A Master Course	Class Style	Lecture	FB：Compulsory 2 credits AM：Compulsory 2 credits GM：Compulsory 2 credits	Fiscal year	2020

Course Title	Genes and Diseases	Numbering code	FB：GMDMFB1002 AM：GMDMAM1002 AM：GMDMGM1002
Objectives	To understand genome medicine through learning of state-of-the-art molecular biology and genome editing technologies		
Semester	The first half of the 1st grade. 6th Period (18:00 - 19:30) Tuesdays		
Location			
Couse Director	Hiroyuki Okuno (Professor, Biochemistry and Molecular Biology) [okuno@m.kufm.kagoshima-u.ac.jp]		
G I O	To learn current advances and limitations of genome research in medical sciences		
S B O	1. To be able to explain methods and technologies in genome editing and recombinant DNA technology 2. To be able to summarize physiological regulation through gene expression 3. To be able to discuss about environmental factors that influence gene expression 4. To be able to discuss about relationship between genomic mutations and diseases 5. To be able to explain what “tailor-made (order-made)” medicine is 6. To be able to summarize current methods and techniques for genetic diagnosis		

Outline （90 minutes x 15 lectures）	Instructor
1. Introduction/Orientation: Genome medicine and medical science (4/28)	Hiroyuki Okuno
2. Understanding of gene function with developmental engineering (5/12)	Masahiro Sato
3. Gene abnormality and etiology of diseases (5/19)	Masahiro Sato
4. Regulation of neural cell differentiation through cell adhesion molecules (5/26)	Yasuo Takeda
5. From genome project to tailor-made medicine	Yasuo Takeda
6. Anti-cancer agent-resistant mechanisms revealed by pharmacokinetics (6/9)	Tatsuhiko Furukawa
7. Cancer, metabolism, and epithelial-mesenchymal transition (EMT) (6/16)	Misako Haraguchi
8. Thymidine phosphorylase: the tumor malignant transformation factor (6/23)	Tatsuhiko Furukawa
9. Protein-protein interaction and signal transduction (6/30)	Shosei Kishida
10. Vesicle transport (7/7)	Shosei Kishida
11. Genomic drug discovery (7/13)	Atsuro Miyata
12. Pharmacogenomics (7/20)	Atsuro Miyata
13. Development and clinical application of gene therapy technology and regenerative medicine (7/27)	Ken-Ichiro Kosai Yasuo Takeda
14. Genes that regulate cerebral neural circuits for emotion (8/4)	Yuji Kiyama
15. Genomic mutations that cause neurodevelopmental/neurological disorders (8/11)	Hiroyuki Okuno

Teaching Materials	No specific text books are suggested. Handouts will be provided depending on topics.	
Grading Methods	Record cards will be made based on attendance and reports, depending on instructors.	
Contact	Office hours	Any time, but making appointment with email is recommended.
	E-mail	okuno@m.kufm.kagoshima-u.ac.jp
Others		