#### Syllabus

 Course Title, Style and Credit Remodeling of Neuronal Circuits Lecture
Credit

# 2. Appropriate grade Level and Eligible Departments

All Departments

For Department of Physiological Sciences, D 1 & 2 (obligatory), D3-5 (optional)

3. Lectures

Junichi Nabekura e-mail; <u>nabekura@nips.ac.jp</u> Tel: 0564-55-7851 5<sup>th</sup> Floor Myodaiji Area

4. Time

[Oral] 10:00-12:00 on Friday September 7<sup>th</sup>, 14<sup>th</sup>, 28<sup>th</sup>, October 5<sup>th</sup>, 26<sup>th</sup>, November 2<sup>nd</sup>, 9<sup>th</sup>, 30<sup>th</sup>, 2012.

## 5. Place

Seminar room B of the Yamate 3<sup>rd</sup> Building, 9<sup>th</sup> Floor. The Lecture will be delivered by the remote lecture system.

#### 6. Pre-requisites

Basic knowledge on the central nervous system, especially synapse, will help to understand the lectures, but is not essential.

## 7. Contents

We will introduce the basic mechanisms of the neuronal circuits and short-term and long-term plasticities.

#### 8. Course objectives.

1) To understand the excitatory and inhibitory synaptic transmissions, and their change in developments.

#### 2) To understand the plasticity and remodeling of the neuronal circuits in recovery.

## 9. Schedule

(1) September 7<sup>th</sup>

Overviews of Excitatory Circuits (Kato,G., NIPS)

(2) September 14<sup>th</sup>

Overviews of Inhibitory Circuits (Ishibashi, H., NIPS)

(3) September 28<sup>th</sup>

Signaling in synapses (Murakoshi, H., NIPS)

(4) October  $5^{\text{th}}$ 

Remodeling of Neuronal Circuits (Nabekura, J., NIPS)

(5) October 26<sup>th</sup>

Synapse Elimination (Hashimoto, K., Hiroshima University)

(6) November 2<sup>nd</sup>

Critical Period (Yoshimura, Y., NIPS)

## (7) November 9<sup>th</sup>

Transmitter Switching (Nabekura, J., NIPS)

#### (8) November 30<sup>th</sup>

Light and vision processing in retina, and Optogenetics (Koizumi, A., NIPS)

10. Textbook

Not Specified

#### 11, Evaluation & Credit

You have to attend >1/2 of 8 Lectures. Evaluation will be made based on the reports which will be presented after the end of all lectures.

Subjects of the reports will be noticed later. Students achieving >60% of full marks will pass the examination.