

A Master Course	Class Style	Lecture	FB: Elective 2 credits AM: Free elective 2 credits GM: Elective 2 credits	Fiscal year	2020
Course Title	Brain Science	Numbering code	FB: GDMFB 9001 AM: GDMAM9002 GM: GMDMGM9001		
Objectives	Learning structure and function of the brain				
Semester	The first half of the 1st or 2nd Grade, Tuesday (16:20-17:50)				
Location	Instructor's research laboratory seminar room Kuwaki, Kashiwadani, Kusumoto, Yamashita: Department of Physiology, 6 <sup>th</sup> floor in the second building Tagawa, Xu, Mimobe: Department of Physiology, 6 <sup>th</sup> floor in the second building Shibata: Department of Morphological Sciences, 3 <sup>rd</sup> floor in the second building Sato: Department of Applied Pharmacology, 8 <sup>th</sup> floor in the first building Okuno: Department of Biochemistry and Molecular Biology, 4 <sup>th</sup> floor in the second building				
Couse Director	Tomoyuki KUWAKI (Department of Physiology)				
GIO	1	Learn about brain functions			
	2	Learn about structure of the human brain			
SBO	1	Explain the development and propagation of action potential			
	2	Explain the functions of neurotransmitters and receptors			
	3	Explain the fundamental structure and functions of the central nervous system			
	4	Explain the integrative functions of the brain			
Outline (90 minutes x 15 lectures)				Instructor	
1	Neuron and glia			Yoshiaki Tagawa	
2	Electrical characteristics of the neuron			Etsuko Minobe	
3	Synaptic transmission and receptors			Tomoaki Sato	
4	Supporting structures including the skull, blood vessels, ventricle, etc.			Masahiro Shibata	
5	Brain structure and conduction pathways			Masahiro Shibata	
6	Development of the brain			Yoshiaki Tagawa	
7	Observation of the human brain specimen			Masahiro Shibata	
8	Motor system			Jianjun Xu	
9	General sensation			Akira Yamashita	
10	Special sensation			Hideki Kashiwadani	
11	Autonomic nervous system			Tomoyuki Kuwaki	
12	Synaptic plasticity and memory			Hiroyuki Okuno	
13	Memory, cognition, and dementia			Tomoaki Sato	
14	Appetite			Ikue Kusumoto	
15	Presentation by students (Examination)			Tomoyuki Kuwaki	
Teaching Materials	Neil R. Carlson: Physiology of Behavior, 11th Edition., Pearson Education, 2013 Liquan Luo: Principles of Neurobiology, Garland Science, 2016				
Grading Methods	Comprehensive determination based on examination (80%), attendance, and reports				
Contact	Office hours	Tuesday (18:00-18:30)			
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