neuron diversity and microcircuitry of cortex”
Yoshiyuki Kubota （Cerebral Circuitry）

The 6th: December 10, 2021
“Basics and applications of visualization analysis of physiological functions 1”
Tomomi Nemoto （Biophotonics）

The 7th: December 17, 2021
“Basics and applications of visualization analysis of physiological functions 2”
Ryosuke Enoki （Biophotonics）

The 8th: December 24, 2021
“Basics and applications of visualization analysis of physiological functions 3”
Kohei Otomo （Biophotonics）

10. Lecture materials and readings
Not applicable.

11. Grades
Students will select one of the themes and submit an essay report by the deadline.
The grade will be determined by the quality of the report.
Students must attend at least 70% of the lectures to get credit.