

**The Graduate School of Medical Sciences
Kumamoto University
(Doctoral Course)**

Syllabus

Compulsory subjects and Elective subjects

- A1 Medical Informatics and Medical Ethics
- B1 Pathophysiology and structural biochemistry of biomolecules
- B2 Cell Biology
- B3 Hematopoietic and Immune System
- B4 Infection and Immune Control
- B5 Human brain functional science
- B6 Neuroscience
- B7 Developmental and Regenerative Medicine
- B8 Environmental and Sociomedical Sciences
- C1 Current Theory of Medical Diagnosis
- C2 Advanced therapeutics
- C3 Metabolic and Circulatory Regulations
- C4 Reproductive and Developmental Medicine
- C5 Advances in Oncologic Medicine
- C6 The Forefront of Clinical Oncology
- C7 Restorative Medicine
- C8 Cancer therapeutics
- C9 Palliative Care
- C10 The Theory of Clinical Research
- C11 Training of biostatistics in clinical study
- C12 Overview of clinical study
- D1 Medical and Life science Seminar
- D2 Learning from Experienced Doctors Seminar
- D3 Medicine and Life Science Training
- D5 Translational Research Seminar

Course Work subject

Medical Experiment Course

Developmental Biology and Regenerative Medicine

- E1 Special Lecture "Tokuron" on Developmental Biology and Regenerative Medicine I
- E2 Special Lecture "Tokuron" on Developmental Biology and Regenerative Medicine II
- E3 Special Lecture "Tokuron" on Transplantation immunology
- E4 Special Lecture "Tokuron" on Bioethics
- Practice "Enshuu" on Developmental Biology and Regenerative Medicine I
- Practice "Enshuu" on Developmental Biology and Regenerative Medicine II
- Practice "Enshuu" on Developmental Biology and Regenerative Medicine III
- Practical Training "Jisshuu" on Developmental Biology and Regenerative Medicine

Educational Program for Advanced Research in Infectious Diseases and AIDS

- F1 Special Lecture I on Infectious Diseases and AIDS
- F2 Special Lecture II on Infectious Diseases and AIDS
- Training I on Infectious Diseases and AIDS
- Training II on Infectious Diseases and AIDS
- Practice I on Infectious Diseases and AIDS
- Practice II on Infectious Diseases and AIDS
- Practice III on Infectious Diseases and AIDS
- Practice IV on Infectious Diseases and AIDS
- Research on Infectious Diseases and AIDS
- Special Research I on Infectious Diseases and AIDS
- Special Research II on Infectious Diseases and AIDS

Endocrinology and Metabolism Course

Practical Training of Metabolic Medicine

Educational Program for extension of healthy life expectancy

- G1 Special Lecture I on CMHA
- G2 Special Lecture II on CMHA
- Special Lecture on Bioethics
- Special Practice
- Practice I on CMHA
- Practice II on CMHA
- Practice III on CMHA

Compulsory subjects and Elective subjects

A1 ▪ B1 ~ B8 ▪ C1 ~ C12
D1 ~ D3 ▪ D5

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-000-81-2	2022whole year	Graduate School of Medical Sciences(20010)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Medical Informatics and Medical Ethics(A1 Medical Informatics and Medical Ethics)			KADOOKA Yasuhiro, KASAOKA Shunji, NAKAMURA Taishi, USUKU Koichiro		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……25% 2.Profound inter-disciplinary knowledge ……25% 3.Global perspective and ability to take initiative action ……25% 4.Social leadership drive ……25%					
Type of Class(授業の形態)	Lecture and Seminar				
Teaching Method(授業の方法)	The course is provided by lecture and discussion or e-Learning using the moodle or CITI Japan.				
Course Goals(授業の目的)	Medical Informatics and Medical Ethics aims at proper management of health information and ethical problems arose from medical practice. In this course, you learn basic concepts used in this filed, including electronic health records, protection of computer-processed personal data, health care system in Japan and other countries, evaluation of medical care and DPC, problems of abortion, euthanasia and death with dignity, informed consent, principle of ethics. This course serves as introductory for all students as you obtain essential knowledge on medical informatics and medical ethics, and emergency medicine.				
Course Learning goals(学修目標)	【A level (A水準)】 To be able to handle or manage health information and ethical problems arose from medical practice. 【C level (C水準)】				
Course Outline(授業の概要)	In order to explain basic principles of medical informatics and medical ethics, it is discussed how the problems are managed. Basic concepts are introduced. More specifically, you are expected to understand the followings: (1) electronic health records; (2) protection of computer-processed personal data; (3) information literacy; (4) ethical issues at the beginning of life; (5) ethical issues at the end of life; (6) informed consent, privacy and principle of ethics, (7) research, high technology medicine and ELSIs, (8) emergency medical service system and (9)disaster medicine. Participants are requested to learn medical ethics through e-learning system offered by the project of Collaborative Institutional Training Initiative (CITI) Japan, or submit a short comment on some lectures, which will be helpful to provide positive feed back to the next session.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		6th period Yasuhiro Kadooka 【eEJ-0】 Class Orientation and eAPRIN	Introduction and orientation of this course Responsible Conduct of Research_RCR Research Misconduct_RCR		
2		6th period eAPRIN 【eEJ-0】	Data Handling_RCR / Rules for Collaborative Research_RCR / Conflicts of Interest_RCR		
3		4th period eAPRIN 【eEJ-0】	Authorship_RCR / Plagiarism(Biomedical)_RCR / Communicating Information to the Public_RCR		
4		4th period eAPRIN 【eEJ-0】	Peer Review(Biomedical)_RCR / Mentoring_RCR / Managing Public Research Funds_RCR		
5		4th period eAPRIN 【eEJ-0】	The History and Principles of Bioethics, and the Development of Its Rules_HSR / Review by an Institutional Review Board (IRB)_HSR / Handling Personal Information in Research_HSR		
6		4th period eAPRIN 【eEJ-0】	Genomic and Genetic Analysis Studies in Human Populations_HSR / Group Harm Arising from Research_HSR / Informed Consent in Research_HSR		
7		4th period eAPRIN 【eEJ-0】	Research Subjects Who Merit Special Considerations_HSR / Records-Based Research_HSR / Social and Behavioral Research for Biomedical Researchers_HSR		
8		4th period eAPRIN 【eEJ-0】	International Studies_HSR / The Ethics of Pluripotent Stem Cell Research I_HSR / The Ethics of Pluripotent Stem Cell Research II_HSR		
9		4th period eAPRIN 【eEJ-0】	Digest: Human Subjects Research_HSR / Care and Use of Laboratory Animals Module 1 Basic Knowledge of Animal Experiments_ACU / Care and Use of Laboratory Animals Module 2 What You Should Consider When Conducting Animal Experiments_ACU		
10		4th period Taishi Nakamura and Koichiro Usuku 【eJ-0】	Health care system in Japan and in the world		
11		4th period Taishi Nakamura and Koichiro Usuku 【eEJ-0】	Future prospects of Electronic medical records, Clinical research and data ware house		
12		4th period Shunji Kasaoka 【eE-0】 【eJ-0】	Emergency Medical Service System, Post-Cardiac Arrest Syndrome		
13		4th period Shunji Kasaoka 【eE-0】 【eJ-0】	Disaster Medicine, Triage		
14		4th period Yasuhiro Kadooka	Step up Lecture for Research Ethics (1)		
15		4th period Yasuhiro Kadooka	Step up Lecture for Research Ethics (2)		
Estimated out-of-class		This subject requires 90 hours of study, and the class is 30 hours. Therefore pre- and post-study on tasks			

study time	equivalent to 60 hours is necessary to deepen the understanding of the class.
Required Textbook(テキスト)	Textbooks are not specified, and handouts will be distributed by the moodle system.
Reading List(参考文献)	Provided in the lectures.
Enrollment Conditions(履修条件)	No prerequisite.
Assessment Methods and Criteria(評価方法・基準)	Grading will be based on active class participation, paper summaries, and the final report. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and questions related to the topics dealt with in class to be scored from grade 1 to 5. Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions.
Language Used in Instruction(使用言語)	Japanese and English
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English
Course Based on Practical Work Experience(実務経験を活かした授業)	Applicable

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-001-79-2	2022whole year	Graduate School of Medical Sciences(20020)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Pathophysiology and Structural Biochemis(B1)			BABA Masaya, YAMAGATA Kazuya, YAMANAKA Kunitoshi, MIHARADA Kenichi, ARIMA Yuichiro		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……30% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……30% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint will be used in the lectures, and active participation in the discussion is encouraged.				
Course Goals(授業の目的)	(1)To understand the pathophysiology of hypertension, cardiac hypertrophy, and atherosclerosis, and the therapeutic strategy of these cardiovascular diseases. (2)To understand the basic knowledge of glucose/lipid metabolism and its dysregulation in diabetes mellitus, metabolic syndrome, and lipid metabolism disorder. (3) Molecular basis, various cellular functions, and roles of ATPases, especially AAA family proteins, in human diseases will be learnt. (4) To understand the mechanisms for protein quality control in cells and its implications in diseases (5) To understand the role of hypoxia signaling pathway, mTOR signaling pathway and metabolite signaling in diseases				
Course Learning goals(学修目標)	【A level (A水準)】 To understand the detailed findings of the structure, function, physiological role, role in various diseases, and clinical application of biomolecule, and to be able to apply them to the study. 【C level (C水準)】 To understand the structure, function, physiological role, role in various diseases, and clinical application of biomolecule.				
Course Outline(授業の概要)	(1) You will learn the mechanism for the regulation of oxidative stress and its signaling cascades. (2) You will learn fundamental metabolic pathways under normal conditions and its relationship to pathology. (3) Proteins are biopolymers containing functional motifs and domains. Molecular chaperones and ATP-dependent proteases are related to life of proteins and consist of several different types of ATPases. Their functions will be discussed from the point of view of ATPases. In particular, common molecular basis and various cellular functions of AAA family proteins will be discussed. In addition, human genetic diseases and developmental disorders of model animals caused by mutations in AAA family proteins will be described. (4) You will learn how quantity and quality of functional proteins is maintained at the desired levels, and molecular mechanisms of unfolded protein response. Furthermore, you will learn how its disruption is implicated in various diseases. (5) You will learn the role of hypoxia signaling pathway, mTOR signaling pathway and metabolite signaling in diseases				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)		Brief Outline of Class(内容概略)	
1		5th period ARIMA Yuichiro 【eEJ-0】		Pathophysiology of cardiovascular diseases (1)	
2		5th period ARIMA Yuichiro 【eEJ-0】		Pathophysiology of cardiovascular diseases (2)	
3		4th period ARIMA Yuichiro 【eJ-0】		Hypertension and hyperglycemia during pregnancy	
4		4th period YAMAGATA Kazuya 【eEJ-0】		Pathophysiology of glucose/lipid metabolism (1)	
5		4th period YAMAGATA Kazuya 【eEJ-0】		Pathophysiology of glucose/lipid metabolism (2)	
6		4th period YAMAGATA Kazuya 【eEJ-0】		Pathophysiology of glucose/lipid metabolism (3)	
7		4th period YAMANAKA Kunitoshi 【eJ-L】		ATPases related to life of proteins	
8		4th period YAMANAKA Kunitoshi 【eEJ-0】		Various functions of AAA proteins	
9		4th period YAMANAKA Kunitoshi 【eJ-L】		Human diseases caused by AAA proteins	
10		4th period MIHARADA Kenichi 【eJ-0】		Growth factors and receptors in cancer	
11		4th period MIHARADA Kenichi 【eJ-0】		Cell signaling in cancer	
12		4th period MIHARADA Kenichi 【eJ-0】		Molecular targeted therapy in cancer	
13		4th period BABA Masaya 【eJ-0】		Hypoxia signaling pathway and disease	
14		4th period BABA Masaya 【eJ-0】		mTOR signaling pathway and disease	
15		4th period BABA Masaya 【eJ-0】		metabolite signaling and disease	
Estimated out-of-class study time					
Required Textbook(テキスト)		Textbooks are not specified, and handouts will be distributed in some classes.			
Reading List(参考文献)		“Harper's Illustrated Biochemistry” by Robert K. Murray, Daryl K. Granner, Victor W. Rodwell, The McGraw-Hill Companies, 2006 “Handbook of Lipoprotein Testing” by Nader Rifal et al., AACCC Press, 2000			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		The students' understanding will be evaluated comprehensively based on the quality of report. Students must select one area from all attended courses and submit its report to the Student Affairs Section.			

Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English
Course Based on Practical Work Experience(実務経験を 活かした授業)	Not applicable

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-002-79-2	2022whole year	Graduate School of Medical Sciences(20030)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Cell Biology(B2)			IWAMOTO Kazuya, TOMIZAWA Kazuhito, NAKACHI Yutaka, BUNDO Miki, ONO Yusuke, TATEISHI Satoshi, NAKAO Mitsuyoshi, Hino Shinjiro		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……75% 2.Profound inter-disciplinary knowledge ……20% 3.Global perspective and ability to take initiative action ……5%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	Face-to face lecture & E-learning lecture				
Course Goals(授業の目的)	The students understand the various biological phenomena such as development/regeneration, cancer, aging, psychiatric disorders, molecular genetics, and stem cells based on cellular functions.				
Course Learning goals(学修目標)	[A level (A水準)] The students can understand the various biological phenomena including development/regeneration, cancer, aging, psychiatric disorders, molecular genetics, and stem cells at the molecular level. In addition, they can understand and discuss the latest topics. [C level (C水準)] The students can understand the various biological phenomena including development/regeneration, cancer, aging, psychiatric disorders, molecular genetics, and stem cells at the molecular level.				
Course Outline(授業の概要)	The topics of this course include development/regeneration, cancer, aging, psychiatric disorders, molecular genetics, and stem cells. The teachers give lectures on basic knowledge and current status of each topic, based on their specialty.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	06/02	5th period, Kazuhito Tomizawa [eE-0, eJ-0]	Regulation in physiology and pathophysiology		
2	06/09	5th period, Kazuhito Tomizawa [eE-0, eJ-0]	Regulation by protein phosphorylation		
3	06/16	4th period, Shinjiro Hino [eE-0, eJ-0]	Cross talk between metabolism and epigenome		
4	06/23	4th period, Yusuke Ono [eE-0, eJ-0]	Stem cells and tissue regeneration/adaptation I		
5	06/30	4th period, Yusuke Ono [eE-0, eJ-0]	Stem cells and tissue regeneration/adaptation II		
6	07/07	4th period, Yutaka Nakachi [eE-0, eJ-0]	Osteoblasts and Osteoclasts I		
7	07/14	4th period, Yutaka Nakachi [eE-0, eJ-0]	Osteoblasts and Osteoclasts II		
8	07/21	4th period, Miki Bundo [eE-0, eJ-0]	Single cell analysis of brain functions		
9	07/28	4th period, Mitsuyoshi Nakao [eJ-O, eE-O]	Medical epigenetics I (General remarks)		
10	08/04	4th period, Mitsuyoshi Nakao [eJ-O, eE-O]	Medical epigenetics II		
11	08/18	4th period, Kazuya Iwamoto [eE-0, eJ-0]	Neuroepigenetics I		
12	08/25	4th period, Kazuya Iwamoto [eE-0, eJ-0]	Neuroepigenetics II		
13	09/01	4th period, Satoshi Tateishi [eEJ-0]	Cell growth and cell cycle		
14	09/08	4th period, Satoshi Tateishi [eEJ-0]	About Mitosis and Meiosis		
15	09/15	4th period, Satoshi Tateishi [eEJ-0]	DNA repair and recombination		
Estimated out-of-class study time	This course consists of content that requires 90 hours of study. Since the class is 30 hours, 60 hours of pre- and post-study (including assignments) is necessary to understand the class.				
Required Textbook(テキスト)	Not specified.				
Reading List(参考文献)	「Pathophysiology of Disease: An Introduction to Clinical Medicine, 6th Edition」 edited by Stephan J. McPhee and William F. Ganong, The McGraw-Hill Companies (2009) 「Developmental Biology, 10th Edition」 edited by Scott F Bilbert. Sinauer Associates Inc. (2013) 「Essential Cell Biology, 4th edition」 edited by Bruce Alberts et al. Garland Science, (2013) 「EPIGENETICS」 edited by David Allis et al. Cold Spring Harbor Laboratory Press (2007)				
Enrollment Conditions(履修条件)	Should have the basic knowledge of cell biology.				
Assessment Methods and Criteria(評価方法・基準)	Grading will be based on the understanding of the course subject matter. The understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100. Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions.				
Language Used in Instruction(使用言語)	Japanese and English				
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English				
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable				

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-003-79-2	2022whole year	Graduate School of Medical Sciences(20040)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Hematopoietic and Immune Systems(B3 Hematopoietic and Immune Systems)			OKADA Seiji, OGUCHI Hiroto, SASHIDA Goro, SATO Yorifumi, OSHIUMI Hiroyuki, KOGA Saori, OGAWA Minetaro, IRIE Atsushi, SUZU Shinya, TAKIZAWA Hitoshi, NOMURA Takushi		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・35% 2.Profound inter-disciplinary knowledge・・・35% 3.Global perspective and ability to take initiative action・・・20% 4.Social leadership drive・・・10%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	Omnibus lectures. E-learning contents are available in some lectures in both English and Japanese.				
Course Goals(授業の目的)	The goal of this lecture series is to understand the basis of hematopoietic and immune systems, and disruption of these systems (malignancy, immunodeficiency, and immune disorders).				
Course Learning goals(学修目標)	【A level (A水準)】 Understand the basics of hematopoietic and immune systems, their development, function, disruption, and related diseases and discuss about recent progress. 【C level (C水準)】 Understand the basics of hematopoietic and immune systems, their development, function, disruption, and related diseases.				
Course Outline(授業の概要)	The aims of this lecture series are to understand the followings: (1) The mechanisms how the homeostasis of hematopoietic system is maintained as a stem cell system, (2) The origin of hematopoietic system and the mechanisms of development of hematopoietic stem cells, (3) The animal model bearing human hematopoietic system and applications of this animal model, (4) Aging and tumorigenesis of hematopoietic system, (5) Cell-cell interaction in the immune system, (6) The mechanism of antigen-recognition and the immune response				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		5th period Minetaro Ogawa 【eJ-0】	Ontogeny of hematopoietic system-1		
2		5th period Minetaro Ogawa 【eJ-0】	Ontogeny of hematopoietic system-2		
3		4th period Saori Koga 【eJ-0】	Ontogeny of hematopoietic system-3		
4		4th period Seiji Okada 【eJ-0,eE-0】	Differentiation of immune cells		
5		4th period Seiji Okada 【eJ-0,eE-0】	Application of Humanized mice		
6		4th period Goro Sashida 【eEJ-0】	Molecular mechanism of myeloid malignancies		
7		4th period Shinya Suzu 【eEJ-0】	Regulation of Hematopoiesis		
8		4th period Hitoshi Takizawa 【eE-0】	Role of inflammation on hematopoiesis		
9		4th period Yorifumi Sato 【eEJ-0】	T-cell and retroviral infection		
10		4th period Hiroto Ohguchi 【eEJ-0】	Molecular pathogenesis of plasma cell neoplasm		
11		4th period Hiroyuki Oshiumi 【eJ-0】	Role of innate immune cells during viral infection		
12		4th period Takushi Nomura 【eEJ-0】	Flow cytometric analysis for T-cells		
13		4th period Hiroyuki Oshiumi 【eJ-0】	Development and function of innate lymphoid cells		
14		4th period Takushi Nomura 【eEJ-0】	T-cell responses in SARS-CoV-2 infection		
15		4th period Atsushi Irie 【eJ-0】	B cell development and function		
Estimated out-of-class study time					
Required Textbook(テキスト)		Textbooks are not specified, and handouts will be distributed.			
Reading List(参考文献)		・ "The Immune System" by Peter Parham. Garland Publishing Inc. New York and London, 2007 ・ "Janeway's Immunobiology Seventh Edition" by Kenneth Murphy, Paul Travers, Mark Walport. Garland Science, Taylor & Francis Group LLC. New York and Abingdon, 2008. ・ The Immune System, 4th Edition [Peter Parham] Garland Science ・ WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues. WHO, 2017. ・ The Science of Stem Cells. Jonathan M. W. Slack. Wiley Blackwell, 2018 ・ Williams Hematology, 9th ed. MCGRAW-HILL EDUCATION. 2016			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Achievement of the Objectives will be evaluated by active class participation and the reports, of which the theme will be specified after the lectures. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of the reports and brief examinations. Final grades will be based on the average of the best 10 scores of the reports and brief examinations as well as the participation in class discussions.			
Language Used in Instruction(使用言語)		English			

Textbook/Material Language(教科書・資料の言語)	English
Course Based on Practical Work Experience(実務経験を 活かした授業)	Not applicable

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-004-99-2	2022whole year	Graduate School of Medical Sciences(20050)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Infection and Immune Control(B4 Infection and Immune Control)			SATO Yorifumi, Kuwata Takeo, IKEDA Masanori, KUBOTA Ryuji, OKADA Seiji, OSHIUMI Hiroyuki, MATSUI Hirotaka, MOTOZONO Chihiro, MATSUOKA Masao, SAWA Tomohiro, MAEDA Yousuke, SUZU Shinya, NAKATA Hirotomo, IKEDA Terumasa, TANAKA Yasuhito		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……30% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……20% 4.Social leadership drive ……20%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons. (Before starting this course students will be informed of the individual lecture style of instructors in detail.)				
Course Goals(授業の目的)	The aim of this lecture series “Special Lecture I on Infectious Diseases and AIDS” is to learn following topics important for basic and clinical research of infectious diseases: (1) interaction between pathogen and host response, (2) molecular pathogenesis of viral infection, (3) immune control and vaccine research, (4) management of nosocomial/opportunistic infection, (5) diagnosis and treatment of emerging/re-emerging infectious diseases, (6) pathogenesis and treatment of infectious diseases.				
Course Learning goals(学修目標)	【A level (A水準)】 Students will learn following topics important for basic and clinical research of infectious diseases. Students will learn following topics important for basic and clinical research of infectious diseases. (1) interaction between pathogen and host response,(2) molecular pathogenesis of viral infection, (3) immune control and vaccine research, (4) management of nosocomial/opportunistic infection, (5) diagnosis and treatment of emerging/re-emerging infectious diseases, (6) Pathogenesis and treatment of HIV-1 infection. 【C level (C水準)】 Understanding for the following points. (1) interaction between pathogen and host response (2) molecular pathogenesis of viral infection (3) immune control and vaccine research (4) management of nosocomial/opportunistic infection (5) diagnosis and treatment of emerging/re-emerging infectious diseases (6) Pathogenesis and treatment of HIV-1 infection				
Course Outline(授業の概要)	The course addresses the introduction (bacteriology, virology) and particulars of various pathogenic organisms (including gram-positive and negative bacteria, a DNA or RNA viruses) focusing on topics of pathogenesis, control and prevention of infectious diseases and emerging and reemerging infectious diseases. The course addresses protective immunity of host against infectious diseases including HIV-1 infection. Especially, recent topics such as the mechanism of T-cell recognition of the viral antigens, differentiation of immune cells from hematopoietic stem cells and the strategy for the development of effective vaccine against HIV-1 infection will be discussed.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Terumasa Ikeda [eE-O] 16:45~18:15	Retrovirus life cycle		
2		Tomohiro Sawa [eE-O] 16:45~18:15	Bacterial infection and pathogenesis		
3		Hiroyuki Oshiumi [eE-O] 16:45~18:15	Innate immune responses to pathogens		
4		Chihiro Motozono [eE-O] 16:45~18:15	Cellular immune responses to pathogens		
5		Takeo Kuwata [eE-O] 16:45~18:15	Humoral immune responses to pathogens		
6		Yosuke Maeda [eE-O] 16:45~18:15	Pathogenesis of Mycobacterium tuberculosis and HIV confection		
7		Masao Matsuoka [eE-O] 16:45~18:15	Emerging/re-emerging infectious diseases		
8		Shinya Suzu [eE-O] 16:45~18:15	Retroviruses-host interaction		
9		Yorifumi Sato [eE-O] 16:45~18:15	Retroviral infections and latency		
10		Masanori Ikeda [eE-O] 16:45~18:15	Molecular pathogenesis of hepatitis viruses		
11		Yasuhito Tanaka [eE-O] 16:45~18:15	Hepatitis viruses and Liver cancer		
12		Ryuji Kubota [eE-O] 16:45~18:15	Virus-induced neurological diseases		
13		Seiji Okada [eE-O] 16:45~18:15	Animal model research in infectious diseases		
14		Hirotaka Matsui [eE-O] 16:45~18:15	Roles of laboratory medicine for infectious diseases		

15		Hiroto mo Nakata [eE-O] 16:45~18:15	Nosocomial/opportunistic infection
Estimated out-of-class study time	・ This course consists of content that requires hours (90 hours) of study. Since the class is 30 hours (2h x 15 frames) , 60 hours of pre- and post-study (including assignments) is necessary to understand the class. It is necessary to deepen.		
Required Textbook(テキスト)	Textbooks are not specified, and handouts will be distributed.		
Reading List(参考文献)	“Atlas of AIDS” edited by Gerald L. Mandell and Donna Mildvan. Current Medicine, Inc. Philadelphia, 2001. “Infectious Diseases and Medical Microbiology” 2nd Edition, Abraham I. Braude et al., W.B. Saunders Company		
Enrollment Conditions(履修条件)	Have basic knowledge concerning what is taught in this course.		
Assessment Methods and Criteria(評価方法・基準)	This class consisted of a series of omnibus lectures by 15 lecturers as listed in the schedule. Evaluation will be done based on active class participation, examination test and/or report for subjects by each lecturer. In order to get credits students have to take more than 2/3 lectures. Grading will be based on the average of top 10 scores among ones obtained by the student.		
Language Used in Instruction(使用言語)	English		
Textbook/Material Language(教科書・資料の言語)	English		
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable		

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-005-79-2	2022whole year	Graduate School of Medical Sciences(20060)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Human Brain Functional Science(B5 Human brain function science)			SHIMAMURA Kenji, Boku Syuken, IWAMOTO Kazuya, BUNDO Miki, Sou Bunketsu, TAKEBAYASHI Minoru, FUJISE Noboru, ESUMI Shigeyuki, HASHIMOTO Mamoru		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……80% 2.Profound inter-disciplinary knowledge ……19% 3.Global perspective and ability to take initiative action ……1%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint and/or OHP will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons.				
Course Goals(授業の目的)	A highly complex structure, human brain is developed from a simple central nervous system (CNS) that detects environmental information and uses the information directly for its body response. Human brain achieved memory, cognition, spirit and identity in its structure by increasing number of neurons and number of subtypes of neurons. In this lecture series, ‘Human brain functional Science’, students will be able to understand how mental activity appears from ‘gene expression’, neuron electrical activity, information convergence and divergence in the neuronal circuit. Students will understand the mechanisms underlying brain function as well as mental and psychiatric disorders.				
Course Learning goals(学修目標)	【A level (A水準)】 Fully understand the contents and points that the lecturers set. 【C level (C水準)】 Understand about 60% of the contents and points that the lecturers set.				
Course Outline(授業の概要)	We will describe and discuss following issues: cellular and molecular mechanisms of induction of neural plate and regionalization, neural differentiation and process of morphogenesis, histogenesis, circuit formation, and synaptogenesis. You will learn how environmental information is conveyed to human brain region and processed. You will also learn genetic and neuronal bases of mental activity and disorders.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	06/14	5th period SHIMAMURA [eE-0,eJ-0]	Neural induction		
2	06/21	5th period SHIMAMURA [eE-0,eJ-0]	Regionalization of embryonic brain		
3	06/28	5th period SHIMAMURA [eE-0,eJ-0]	Regionally distinct histogenesis in brain		
4	07/05	5th period ESUMI [eEJ-0]	Neuronal diversity and network formation		
5	07/12	5th period ESUMI [eEJ-0]	Neuronal network in the neocortex		
6	07/19	5th period SONG [eE-0,eJ-0]	Action potential		
7	07/26	5th period SONG [eE-0,eJ-0]	Synapse and synaptic transmission		
8	08/02	5th period SONG [eE-0,eJ-0]	Neurotransmitter		
9	08/09	5th period SONG [eE-0,eJ-0]	Synaptic plasticity		
10	08/23	5th period FUJISE [eE-0,eJ-0]	Neurotransmitter and mental symptom		
11	08/30	5th period IWAMOTO [eE-0]	Genetics and epigenetics of psychiatric disorders		
12	09/06	5th period BUNDO [eE-0]	Somatic mutations and psychiatric disorders		
13	09/13	5th period HASHIMOTO [eEJ-0]	Neural basis of dementia		
14	09/20	5th period TAKEBAYASHI [eJ-0]	Multiple approaches to mental disorder		
15	09/27	5th period BOKU [eJ-0]	Neural basis of mental disorder		
Estimated out-of-class study time	60 hours				
Required Textbook(テキスト)	Not specified.				
Reading List(参考文献)	Not specified				
Enrollment Conditions(履修条件)	attending 60% of lectures and taking short tests in each lecture				
Assessment Methods and Criteria(評価方法・基準)	Rate of finished e-Learning. Points earned by passing short examinations.				
Language Used in Instruction(使用言語)	Japanese and English (e-learning contents are either in English, Japanese, or mixture of them.)				
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English (e-learning contents are either in English or Japanese)				
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable				

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-006-79-2	2022whole year	Graduate School of Medical Sciences(20070)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Neuroscience(B6)			FUKUDA Takaichi, MIZUNO Hidenobu, SHIODA Norifumi, ERA Takumi, ORITA Yoriyisa, ITOU Yasuhiro, HAMASAKI Tadashi, INOUE Toshihiro, TAKEMOTO Makoto, YAMASHITA Satoshi		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・80% 2.Profound inter-disciplinary knowledge・・・20%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint will be used in the lectures.				
Course Goals(授業の目的)	In this course, you learn structure and function of several brain regions, postnatal development of somatosensory cortex, malformation of the brain due to the abnormalities in development, pathophysiology in the sensory systems, and neurodegenerative disorders. Recent advances in the therapeutic approaches including regenerative medicine are discussed.				
Course Learning goals(学修目標)	【A level (A水準)】 Students can explain the structure and function of the central nervous system and its abnormalities, new therapeutic approaches to the neural disorders using stem cells and gene targeting, pathophysiology in the somatosensory, visual, and auditory systems and their treatments. Students can also find unresolved issues in the presented topics and explain their ideas to investigate the issues. 【C level (C水準)】 Students can explain the basic knowledge about the structure and function of the central nervous system and its abnormalities, new therapeutic approaches to the neural disorders using stem cells and gene targeting, pathophysiology in the somatosensory, visual, and auditory systems and their treatments.				
Course Outline(授業の概要)	(1) general structure of the brain; (2) Structure and function of the neocortex and hippocampus; (3) ` Postnatal development of somatosensory cortex; (4) Morphology and function of the visual cortex; (5) Morphology and function of the basal ganglia; (6) Neural crest cells and pluripotency; (7) Nerve growth factor and apoptosis; (8) Gene abnormality and the resultant congenital insensitivity to pain; (9) Deformity of central nervous system and treatment; (10) Pathophysiology and treatment of retinal diseases; (11) Glaucoma pathophysiology and treatment; (12) Hearing impairment and treatment; (13) Regenerative medicine for neurodegenerative diseases; (14) State-of-the-art therapies for Parkinson's diseases				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	06/01	4th period, FUKUDA Takaichi [eEJ-0]	General structure of the brain		
2	06/08	4th period, FUKUDA Takaichi [eEJ-0]	Structure and function of the neocortex and hippocampus		
3	06/15	4th period, MIZUNO Hidenobu [eEJ-0]	Postnatal development of the somatosensory forex		
4	06/22	4th period, FUKUDA Takaichi [eEJ-0]	Structure and function of the visual system		
5	06/29	4th period, FUKUDA Takaichi [eEJ-0]	Structure and function of the basal ganglia		
6	07/06	4th period, ERA Takumi [eJ-0,eE-0]	Development and differentiation of neural crest cell, pluripotency		
7	07/13	4th period, ERA Takumi [eJ-0,eE-0]	New medical application to diseases of the nervous system using stem cell		
8	07/20	4th period, TAKEMOTO Makoto [eE-0]	Learning, memory, and emotion		
9	07/27	4th period, SHIODA Norifumi [eE-0]	The potential of nucleic acid structures as a therapeutic target for neurological diseases		
10	08/03	4th period, HAMASAKI Tadashi [eEJ-0]	Deformity of central nervous system and treatment		
11	08/17	4th period, ITOU Yasuhiro [eE-0]	Pathology and treatment of retinal diseases		
12	08/24	4th period, INOUE Toshihiro [eE-0]	Glaucoma pathophysiology and therapy		
13	08/31	4th period, ORITA Yoriyisa [eJ-0]	Olfaction impairment and the treatment		
14	09/07	4th period, YAMASHITA Satoshi [eE-0]	Regenerative medicine for neurodegenerative diseases		
15	09/14	4th period, YAMASHITA Satoshi [eE-0]	State-of-the-art therapies for Parkinson's diseases		
Estimated out-of-class study time					
Required Textbook(テキスト)					
Reading List(参考文献)					
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		The students' understanding will be evaluated on the basis of quizzes related to the topics dealt with in class to be scored from 0 to 100. Final grades will be based on the average of the 10 highest scores out of 15 quizzes.			
Language Used in Instruction(使用言語)		Japanese and English			
Textbook/Material Language(教科書・資料の言語)		Combination of Japanese and English			

語)	Combination of Japanese and English
Course Based on Practical Work Experience(実務経験を活かした授業)	Applicable (Fourteen out of fifteen classes are lectured by teachers with practical work experience in clinical medicine.)

Course Coding(科目ナンバ－)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-007-79-2	2022whole year	Graduate School of Medical Sciences(20080)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Developmental and Regenerative Medicine(B7)			NISHINAKAMURA Ryuichi, ISHIGURO Keiichiro, NAKAMURA Akira, ERA Takumi, FUKUDA Takaichi, ONO Yusuke, NIWA Hitoshi, ARAKI Masatake, ESUMI Shigeyuki, TAKEO Tooru, TANIGAWA Shunsuke, OKANO Masaki		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・50% 2.Profound inter-disciplinary knowledge・・・25% 3.Global perspective and ability to take initiative action・・・20% 4.Social leadership drive・・・5%					
Type of Class(授業の形態)		Lecture			
Teaching Method(授業の方法)		PowerPoint will be used in the lectures, and active participation in the discussion is encouraged.			
Course Goals(授業の目的)		Developmental and regenerative medicine aims at curing diseases by revealing molecular mechanisms of organ development. In this course, you learn basic concepts and techniques used in this filed, including knockout mice, which have now become essential for any area of research. This course serves as introductory for those in the Developmental and Regenerative Researcher Program, and will also be useful for those in other programs, as you obtain essential knowledge on genetic engineering techniques.			
Course Learning goals(学修目標)		【A level (A水準)】 Master basic concepts and techniques used in this filed, and is able to explain the disease mechanisms and treatments based on the knowledge. 【C level (C水準)】 Master basic concepts and techniques used in this filed, and is able to understand the disease mechanisms and treatments.			
Course Outline(授業の概要)		(1) Establishment and application of stem cells including ES and iPS cells; (2) Reproductive engineering including in vitro fertilization, freezing of embryos and sperms, embryo transfer, intracytoplasmic sperm injection, and nuclear transfer; (3) Methods to generate transgenic and knockout mice (4) Genome editing technology; (5) Maintenance and differentiation of stem cells; (6) Anatomy of each organ in the aspects of ontogeny and phylogeny; (7) Mechanisms of organ and tissue development including the kidney, liver, pancreas, muscle, and gonad; (8) Regenerating organs from stem cells			
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)		Brief Outline of Class(内容概略)	
1	06/02	6th period Ryuichi Nishinakamura 【eE-0】		Developmental and regenerative medicine	
2	06/09	6th period Toru Takeo 【eE-0】		Reproductive engineering	
3	06/16	5th period Masatake Araki 【eEJ-0】		Transgenic mouse, Knockout mouse	
4	06/23	5th period Masatake Araki 【eEJ-0】		Production of genome edited mouse line	
5	06/30	5th period Hitoshi Niwa 【eE-0】		Molecular basis of embryonic stem cells I	
6	07/07	5th period Hitoshi Niwa 【eE-0】		Molecular basis of embryonic stem cells II	
7	07/14	5th period Takumi Era 【eE-0】		iPS cells, their applications for the medicine	
8	07/21	5th period Takaichi Fukuda 【eE-0】		Ontogeny and phylogeny	
9	07/28	5th period Shigeyuki Esumi 【eE-0】		Anatomy of digestive tracts and lung	
10	08/04	5th period Takaichi Fukuda 【eE-0】		Anatomy of cardiac and urogenital systems	
11	08/18	5th period Shunsuke Tanigawa 【eE-0】		Kidney development and regeneration	
12	08/25	5th period Yusuke Ono 【eE-0】		Muscle development and regeneration	
13	09/01	5th period Akira Nakamura 【eE-0】		germ cell formation: preformation and epigenesis	
14	09/08	5th period Keiichiro Ishiguro 【eE-0】		germ cell development in mammals	
15	09/15	5th period Masaki Okano 【eE-0】		Epigenetics in development	
Estimated out-of-class study time		60 hrs			
Required Textbook(テキスト)					
Reading List(参考文献)		・ “Developmental Biology, 11th edition” by Scott Gilbert 2016. ・ “Essential Developmental Biology, 3rd edition” by Slack JMW.,Blackwell Publishing 2012 ・ “Manipulating the Mouse Embryo: A Laboratory Manual, 4th edition” by Nagy A., Gertsenstein M., Vintersten K., Behringer R., Cold Spring Harbor Laboratory Press, 2014. ・ “Larsen’ s Human Embryology, 5th edition” by Shoenwolf GC, Bleyl SB, Brauer PR, Francis-West PH. Churchill Livingstone, 2014.			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100. Final grades will be based on the average score of the papers and quizzes, as well as the final report and active participation in class discussions.			
Language Used in Instruction(使用言語)		English			
Textbook/Material		Combination of Japanese and English			

Language(教科書・資料の言語)	Combination of Japanese and English
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable

Course Coding(科目ナンバ－)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-008-81-2	2022whole year	Graduate School of Medical Sciences(20090)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Environmental and Sociomedical Sciences(B8)			Nishitani Youko, Katou Takahiko, MATSUI Kunihiko, SOEJIMA Hirofumi, Chang-Nian Wei, Oomori Hisamitsu, Lu Xi		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……25% 2.Profound inter-disciplinary knowledge ……25% 3.Global perspective and ability to take initiative action ……10% 4.Social leadership drive ……40%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint and/or OHP will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons.				
Course Goals(授業の目的)	The purpose of this course is to develop the logic of the broad field of Social Medicine from the viewpoints of preventive and environmental medicine (hygiene), public health, health medicine, forensic medicine and neuropsychiatry.				
Course Learning goals(学修目標)	【A level (A水準)】 Social Medicine is an important field of medical science in studying various aspects of the interaction between medicine and society in the human life cycle. The health of the humans is regulated in the ecosystem, and, as the medical social application, it is also supported by the comprehensive health and welfare system. In this course, students are expected to understand the relationship between the environment and health, the concept of total medical care service including disease prevention & health promotion, and individuals’ basic human rights. Students will also comprehensively learn the role of medicine and law in maintaining social safety. 【C level (C水準)】				
Course Outline(授業の概要)	There will be practical lectures in the Department of preventive and environmental medicine (hygiene) on the structure of the environment, the relationship between people and the environment, environmental indices and evaluation, and the setting and maintenance of environmental standards, and lectures in the Department of Public Health on the concept of health and the construction of a healthy society based on preventive medicine and epidemiology. In the Department of Forensic Medicine, there will be general lectures on the purposes of forensic medicine, as well as the causes of the death and its classification from the medical, legal and social perspectives, and forensic medicine’s contribution to society. In the Department of Clinical Behavioral Medicine, students will learn about the epidemiology of mental diseases and the relationship between life-events, social support, personality, recognition pattern, nurture experience and mental disease.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	06/03	6th period Takahiko Katoh [eE-0, eJ-0]	Meaning of social medicine		
2	06/10	6th period Takahiko Katoh [eE-0, eJ-0]	Epidemiology		
3	06/17	5th period Hisamitsu Omori [eEJ-L]	Medical Screening		
4	06/24	5th period Yoko Nishitani [eE-0, eJ-L]	Definition and purpose of forensic medicine		
5	07/01	5th period Hirofumi Soejima [eE-0, eJ-L]	Blood Coagulation and Fibrinolysis		
6	07/08	5th period Hirofumi Soejima [eE-0, eJ-L]	Lifestyle and Coronary Artery Disease		
7	07/15	5th period Xi Lu [eE-0]	Medical Statistics		
8	07/22	5th period Xi Lu [eE-0]	Research Design of Epidemiology		
9	07/29	5th period Hirofumi Soejima [eEJ-L]	General Medicine: Atherosclerosis		
10	08/05	5th period Yoko Nishitani [eE-0, eJ-L]	Forensic medicine & forensic science		
11	08/19	5th period Yoko Nishitani [eE-0, eJ-L]	Social aspect of human death (1)		
12	08/26	5th period Yoko Nishitani [eE-0, eJ-L]	Social aspect of human death (2)		
13	09/02	5th period Chang-Nian Wei [eE-L, eJ-0]	Environment-human system		
14	09/09	5th period Chang-Nian Wei [eE-L, eJ-0]	Environmental indices and evaluation		
15	09/16	5th period Kunihiko Matsui [eJ-L]	General Medicine: Clinical studies, interpretation for results		
Estimated out-of-class study time					
Required Textbook(テキスト)		Textbooks are not specified, and handouts will be distributed.			
Reading List(参考文献)		・ “Public Health & Preventive Medicine” by Maxy-Rosenan-Last: (14 edit) Appleton & Lange. 1998, ・ “Forensic Pathology” by Bernard Knight, 2nded., Arnold, London, Sydney and Auckland, 1996.			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Grading will be based on active class participation, paper summaries, and the final report. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100. Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions			
Language Used in Instruction(使用言語)		Japanese and English			

Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English
Course Based on Practical Work Experience(実務経験を 活かした授業)	Applicable (A teacher with practical work experience in Public Health, Regional Medicine, or Forensic Medicine will lecture.)

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-009-82-2	2022whole year	Graduate School of Medical Sciences(20100)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Current Theory of Medical Diagnosis(C1 Current Theory of Medical Diagnosis)			MATSUI Hirotaka, MIKAMI Yoshiki, KOJIMA Akihiro, HIRAI Toshinori, KOMOHARA Yoshihiro, UEDA Mitsuharu, Jiyouno Hirofumi, Misumi Youhei, BABA Masaya, SATO Yonosuke		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・45% 2.Profound inter-disciplinary knowledge・・・45% 3.Global perspective and ability to take initiative action・・・5% 4.Social leadership drive・・・5%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint files will be used for giving the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures will be considered for those who are regularly absent due to unavoidable reasons.				
Course Goals(授業の目的)	The lecture series “Current Theory of Medical Diagnosis” afford fundamental and current general views of modern medical diagnostic techniques and their application in practical medicine and medical research.				
Course Learning goals(学修目標)	【A level (A水準)】 Students are expected to understand cutting-edge advanced method for disease diagnosis. Students are also expected to find devise a method to discover unsolved problems and lead to solutions. 【C level (C水準)】 Students are also expected to find devise a method to discover unsolved problems and lead to solutions.				
Course Outline(授業の概要)	In the field of Pathology, current morphology and its application for cancer diagnosis will be introduced. In addition, molecular approaches for a research in cancer cell differentiation, proliferation and invasion, blood coagulation system and immune reaction (especially on macrophage) will be shown. In the field of Laboratory Medicine, modern technique and method for the detection of gene mutations will be shown and discussed. In the field of Radiology, detailed implication of CT and MRI images and their application for researchers will be presented. In the field of Isotope Science, principles of RI tracer methods that are able to detect RI distribution in functional assay as well as in animals including human body will be presented. In the field of Neurology, recent advances in the neurological diagnosis will be given to the students.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)		Brief Outline of Class(内容概略)	
1	01/27	4th period Sato Y (Pathol Exp Med) 【eJ-0】		Tumor diagnosis with immunohistochemistry.	
2	01/31	4th period Baba M (Pathol Exp Med) 【eJ-0】		Molecular pathological diagnosis of malignancies.	
3	02/03	4th period Mikami Y (Pathol Diagnosis) 【eJ-0】		Histopathologic approach to diagnostic oncology: a logic for interpretation of morphology.	
4	02/07	4th period Ueda M (Neurology) 【eJ-L】		Recent advances in diagnostic methods for intractable neurological diseases	
5	02/10	4th period Misumi Y (Neurology) 【eJ-L】		Advanced diagnostic approaches for rare and inherited diseases	
6	02/14	4th period Komohara Y (Cell Pathol) 【eJ-L】		Immunopathology of non-tumoral diseases; aspect from macrophage biology	
7	02/17	4th period Komohara Y (Cell Pathol) 【eJ-L】		Immunopathology of malignant tumors; aspect from macrophage biology	
8	02/21	4th period Matsui H(Laboratory Medicine) 【eJ-0】		Application of next generation sequencing for clinical diagnosis	
9	02/24	4th period Matsui H (Laboratory Medicine) 【eJ-0】		Practice and prospect of clinical diagnostic medicine	
10	02/28	4th period Jono H (Clin Pharm Sci) 【eJ-0】		Drug discovery research based on basic and clinical evidence	
11	03/03	4th period Hirai T (Diag Radiology) 【eJ-0】		Forefront of MR imaging and research approaches	
12	03/07	4th period Hirai T (Diag Radiology) 【eJ-0】		Forefront of CT imaging and research approaches	
13	03/10	4th period Kojima A (RI Science) 【eJ-0】		RI tracer methods: basics and application of radioisotope measurements.	
14	03/14	4th period Kojima A (RI Science) 【eJ-0】		RI molecular imaging.--	
15	03/17	4th period Matsui H (Laboratory Medicine)		Makeup class for students who did not attend previous classes	
Estimated out-of-class study time		This course consists of content that requires 90 hours of study. Since the classes will be 30 hours long (2 hours x 15 sessions), 60 hours worth of prior and post-work studies (including assignments, etc.) will be required to deeply understand the classes.			
Required Textbook(テキスト)		Each instructor will specify as needed.			
Reading List(参考文献)		Each instructor will specify as needed.			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Grading will be based on active class participation, paper summaries and the final reports. Even if the attendance in this course is very poor or none, the students can obtain credits for this course through e-learning system that are prepared in some classes, or a supplemental class. Grading will be based on the student's understanding of			

Assessment Methods and Criteria(評価方法・基準)	the course subject matter. The students' understanding will be evaluated on the basis of papers and quizzes related to the topics and be scored from 0 to 100.
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English (We will use documents and materials in English whenever possible.)
Course Based on Practical Work Experience(実務経験を活かした授業)	Applicable (Faculty members engaged in the clinical practice of Pathology, Radiology and Laboratory medicine will lecture disease diagnostics from the basics to actual levels in an omnibus style.)

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-010-82-2	2022whole year	Graduate School of Medical Sciences(20110)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Advanced Therapeutics(C2)			SAKAGAMI Takuro, Kanba Tomomi, Murakami Daizou, MIYAMARU Satoru, FUKUSHIMA Satoshi, NAOE Hideaki, ISE Momoko, Hibi Taizou, TANAKA Yasuhito		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・80% 2.Profound inter-disciplinary knowledge・・・20%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint will be used in the lectures, and active participation in the discussion is encouraged.				
Course Goals(授業の目的)	Basic concept of molecular targeting and clinical application using antibody, peptide will be reviewed. Because the relation between immune disorders and pathogenesis has been revealed, immune modulation serve as a therapeutic strategy for viral infectious diseases, auto-immune diseases, and cancer. This course provides a rationale, current evaluation and problems of immune-modulation therapy. On the other hand, this course will introduce the basic research and progress to the establishment of organ transplantation, cell transplantation and artificial organs, and also focus on the current efficacy and limitations. In addition, progress in endoscopic treatments will be reviewed. Future therapeutic strategies will be also discussed.				
Course Learning goals(学修目標)	【A level (A水準)】 To understand a rationale, current evaluation and problems of immune-modulation therapy. In addition, to comprehend the basic research and progress to the establishment of organ transplantation, cell transplantation and artificial organs, and also to know the current efficacy and limitations. Finally, progress in endoscopic treatments will be recognized. 【C level (C水準)】				
Course Outline(授業の概要)	Recent advances in molecular biology and medical engineering provide a new era in the treatment of various diseases. In this regard, the molecules, which play central roles in the pathogenesis of chronic inflammation and carcinogenesis, have been identified, leading to the development of molecular targeting therapies. In addition, it has been described how immune systems of the body contribute to pathogenesis of diseases, and immune-modulation has been employed in the clinical setting. Furthermore, organ transplantation, cell transplantation and artificial organs have been introduced to complement organ failures. On the other hand, progresses in endoscopic machinery have established endoscopic treatment, and serve as less invasive treatments. This course will focus on progress in treatments and future orientation of medicine.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		5th period Naoe Hideaki 【eJ-0】	Progress in endoscopic treatment and diagnosis of gastrointestinal diseases		
2		5th period Tanaka Yasuhito 【eJ-0】	State-of the art in diagnosis and treatment of hepatic disease		
3		5th period Tanaka Yasuhito 【eJ-0】	Molecular targeting therapy in gastrointestinal & hepatic diseases		
4		5th period Sakagami Takuro 【eJ-0】	Progress in diagnosis and treatment of respiratory diseases		
5		5th period Sakagami Takuro 【eJ-0】	Topics of allergic respiratory diseases		
6		5th period Sakagami Takuro 【eJ-0】	Topics of diagnosis and treatment of lung cancer		
7		5th period Miyamaru Satoru 【eJ-0】	The diagnosis and management of dysphagia		
8		5th period Ise Momoko 【eJ-0】	Treatment using cochlear implant for severe sensorineural hearing loss		
9		5th period Murakami Daizo 【eJ-0】	Endoscopic treatment of head and neck diseases		
10		5th period Hibi Taizo 【eJ-0】	Organ transplantation; the past and the present		
11		5th period Hibi Taizo 【eJ-0】	Liver transplantation; basis and clinical application		
12		5th period Kamba Tomomi 【eJ-0】	Current therapeutic strategy for urogenital cancers		
13		5th period Kamba Tomomi 【e-0】	Endoscopic treatments for urinary diseases		
14		5th period Fukushima Satoshi 【eJ-0】	Molecular targeting therapy for autoimmune diseases in skin		
15		5th period Fukushima Satoshi 【eJ-0】	Immune therapy in skin cancer		
Estimated out-of-class study time					
Required Textbook(テキスト)		Textbooks are not specified, and handouts will be distributed.			
Reading List(参考文献)		1) Molecular Cell Biology, sixth edition, by Lodish H, et al. W.H.Freeman, 2008 2) Carithers RL Jr. Liver transplantation. American Association for the Study of Liver Diseases. Liver Transpl 2000 Jan;6 (1):122-35.			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Grading will be based on active class participation, understanding, paper summaries, and the final report.The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in			

Assessment Methods and Criteria(評価方法・基準)	class to be scored from 0 to 100. Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions
Textbook/Material Language(教科書・資料の言語)	Japanese
Course Based on Practical Work Experience(実務経験を活かした授業)	Applicable

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-011-82-2	2022whole year	Graduate School of Medical Sciences(20120)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Metabolic and Circulatory Regulations(C3)			MUKOYAMA Masashi, ARAKI Eiichi, HIRATA Naoyuki, SUGITA Michiko, TSUJITA Kenichi, MATSUSHITA Kenichi, YAMAMOTO Eiichiro, KUWABARA Takashige, ADACHI Masataka, OIKE Yuichi, GOTOH Tomomi		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・30% 2.Profound inter-disciplinary knowledge・・・30% 3.Global perspective and ability to take initiative action・・・30% 4.Social leadership drive・・・10%					
Type of Class(授業の形態)		Lecture			
Teaching Method(授業の方法)		PowerPoint/Zoom will be used in the lectures, and active participation in the discussion is encouraged. Extra classes and e-learning are considered for those who are not able to attend regular classes for unavoidable reasons. Please be sure to refer to the syllabus change as it will be announced on the website of the Graduate school of Medical Sciences.			
Course Goals(授業の目的)		Metabolic and Circulatory Regulations aim at learning the following items: (1) the pathogenesis of acute coronary syndrome and related factors, (2) the molecular mechanisms and therapeutic strategies of chronic heart failure, (3) the pathogenesis of metabolic disorders including diabetes mellitus and diabetic vascular complications, and its therapeutic strategy, (4) the molecular mechanisms of actions and secretion of insulin, (5) the molecular mechanisms and therapeutic strategy for metabolic syndrome and the development of obesity, (6) the relation between the progression of atherosclerosis or obesity, and inflammatory cells, (7) the molecular basis of renal physiology, and the functional differentiation/regulation of each segment of the nephron, (8) the pathogenesis of major renal diseases and the underlying mechanisms causing the pathological conditions, (9) the influence and mechanisms of surgical stress to the metabolism and circulation, and the therapeutic strategy for controlling these influences.			
Course Learning goals(学修目標)		【A level (A水準)】 In this lecture, you are expected not only to learn the followings but also to apply them to research study or clinical activity: 1. Mechanisms of atherosclerosis evaluated by coronary imaging and the therapeutic strategies. 2. Basic mechanisms of myocardial ischemia/reperfusion injury and cardiac remodeling in experimental acute myocardial infarction. 3. Molecular mechanisms and therapeutic strategies of chronic heart failure; 4. Pathogenic mechanisms of diabetes mellitus, diabetic complications, and the actions and secretion of insulin; 5. Molecular mechanisms and therapeutic strategy for metabolic syndrome and obesity, one of the main pathogenesis of atherosclerotic diseases. 6. Molecular basis of water-electrolyte balance by channels and transporters, and the regulation along the nephron. 7. Regulation and dysregulation of renal blood flow and blood pressure, and the pathophysiological mechanisms of proteinuria and renal dysfunction. 8. Various influences of surgical stress (i.e. activation of the sympathetic nervous system, pain, inflammatory reactions, etc.) to the metabolism and circulation, and the therapeutic strategy based on understanding these influences. 【C level (C水準)】 You are required to roughly understand each item listed above; otherwise you are regarded not having reached to the level to apply them to research study or clinical activity.			
Course Outline(授業の概要)		1. Mechanisms of atherosclerosis evaluated by coronary imaging and the therapeutic strategies. 2. Basic mechanisms of myocardial ischemia/reperfusion injury and cardiac remodeling in experimental acute myocardial infarction. 3. Molecular mechanisms and therapeutic strategies of chronic heart failure; 4. Pathogenic mechanisms of diabetes mellitus, diabetic complications, and the actions and secretion of insulin; 5. Molecular mechanisms and therapeutic strategy for metabolic syndrome and obesity, one of the main pathogenesis of atherosclerotic diseases. 6. Molecular basis of water-electrolyte balance by channels and transporters, and the regulation along the nephron. 7. Regulation and dysregulation of renal blood flow and blood pressure, and the pathophysiological mechanisms of proteinuria and renal dysfunction. 8. Various influences of surgical stress (i.e. activation of the sympathetic nervous system, pain, inflammatory reactions, etc.) to the metabolism and circulation, and the therapeutic strategy based on understanding these influences.			
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	10/07	Fri. 5th period Kenichi Matsushita 【eE-0】	Mechanism of myocardial ischemia/reperfusion injury		
2	10/14	Fri. 5th period Eiichiro Yamamoto 【eE-L】	Molecular mechanisms and therapeutic strategies of chronic heart failure		
3	10/21	Fri. 5th period Kenichi Tsujita 【eE-0】	Mechanisms of atherosclerosis and therapeutic strategies		
4	10/28	Fri. 5th period Michiko Sugita 【eE-0】	Types and influences of surgical stress		
5	11/04	Fri. 5th period Tomomi Gotoh 【eE-0】	NO and nitrogen metabolism disorders		
6	11/11	Fri. 5th period Eiichi Araki 【eE-0】	Insulin and its actions—their molecular basis		
7	11/18	Fri. 5th period Eiichi Araki 【eE-0】	Diabetic complications and their therapeutic approaches		
8	11/25	Fri. 5th period Naoyuki Hirata 【eE-0】	Perioperative fluid therapy		
9	12/02	Fri. 5th period Naoyuki Hirata 【eE-0】	Therapeutic strategy controlling surgical stress		

10	12/09	Fri. 5th period Masataka Adachi 【eE-0】	Renal potassium handling
11	12/16	Fri. 5th period Takashige Kuwabara 【eE-0】	Structure and function of nephron
12	12/23	Fri. 5th period Masashi Mukoyama 【eE-0】	Sodium and water handling by the kidney
13	01/06	Fri. 5th period Tomomi Gotoh 【eE-0】	ER stress-related diseases
14	01/13	Fri. 5th period Eiichi Araki 【eE-0】	Pathogenesis and therapies of metabolic diseases
15	01/20	Fri. 5th period Yuichi Oike 【eE-0】	Clarification of molecular and cellular mechanisms underlying aging and its associated diseases
Estimated out-of-class study time		This course consists of contents which requires 90 hours of work. As the total of in-class hours becomes 30 hours (two hours x15 classes), additional 60 hours of pre-post study including some task will be required in order to improve comprehension of the course.	
Required Textbook(テキスト)		Textbooks are not specified, and handouts will be distributed.	
Reading List(参考文献)		<ul style="list-style-type: none"> ・ Braunwald' s Heart Disease: A Textbook of Cardiovascular Medicine, 12th edition, edited by Libby P, et al. Saunders, Philadelphia, 2021. ・ Miller' s Anesthesia, 9th edition, edited by Miller RD. Elsevier Churchill Livingstone, Philadelphia, 2019. ・ Brenner & Rector' s The Kidney, 11th edition, Elsevier, Philadelphia, 2020. ・ Comprehensive Clinical Nephrology, 6th edition, Mosby, 2019. 	
Enrollment Conditions(履修条件)		no limitation	
Assessment Methods and Criteria(評価方法・基準)		Grading will be based on active class participation, paper summaries, and the final report. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100. Final grades will be based on the average score of the papers and tests as well as participation in class discussions	
Language Used in Instruction(使用言語)		English	
Textbook/Material Language(教科書・資料の言語)		English	
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable	

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-012-82-2	2022whole year	Graduate School of Medical Sciences(20130)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Reproductive and Developmental Medicine(C4 Reproductive and Developmental Medicine)			NAKAMURA Kimitoshi, HIBI Taizo, KONDOH Eiji, OKUYAMA Torayuki, NAKAZATO Hitoshi, MITSUBUCHI Hiroshi, OHBA Takashi, MATSUMOTO Shiro, YAMAGUCHI Munekage, Iwai Masanori, KIDO Jun, OZASA Shiro, SAITO Fumitaka, ISONO Kaori, KURAOKA Shohei		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……30% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……30% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Other				
Teaching Method(授業の方法)	-----				
Course Goals(授業の目的)	The lecture of “Reproductive and developmental medicine” aims to understand followings: (1) Basic knowledge for physiology and pathology of human fertilization and pregnancy. (2) Medical interventions before and during pregnancy, and social issues related to these interventions. (3) Basic knowledge for physiology and pathology of development and growth of man. (4) Basic knowledge for disorders which affects children including genetic and neuromuscular diseases, pediatric surgery and organ transplantation.				
Course Learning goals(学修目標)	【A level (A水準)】 The participants will learn basic knowledge for developmental and growth medicine and issues of physiology, pathology, treatment, technology and ethical aspects in advanced medicine. They will also learn pregnancy, birth, newborn intensive care and assisted reproductive medicine, prenatal diagnosis and rare diseases, surgical diseases and organ transplantation. 【C level (C水準)】				
Course Outline(授業の概要)	This class will introduce the most recent and important progress in the field of reproductive and developmental medicine. The lecture related to pregnancy and delivery will discuss medical and social issues in addition to the physiology of reproductive system. We will discuss biological and medical aspect of the reproductive system, and social and ethical problems. The ethical problems of assisted fertilization including in vitro fertilization, ICSI (Intra Cytoplasmic Sperm Injection), oocyte donation, cryopreservation of embryos, cryopreservation of sperm will be discussed. The class for neonatal medicine, we introduce principal physiology of newborn infants and various pathological conditions of this period. The participant will learn many different disorders. One of the important topics of this course is normal development of brain function during childhood. The normal development of young brain is supported by surrounding environment of children which included social conditions. The participant will also learn neonatal surgical disorders and abdominal organ transplantation for children. We will discuss the social problems which affect healthy development of children in recent years.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	10/06	5th Period. Kimitoshi Nakamura	Inborn errors of metabolism		
2	10/13	5th Period. Hitoshi Nakazato	Hereditary Nephropathy		
3	10/20	5th Period. Torayuki Okuyama	Enzyme replacement therapy and gene therapy for inherited diseases during childhood		
4	10/27	5th Period. Masanori Iwai	Recent advanced neonatal intensive care in Japan and new therapeutic strategies for neonatal hypoxic ischemic encephalopathy (HIE). The first topic is the introduction of the neonatal intensive care unit for vulnerable babies. The second topic is new therapeutic strategies for neonatal HIE by erythropoietin through neurogenesis, vasculogenesis, oligodendrogenesis and remyelination.		
5	11/10	5th Period. Shohei Kuraoka	Kidney failure in children, Renal replacement therapy		
6	11/17	5th Period. Hiroshi Mitsubuchi	Congenital abnormalities and genetic counseling		
7	11/24	5th Period. Shiro Ozasa	The Molecular Pathogenesis and Therapeutic Strategies of Pediatric Neuromuscular disorders — Duchenne Muscular Dystrophy and Spinal Muscular Atrophy —		
8	12/01	5th Period. Shiro Matsumoto	Amino acid metabolism and the related disorders		
9	12/08	5th Period. Jun Kido	Current status of inherited amino acids metabolic disease in Japan : Treatment , long-term outcome and future challenge.		
10	12/15	5th Period. Takashi Ohba 【eJ-0】	Prenatal diagnosis, current status and the ethics		
11	12/22	5th Period. Eiji Kondoh	Management of preeclampsia		
12	01/05	5th Period. Fumitaka Saito 【eJ-0】	Endometrial physiology, pathology and carcinogenesis		
13	01/12	5th Period. Munekage Yamaguchi 【eJ-0】	Villous macrophages in the human placenta: a variety of functions and perinatal complications		
14	01/19	5th Period. Kaori Isono 【eJ-0】	Relationship between macrophages and microbiota in maintaining intestinal homeostasis		
15	01/26	5th Period. Taizo Hibi	Indications and outcomes of abdominal organ transplantation for children		
Estimated out-of-class					

study time	
Required Textbook(テキスト)	
Reading List(参考文献)	
Enrollment Conditions(履修条件)	
Assessment Methods and Criteria(評価方法・基準)	The participants should submit a report including what they learned through the contents of lecture, and will be evaluated by score.
Language Used in Instruction(使用言語)	Japanese and English
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-013-83-2	2022whole year	Graduate School of Medical Sciences(20140)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Advances in Oncologic Medicine(C5)			SUZUKI Makoto, ARAKI Norie, BABA Hideo, NAKAYAMA Hideki		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……45% 2.Profound inter-disciplinary knowledge ……35% 3.Global perspective and ability to take initiative action ……10% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons.				
Course Goals(授業の目的)	To understand advances in oncologic medicine, this course serves evidences and recent findings of medical oncology as follows:				
Course Learning goals(学修目標)	【A level (A水準)】 To understand advances in oncologic medicine, this course serves evidences and recent findings of medical oncology as follows: (1) Overview of tumor biology and genetics; (2) Recent advances in gastroenterological surgery; (3) Recent advances in oral and maxillofacial surgery; (4) Recent advances in thoracic surgery 【C level (C水準)】				
Course Outline(授業の概要)	This course overviews landmark findings in mechanism of tumor genesis and recent developments, and serves some of leading-edge research and our data. We focus on following topics: molecular mechanisms of tumor-related genes, cell cycle, cell death, cell differentiation; therapeutic agents based on tumor biology; molecular diagnostic tools, genome, transcriptome and proteomics; cancer stem cell. Many people suffer from gastroenterological cancers (esophageal, gastric, colon, pancreas, liver, billiary tract and gastrointestinal stromal tumor). We explain not only standard treatment for gastroenterological cancer but also cutting-edge treatment for refractory or metastatic, or recurrent gastroenterological cancer.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)		Brief Outline of Class(内容概略)	
1	10/04	(Tue) 4th period	Araki Norie 【eEJ-L】	Tumor Genetics and biology (introduction)	
2	10/11	(Tue) 4th period	Araki Norie 【eEJ-L】	Tumor Genetics and biology 1	
3	10/18	(Tue) 4th period	Araki Norie 【eEJ-L】	Tumor Genetics and biology 2	
4	10/25	(Tue) 4th period	Baba Hideo 【eJ-0】	Gastroenterological surgery (introduction)	
5	11/01	(Tue) 4th period	Baba Hideo 【eE-0】	Gastroenterological surgery 1	
6	11/08	(Tue) 4th period	Baba Hideo 【eJ-0】	Gastroenterological surgery 2	
7	11/15	(Tue) 4th period	Baba Hideo 【eE-0】	Gastroenterological surgery 3	
8	11/22	(Tue) 4th period	Baba Hideo 【eE-0】	Gastroenterological surgery 4	
9	11/29	(Tue) 4th period	Baba Hideo 【eE-0】	Gastroenterological surgery 5	
10	12/06	(Tue) 4th period	Nakayama Hideki 【eJ-0】	Oral and maxillofacial tumors	
11	12/13	(Tue) 4th period	Nakayama Hideki 【eJ-0】	Diagnosis and treatment of oral cancer	
12	12/20	(Tue) 4th period	Nakayama Hideki 【eJ-0】	Challenges in oral cancer treatment	
13	12/27	(Tue) 4th period	Suzuki Makoto 【eE-0】	Thoracic surgery (introduction)	
14	01/10	(Tue) 4th period	Suzuki Makoto 【eJ-0】	Lung cancer -----	
15	01/17	(Tue) 4th period	Suzuki Makoto 【eE-0】	Medistinal tumor -----	
Estimated out-of-class study time					
Required Textbook(テキスト)		Textbooks are not specified.			
Reading List(参考文献)		“Natural obsessions:The search for the oncogene” by Angier. N, Houghton Mifflin Co, 1988. “Cancer: principles & practice of oncology, 7th ed” by DeVita VT, Lippincott Williams & Wilkins.2004 “The biology of cancer” by Weinberg RA Garland Science, 2007. “Clinical Oncology.” by Abeloff MD, Churchill Livingstone, . “ACS surgery: principles and practice” by Wilmore DW, WebMD. ・ “Thoracic Surgery, 2nd edition ” by Pearson FG, Churchill Livingstone, 2002			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Grading will be based on active class participation, paper summaries,and final report.			
Language Used in Instruction(使用言語)		Japanese and English			
Textbook/Material Language(教科書・資料の言語)		Combination of Japanese and English			
Course Based on Practical Work Experience(実務経験を活かした授業)		Applicable			

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-014-83-2	2022whole year	Graduate School of Medical Sciences(20150)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
The Forefront of Clinical Oncology(C6)			OYA Natsuo, MUKASA Akitake, Yasunaga Jiyunichirou, MURAKAMI Ryuji, NOSAKA Kisato, YAMAMOTO Yutaka, Saitou Fumitaka, MOTOHARA Takeshi, IWANAGA Eisaku		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……70% 2.Profound inter-disciplinary knowledge ……10% 3.Global perspective and ability to take initiative action ……10% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	Video lectures or e-learning programs may be considered for those who are regularly absent for unavoidable reasons.				
Course Goals(授業の目的)	In Lecture Series “Riron” : C6 The Forefront of Clinical Oncology II, you learn basic concepts and novel techniques in the most advanced clinical oncology, including (1) radiation oncology, (2) breast and endocrine oncology, (3) gynecological oncology, (4) neurooncology, (5) hematological oncology.				
Course Learning goals(学修目標)	【A level (A水準)】 You learn basic concepts and novel techniques in the most advanced clinical oncology, including (1) radiation oncology, (2) breast and endocrine oncology, (3) gynecological oncology, (4) neurooncology, (5) hematological oncology. 【C level (C水準)】				
Course Outline(授業の概要)	(1) The forefront of radiation oncology, especially the development in 3-D conformal external beam radiotherapy techniques is lectured. (2) The forefront of breast and endocrine oncology is lectured, especially regarding surgery, chemotherapy, and molecular target therapy for breast cancer and thyroid cancer. (3) The forefront of gynecological oncology, especially the recent development and therapeutic modalities, is explained, including brachytherapy, external beam radiotherapy and chemoradiotherapy for uterine cervical cancer. (4) The forefront of neurooncology is explained especially regarding the molecular biology in malignant brain tumors. (5) The forefront of hematological oncology is lectured especially regarding the mechanisms in tumor development and suppression.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	10/04	5th period Natsuo Oya 【eJ-0】	“Radiation biology and physics”		
2	10/11	5th period Natsuo Oya 【eJ-0】	“Stereotactic radiotherapy and intensity-modulated radiotherapy”		
3	10/18	5th period Ryuji Murakami 【eJ-0】	“Image-guided radiotherapy and adaptive radiotherapy”		
4	10/25	5th period Yutaka Yamamoto 【eJ-0】	“Biological features of breast cancer”		
5	11/01	5th period Yutaka Yamamoto 【eJ-0】	“Paradigm shift in breast cancer treatment”		
6	11/08	5th period Yutaka Yamamoto 【eJ-0】	“Molecular target therapy for breast cancer”		
7	11/15	5th period Takeshi Motohara 【eJ-0】	“Epidemiology of gynecological malignancies”		
8	11/22	5th period Fumitaka Saito 【eJ-0】	“Paradigm shift of the treatment for gynecological malignancies”		
9	11/29	5th period Takeshi Motohara 【eJ-0】	“Radiation therapy for gynecological malignancies”		
10	12/06	5th period Akitake Mukasa 【eJ-0】	“Character of brain tumor”		
11	12/13	5th period Akitake Mukasa 【eJ-0】	“Brain tumor diagnosis”		
12	12/20	5th period Akitake Mukasa 【eJ-0】	“Brain tumor therapy”		
13	12/27	5th period Eisaku Iwanaga 【eJ-0】	“Hematological oncology I - leukocytes”		
14	01/10	5th period Kisato Nosaka 【eJ-0】	“Hematological oncology II - lymphocytes”		
15	01/17	5th period Jun-chirou Yasunaga 【eJ-0】	“Hematological oncology III - Hematological malignancies induced by viruses”		
Estimated out-of-class study time					
Required Textbook(テキスト)					
Reading List(参考文献)					
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Grading will be based on active class participation, paper summaries, or the final report. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100.Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions			
Language Used in Instruction(使用言語)		Japanese			
Textbook/Material		Japanese			

Language(教科書・資料の言語)	Japanese
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable

Course Coding(科目ナンバ－)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-015-83-2	2022whole year	Graduate School of Medical Sciences(20160)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Restorative Medicine(C7)			FUKUSHIMA Satoshi, MIYAMOTO Takeshi, NISHIKAWA Takeshi, YASUNAGA Junichiro, NAKATA Hirotomo, KAWANO Hiroaki, FUKUI Toshihiro, Aoi Jun		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……50% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……10% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint and/or OHP will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons.				
Course Goals(授業の目的)	The objectives of this course are for you to understand the following: (1) pathology and therapeutic strategies of sepsis, the mechanisms of organ failure developed from sepsis, (2) risk factors for coronary syndrome, the latest knowledge regarding cardiovascular diseases and their surgical treatment; (3) the latest knowledge regarding cardiovascular diseases and their surgical treatment; (4) the mechanisms of skin wound healing, differences in body surface blood flow distribution between anatomical locations, and plastic surgery procedures and regenerative medical techniques; (5) disorders of bone and joint function and the reconstruction thereof; (6) basic knowledge required to plan out and implement clinical studies.				
Course Learning goals(学修目標)	【A level (A水準)】 Who could understand and explain, (1) pathogenesis underlying and strategy to treat sepsis and organ failures due to sepsis; (2) risk factors for coronary syndrome; (3) latest knowledges regarding cardiovascular diseases and their surgical treatments; (4) mechanisms underlying dermal wound healing, distribution of body surface blood flow, techniques for plastic surgery and regenerative medicine; (5) mechanisms underlying and ways of treatment for bone and joint diseases; (6) basic knowledges for planning and conducting clinical studies.It is recommended for you to review the handout materials distributed in the lectures and your notebooks well. If you want to ask any questions to the lecturers, "Office Hour" is available for you. It is also recommended to review the lectures by using e-learning contents if available. 【C level (C水準)】 Who could understand, (1) pathogenesis underlying and strategy to treat sepsis and organ failures due to sepsis; (2) risk factors for coronary syndrome; (3) latest knowledges regarding cardiovascular diseases and their surgical treatments; (4) mechanisms underlying dermal wound healing, distribution of body surface blood flow, techniques for plastic surgery and regenerative medicine; (5) mechanisms underlying and ways of treatment for bone and joint diseases; (6) basic knowledges for planning and conducting clinical studies.				
Course Outline(授業の概要)	In this class, the current situation and problems of restorative medicine are explained in terms of both life support and vital function. With continued progress in the field of medicine, critical care medicine has produced a steady flow of successful results and its functional prognosis has also improved dramatically. We will introduce new definition and therapeutic strategies of international sepsis guidelines with outline of new clinical research. We will also provide the mechanisms of organ failure from sepsis in basic and clinical viewpoint. Moreover, we will provide lectures regarding risk factors for acute coronary syndrome, which needs urgent therapy, and the progress of surgical treatments for heart failure, ischemic heart diseases, and valvular heart diseases. Although disorders of the skin, bones, and joints are rarely directly life-threatening conditions, they greatly affect a patient's vital functions. We will explain the theory of skin wound healing and the latest molecular biological knowledge, and we will also provide lectures regarding the progress made in the area of skin flaps through studies of blood flow in human skin and discuss reconstructive medicine for the blood vessels, lymph vessels, and nerves in terms of the development of microsurgery.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)		Brief Outline of Class(内容概略)	
1		4th period Satoshi Fukushima 【eJ-0】		Mechanism of Wound healing	
2		4th period Satoshi Fukushima 【eJ-0】		Reconstruction by local flap	
3		4th period Satoshi Fukushima 【eJ-0】		Reconstruction with microsurgery	
4		4th period Takeshi Miyamoto 【eJ-L】		Pathophysiology of bone metabolism	
5		4th period Takeshi Miyamoto 【eJ-L】		Physiology and biology of articular cartilage	
6		4th period Takeshi Miyamoto 【eJ-L】		Inflammatory arthritis	
7		4th period Takeshi Nishikawa 【eJ-0】		Hypothesis and Design of Clinical Researches	
8		4th period Junichiro Yasunaga 【eJ-0】			
9		4th period Hirotomo Nakata 【eJ-0】			
10		4th period Hiroaki Kawano 【eJ-0】		Risk factors for acute coronary syndrome and gender difference	
11		4th period Toshihiro Fukui 【eJ-0】		Sugical treatment of heart failure	
12		4th period Toshihiro Fukui 【eJ-0】		Surgical treatment of ischemic heart disease	
13		4th period Toshihiro Fukui 【eE-0】		Surgery of valvular heart disease	
14		4th period Takeshi Nishikawa 【eJ-0】		Hypothesis and design from the perspective of diabetic complications researches	
15		4th period Hiroaki Kawano 【eJ-0】		X Y chromosome related disease	
Estimated out-of-class study time					

Required Textbook(テキスト)	Textbooks are not specified, and handouts will be distributed.
Reading List(参考文献)	
Enrollment Conditions(履修条件)	
Assessment Methods and Criteria(評価方法・基準)	Grading will be based on active class participation, paper summaries, and the final report. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers dealt with in class to be scored from 0 to 100. Final grades will be based on the average score of the papers as well as participation in class discussions.
Language Used in Instruction(使用言語)	Japanese
Textbook/Material Language(教科書・資料の言語)	Japanese
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-016-83-2	2022whole year	Graduate School of Medical Sciences(20170)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Cancer therapeutics(C8 Cancer therapeutics)			SUZUKI Makoto, MUKASA Akitake, SAKAGAMI Takuro, OYA Natsuo, Kanba Tomomi, ORITA Yori-hisa, BABA Hideo, NAKAYAMA Hideki, NOSAKA Kisato, YAMAMOTO Yutaka, FUKUSHIMA Satoshi, MOTOHARA Takeshi, Hibi Taizou, MIYAMOTO Takeshi, TANAKA Yasuhito		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・60% 2.Profound inter-disciplinary knowledge・・・35% 3.Global perspective and ability to take initiative action・・・5%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	We deal with a student by intensive lecture of power point or e-learning.				
Course Goals(授業の目的)	In the current lecture, we lead to comprehend the fundamental knowledge of therapy for cancer such as surgery, radiotherapy, chemotherapy and immunotherapy and the historical change, standard treatment and future directions of cancer therapy. Furthermore, the aims of the current lecture are to understand thoroughly the leading-edge medical treatment for various types of cancer as follows: (1) gastroenterological tumor (2) respiratory tract tumor (3) brain and nervous system neoplasm (4) head and neck tumor (5) otolarygological neoplasia (6) breast endocrine tumor (7) genitourinary system tumor (8) gynecological tumor (9) orthopaedic and neuro-musculoskeletal tumor (10) skin tumor (11) hematopoietic tumor (12) pediatric tumors.				
Course Learning goals(学修目標)	【A level (A水準)】 To comprehend the fundamental knowledge of therapy for cancer such as surgery, radiotherapy, chemotherapy and immunotherapy and the historical change, standard treatment and future directions of cancer therapy. To understand thoroughly the leading-edge medical treatment for various types of cancer as follows: (1) gastroenterological tumor (2) respiratory tract tumor (3) brain and nervous system neoplasm (4) head and neck tumor (5) otolarygological neoplasia (6) breast endocrine tumor (7) genitourinary system tumor (8) gynecological tumor (9) orthopaedic and neuro-musculoskeletal tumor (10) skin tumor (11) hematopoietic tumor (12) pediatric tumors. 【C level (C水準)】				
Course Outline(授業の概要)	The aims of current lecture are to understand the up-to date treatment for the various types of cancer in addition to standard cancer therapy such as surgery, radiotherapy, chemotherapy and immunotherapy. In late years a guideline is devised every each organ, and maintain the balance of therapy is planned about the cancer.A number of clinical trials are promoted to attempt the standardization of the cancer therapy. You can learn how the standard treatments are confirmed from the results of various clinical trials.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	02/02	(Thu)5th period Yasuhito Tanaka 【eJ-0】	Medical treatment of the gastrointestinal cancer		
2	02/06	(Mon)5th period Hideo Baba 【eJ-0】	Surgical cure of the digestive cancer		
3	02/09	(Thu)5th period Takuro Sakagami 【eJ-0】	Medical treatment of the lung cancer		
4	02/13	(Mon)5th period Makoto Suzuki 【eJ-0】	Surgical treatment of the lung cancer		
5	02/16	(Thu)5th period Hideki Nakayama 【eJ-0】	The treatment of the Oral cancer The lecture will be performed on the effectiveness and clinical application of surgery, radiotherapy, chemotherapy, and immunotherapy in oral cancer patients.		
6	02/20	(Mon)5th period Yori-hisa Orita 【eJ-0】	The treatment of the head and neck cancer		
7	02/27	(Mon)5th period Takeshi Miyamoto 【eJ-0】	The treatment of the bone soft part tumor		
8	03/02	(Thu)5th period Yutaka Yamamoto 【eJ-0】	Treatment of breast cancer		
9	03/06	(Mon)5th period Takeshi Motohara 【eJ-0】	The treatment of the gynecologic malignant tumor		
10	03/09	(Thu)5th period Tomomi Kamba 【eJ-0】	The treatment of genitourinary cancers		
11	03/13	(Mon)5th period Satoshi Fukushima 【eJ-0】	Skin cancer therapy__		
12	03/16	(Thu)5th period Taizo Hibi 【eJ-0】	Pediatric Solid Cancer Therapy		
13	03/20	()5th period Akitake Mukasa 【eJ-0】	The treatment of the brain tumor		
14	03/23	(Thu)5th period Kisato Nosaka 【eJ-0】	The treatment of the hematologic malignancies		
15	03/27	(Mon)5th period Natsuo Ohya 【eJ-0】	Radiotherapy of the cancer		
Estimated out-of-class study time					
Required Textbook(テキスト)		We distribute in particular the print which we summarized the point of the lecture in without appointing it.			
Reading List(参考文献)		・ A new clinical oncology ・ Cancer principles & practice of oncology,V.T. DeVita, S.Hellman, S.A.Rosenberg,Lippincott Willams &Wilkins ・ Clinical Oncology, M.D.Abeloff, J.O. Armitage, J.E.Niederhuber,M.B.Kastan,W.G.McKenna, Elsevier ・ Cancer Medicine, Holland-Frei, AACR ・ The biology of Cancer, R.A.Weinberg, Garland Science ・ NCCN guideline			
Enrollment Conditions(履修条件)					

Assessment Methods and Criteria(評価方法・基準)	We evaluate the attendance situation to a lecture, lecturing questions and answers and the lecture understanding degree about the matter which we raised to the [the aim of the class] by reports about a theme shown at being finished.Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100.Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions.
Language Used in Instruction(使用言語)	Japanese
Textbook/Material Language(教科書・資料の言語)	Japanese
Course Based on Practical Work Experience(実務経験を活かした授業)	Applicable

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-017-83-2	2022whole year	Graduate School of Medical Sciences(20180)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Paliative Care(C9)			HIRATA Naoyuki, SUGITA Michiko		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……30% 2.Profound inter-disciplinary knowledge ……40% 3.Global perspective and ability to take initiative action ……15% 4.Social leadership drive ……15%					
Type of Class(授業の形態)		Other			
Teaching Method(授業の方法)		Using e-learning system in Web site of Japan Society of Clinical Oncology			
Course Goals(授業の目的)		Most clinical professionals have been affected by caring for patients with palliative care needs. Such patients may challenge us at both a professional and at a personal level in areas where we feel our confidence or competence are challenged. This course serves as introductory for Palliative care medicine.			
Course Learning goals(学修目標)		【A level (A水準)】 - 【C level (C水準)】			
Course Outline(授業の概要)		In order to understand the principle of palliative care medicine, we discussed the followings: (1) oncology, (2) symptom management, (3) emotional issues in palliative medicine, (4) culture and spiritual aspects of palliative medicine, (5) contribution of palliative medicine of allied health professions.			
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)		Brief Outline of Class(内容概略)	
1					
Estimated out-of-class study time					
Required Textbook(テキスト)		not specified			
Reading List(参考文献)		Oxford Textbook of Paliative medicine. 3rd. Edited by Doyle D, Hanks G, et al., Oxford University Press Oxford Handbook of Palliative care. Edited by Watson M, Lucas C, Hoy A, Back I, Oxford University Press			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)					
Language Used in Instruction(使用言語)		Japanese (Japanese)			
Textbook/Material Language(教科書・資料の言語)		Japanese (Japanese)			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-018-83-2	2022whole year	Graduate School of Medical Sciences(20190)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
The Theory of Clinical Research(C10Learning of The Theory of Clinical Research)			KADOOKA Yasuhiro, Hamada Akinobu, SUZUKI Makoto, MUKASA Akitake, Kanba Tomomi, BABA Hideo, YAMAMOTO Yutaka, USUKU Koichiro		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・100%					
Type of Class(授業の形態)		Other			
Teaching Method(授業の方法)		PowerPoint presentation will be usually provided in the lectures. Video lectures or e-learning programs will be provided for those who are regularly absent for unavoidable reasons.			
Course Goals(授業の目的)		To comprehend necessary knowledge in order to conduct intervention studies/clinical trials			
Course Learning goals(学修目標)		【A level (A水準)】 1) To conduct scientifically rational and ethical research 2) To play a role as a project member in a large-scale or multicenter clinical study 3) To interpret research findings enough to apply into clinical practice 4) To broaden knowledge about clinical researches and standard treatments for malignancies 【C level (C水準)】 1) To comprehend scientific rationale clinical research 2) To comprehend methods to conduct clinical research 3) To comprehend development and strategies of anti-cancer drugs			
Course Outline(授業の概要)		You will learn about bases of research ethics, epidemiology, biostatistics, study design, and drug kinetics/dynamics needed for clinical trials. And also, you will learn about the biochemical characters and the treatments based on evidence of the clinical trial (EBM; evidence based medicine) in various kinds of cancers, including lung cancer, gastric cancer, colorectal cancer, liver cancer, breast cancer, urinary organ cancer and malignant brain tumor. In addition, the latest topics of the translational study and prospects of the molecular biology will be discussed.			
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		5th period, Kadooka Yasuhiro, eEJ-O	History of ethics for clinical research		
2		5th period, Kadooka Yasuhiro, eEJ-O	Details of ethical guideline for clinical research		
3		5th period, Usuku Koichiro, eJ-O, eE-O	Epidemiological background of clinical trials		
4		5th period, Akinobu Hamada, eEJ-O	Pharmacokinetics/Pharmacodynamics of anti- tumor agents		
5		5th period, Kenji Tamura, eEJ-O	Pharmacokinetics/Pharmacodynamics of anti- tumor agents		
6		5th period, Yutaka Yamamoto, eEJ-O	Design and Assessment of clinical trailas		
7		5th period, Makoto Suzuki, eE-O	Clinical trials on lung cancer (1)		
8		5th period, Makoto Suzuki, eE-O	Clinical trials on lung cancer (2)		
9		5th period, Hideo Baba, eE-O	Clinical trials on gastric cancer		
10		5th period, Hideo Baba, eE-O	Clinical trials on colorectal cancer		
11		5th period, Hideo Baba, eE-O	Clinical trials on hepatic cell carcinoma		
12		5th period, Yutaka Yamamoto, eEJ-O	Clinical trials on breast cancer (1)		
13		5th period, Yutaka Yamamoto, eEJ-O	Clinical Trials on breast cancer (2)		
14		5th period, Tomomi Kamba, eEJ-O	Clinical Trials on urinary organ cancer		
15		5th period, Akitake Mukasa, eEJ-O	Clinical Trials on malignant brain tumor		
Estimated out-of-class study time		60 hours of self-learning (out-of-class study) is recommended in addition to 30-hours lecture (2 hours x 15 times).			
Required Textbook(テキスト)					
Reading List(参考文献)		Eanuel EJ. et al. The Oxford Textbook of Clinical Research Ethics. Oxford University Press., 2008 Breast Cancer, Molecular Genetics, Pathogenesis, and Therapeutics” edited by Bowcock, HUMANA PRESS, 2004 Cheson BD,et al. Revised recommendations of the International Working Group for Diagnosis, Standardization of Response Criteria, Treatment Outcomes, and Reporting Standards for Therapeutic Trials in Acute Myeloid Leukemia. J Clin Oncol. 2003 Dec 15;21(24):4642-9. American Society of Clinical Oncology Clinical Practice Guideline, National Comprehensive Cancer Network Clinical (NCCN) Guidelines for the Treatment of Cancer by Site, which are available on the internet.			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		We evaluate the attendance at a lecture, lecturing questions and answers and the lecture understanding degree about the matter which we raised to the [the aim of the class] by reports about a theme shown at being finished. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100. Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions.			
Language Used in Instruction(使用言語)		Japanese and English			

Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English
Course Based on Practical Work Experience(実務経験を 活かした授業)	Applicable (Each instructor has experiences as a primary investigator and a collaborator of clinical research projects, or a member of review boards.)

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-156-99-1	2022whole year	Graduate School of Medical Sciences(25240)	1	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Training of biostatistics in clinical study()			TOMIZAWA Kazuhito, Morinaga Jiyun		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……50% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……10% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Lecture and Seminar				
Teaching Method(授業の方法)	Lecture (Q & A style), Practical use of PC & statistical software (EZR).				
Course Goals(授業の目的)	Knowledge about basic statistical methods is important for researchers to plan and execute biological/clinical study. Therefore, the aim of this course is to learn about how researchers use statistical tests through carrying out biological experiments and/or clinical studies.				
Course Learning goals(学修目標)	【A level (A水準)】 Understanding study design. Performing basic statistical tests (comparing two groups, three or more groups, multivariate analysis etc). 【C level (C水準)】 Understanding basic statistical theory.				
Course Outline(授業の概要)	In this class, students will learn about study design, basic statistical theories, and practice basic tests using statistical software "EZR".				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		4th period Jun Morinaga	Description of data		
2		4th period Jun Morinaga	Comparing two groups		
3		4th period Jun Morinaga	Comparing three or more groups		
4		4th period Jun Morinaga	Correlation and simple linear regression		
5		4th period Jun Morinaga	Contingency table analysis		
6		4th period Jun Morinaga	Statistical inference, bias, confounders, errors		
7		4th period Jun Morinaga	Statistical design 1		
8		4th period Jun Morinaga	Statistical design 2		
9		4th period Jun Morinaga	Statistical design 3		
10		4th period Jun Morinaga	Dataset		
11		4th period Jun Morinaga	Multivariate analysis 1		
12		4th period Jun Morinaga	Multivariate analysis 2		
13		4th period Jun Morinaga	Multivariate analysis 3		
14		4th period Jun Morinaga	Survival data analysis 1		
15		4th period Jun Morinaga	Survival data analysis 2		
Estimated out-of-class study time					
Required Textbook(テキスト)		Handout / sample data for statistical analysis			
Reading List(参考文献)		Indicated in each lecture.			
Enrollment Conditions(履修条件)		Bring own personal computer for statistical practice (Windows).			
Assessment Methods and Criteria(評価方法・基準)		Attendance at lectures, Q&A, and score of reports.			
Language Used in Instruction(使用言語)		Japanese			
Textbook/Material Language(教科書・資料の言語)		Japanese			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Course Coding(科目ナンバ－)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-157-99-1	2022whole year	Graduate School of Medical Sciences(25250)	1	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Overview of cilnical study(Overview of cilnical study (C12))			TOMIZAWA Kazuhito, Uei Fuanien, KADOOKA Yasuhiro, TSUJITA Kenichi, MIYASHITA Azusa, USUKU Koichiro		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……80% 2.Profound inter-disciplinary knowledge ……10% 3.Global perspective and ability to take initiative action ……5% 4.Social leadership drive ……5%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)					
Course Goals(授業の目的)					
Course Learning goals(学修目標)	【A level (A水準)】 To be able to understand enough the outline of clinical study, research ethics, regulation, data acquisiton and management, study designen, publication. 【C level (C水準)】 To be able to understand the outline of clinical study, research ethics, regulation, data acquisiton and management, study designen, publication.				
Course Outline(授業の概要)	This course consists as follows; 1) Outline and significance of clinical stdy and regulatroiy science. 2) Regulation, research ethics, rules. 3)Study design, data management. 4) You learn the conduct and publicaion of clinical study and case examples. 5) Collaborative Institutional Training Initiative (CITI) Japan is also used.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Miyashita Azusa, [eJ-0]	Introduction of this course, Outline of clinical study		
2		Kadooka Yasuhiro, [eJ-0]	Paradigm of Research Ethics		
3		Kadooka Yasuhiro, [eJ-0]	Points of Participants Protection in Clinical Research		
4		Todaka Koji, [eJ-0]	Outline of regulatroiy science		
5		Uchiyama Makiko, [eJ-0]	Regulation of drug development		
6		Uchiyama Makiko, [eJ-0]	Management of clinical study		
7		Funakoshi Kouta, [eJ-0]	Regulation of medical device development		
8		Usuku Koichiro, [eJ-0]	Construction of data acquisiton and utilization of AI		
9		Kakuma Tatsuyuki, [eJ-0]	Study design-1		
10		Kakuma Tatsuyuki, [eJ-0]	Study design-2		
11		Tsujita Kenichi, [eJ-0]	Conduct and publication of clinical study		
12		Sanuki Tetsuji, [eJ-0]	Management of medical device development		
13		MATSUSHITA Shuzo, [eJ-0]			
14		CITI Japan	Course 06		
15		CITI Japan	Course 06		
Estimated out-of-class study time					
Required Textbook(テキスト)		Textbooks are not specified.			
Reading List(参考文献)		Provided in the lectures.			
Enrollment Conditions(履修条件)		No prerequisite.			
Assessment Methods and Criteria(評価方法・基準)		We evaluate the attendance state of e-learning and CITI Japan and unederstanding degree about the matter which we raised to the course goals. Students' understanding will be evaluated on the basis of quizzes to be scored from 0 to 100.			
Language Used in Instruction(使用言語)		Japanese			
Textbook/Material Language(教科書・資料の言語)		Japanese			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Academic Year 2022, D1 Medicine & Life Science Seminar

Place: Lecture room 2, Medical Education & Library Building 3F. Time & Date: From 17:30 (Usually on Wednesday)

No	Schedule	Talker	Title	Affiliation	Inviter
1	Apr 20 (WED)	HARA Hiromitsu	CBM signaling in immunity	Professor, Kagoshima University Graduate School of Medical and Dental Sciences, Department of Immunology	Immunology
2	Jun 8 (WED)	TSUNEYAMA Koichi	Development of novel animal models of non-alcoholic steatohepatitis (NASH) and its application to the pathophysiological analysis	Professor, Department of Pathology and Laboratory Medicine, Institute of Biomedical Sciences, Tokushima University Graduate School	Histology
3	Jun 15 (WED)	YOKOYAMA Akihiko	Mechanisms of leukemogenesis by epigenetic/transcriptional regulators	Team leader, Tsuruoka Metabolomics Laboratory, National Cancer Center	Diagnostic Medicine
4	Jun 29 (WED)	ITO Takahiro	Metabolic regulation of stem cell fate in cancer	Professor, Institute for Frontier Life and Medical Sciences, Kyoto University	Transcriptional Regulation in Leukemogenesis
5	Jul 20 (WED)	OKUNO Hiroyuki	Activity-dependent gene expression and cognitive function	Professor, Lab of Biochemistry and Molecular biology, Graduate School of Medical and Dental Sciences, Kagoshima University	Neuropsychiatry
6	Oct 12 (WED)	KAGEYAMA Ryoichiro	Dynamic transcriptional control of neural stem cells	Director, RIKEN Center for Brain Science	Hematology, Rheuma- tology and Infectious Disease
7	Oct 19 (WED)	KIDOYA Hiroyasu	Dynamics of tumor vasculature	Professor, Department of Integrative Vascular Biology, Faculty of Medical Sciences, University of Fukui	Cardiovascular Medicine
8	Nov 2 (WED)	NAKAGAMI Hironori	Vaccine development for chronic diseases with the COVID-19 era	Professor, Department of Health Development and Medicine, Osaka University Graduate School of Medicine	Molecular Genetics
9	Nov 16 (WED)	SHICHITA Takashi	Brain infarction: mechanisms and therapeutic challenges	Project Leader, Stroke Renaissance Project, Tokyo Metropolitan Institute of Medical Science	Microbiology
10	Dec 14 (WED)	KIKUCHI Akira	「Development of new anti- cancer drugs based on Wnt signal study」	Professor, Department of Molecular Biology and Biochemistry, Graduate School of Medicine, Osaka University	Tumor Genetics and Biology

Note: The date, time or place of these lectures may change due to the inviter's and lecturer's schedules. Please check the details with the seminar guide leaflet distributed to each Department beforehand. Also please check our website for the latest information.

We might add the seminar other than the above. (<http://www.medphas.kumamoto-u.ac.jp/en/medgrad/gakunai/seminar/>)

Academic Year 2022, D2 Learning from Experienced Doctors Seminar

Place: Lecture room 2, Medical Education & Library Building 3F. Time & Date: From 17:30 (Usually on Wednesday)

No	Schedule	Talker	Title	Affiliation	Inviter
1	Apr 27 (WED)	TAKATA Atsushi	Genomic Analysis of Psychiatric Disorders: Toward Elucidation of their Molecular Pathology	Team Leader, Laboratory for Molecular Pathology of Psychiatric Disorders, RIKEN Center for Brain Science,	Molecular Brain Science
2	May 11 (WED)	IWAMI Shingo	Mathematical model-based quantitative data analysis	Professor, iBLab, Division of Biological Science, Graduate School of Science, Nagoya University	Hematology, Rheumatology and Infectious Disease
3	May 18 (WED)	OKADA Yukinori	Statistical genetics, disease biology, drug discovery, and personalized medicine	Professor, Department of Statistical Genetics, Osaka University Graduate School of Medicine Team leader, Laboratory for Systems Genetics, RIKEN Center for Integrative Medical Sciences	Medical Biochemistry
4	May 25 (WED)	KATAOKA Keisuke	Genetic dissection of lymphoma pathogenesis by cutting-edge techniques.	Professor, Division of Hematology Department of Medicine Keio University School of Medicine	Transcriptional Regulation in Leukemogenesis
5	Jun 1 (WED)	OGAWA Hisao	Lessons from 40 years of clinical research	President, Kumamoto University	Tumor Genetics and Biology
6	Aug 3 (WED)	MORIOKA Norimitsu	Disorders of emotional and cognitive function in chronic pain: involvement of microglia	Professor, Department of Pharmacology, Hiroshima University Graduate School of Biomedical & Health Sciences	Neuropsychiatry
7	Sep 7 (WED)	MIURA Katsuyuki	Strategy for cardiovascular disease prevention from the viewpoint of epidemiology	Director/Professor, NCD Epidemiology Research Center (NERC)/ Department of Public Health Shiga University of Medical Science (SUMS)	Histology
8	Sep 21 (WED)	KUBO Tatsuhiko	Clinical Information Management of Emergency Medical Team	Professor, Department of Public Health and Health Policy, Graduate School of Biomedical and Health Sciences, Hiroshima University	Disaster and Critical Care Medicine
9	Nov 9 (WED)	YASAKA Koichiro	Application of artificial intelligence to radiological diagnostic imaging	Assistant Professor, Department of Radiology, The University of Tokyo Hospital	Diagnostic Radiology
10	Dec 7 (WED)	KAMATANI Yoichiro	Does complex disease genomics lead to the application of genomic data in general practice?	Professor, Department of Computational Biology and Medical Sciences, Graduate School of Frontier Sciences, The University of Tokyo	Molecular Genetics
11	Feb 1 (WED)	TODA Tatsushi	From "not correct" to "correct" Elucidation of neurological diseases and molecular therapy using genomic science	Professor, Department of Neurology Graduate School of Medicine The University of Tokyo	Molecular Brain Science

*** Each seminar will be held in Japanese. ***

Academic Year 2022, D5: International Biomedical Research Seminars

- Place: Meeting Lounge, IRCMS 1F (virtual seminars due to the pandemic)
- Time & Date: From 16:30 (usually on Wednesday; may be adjusted due to time difference)

The “D5 International Biomedical Research Seminars” course will be offered by International Research Center for Medical Sciences (IRCMS). It will run from April 2022 to March 2023, with lectures given by scientists who are affiliated with IRCMS or in collaboration with researchers at IRCMS. The lectures will be given in English, and by leading scientists in the relevant research field. Students will be taught: 1) how normal physiological functions are maintained in the human body; 2) how these systems become abnormal under certain pathophysiologic conditions; 3) why stem cells are important in animal development and homeostasis; 4) how stem cell-based approaches can help us understand disease mechanisms and find potential cure for diseases related to stem cell malfunction (e.g., cancer, aging).

No	Schedule	Lecturer	The title for the lecture	Title / Affiliation
1.	May 18	Miki Ebisuya	TBA	Group Leader, EMBL, Barcelona, Spain
2.	June 22	Tomohisa Toda	TBA	Group Leader, DZNE, Dresden, Germany
3.	July	Keiko Nonomura	TBA	Associate Professor, School of Life Science and Technology, Tokyo Institute of Technology, Japan
4.	August	Shannon Elisabeth Elf	TBA	Assistant Professor, Ben May Department for Cancer Research, The University of Chicago, USA
5.	September	Josephine Galipon	TBA	Project Research Associate, Institute for Advanced Biosciences, Keio University, Japan
6.	October	Hiroki Kurihara	TBA	Professor, Graduate School of Medicine, The University of Tokyo, Japan
7.	November	Takaomi Sanda	TBA	PI, CSI, National University of Singapore, Singapore
8.	December	Nami Sugiyama-Matsuda	TBA	Assistant / Postdoc (FG Christofori), Department of Biomedicine, University of Basel, Switzerland
9.	January	Mako Kamiya	TBA	Associate Professor, Graduate School of Medicine, The University of Tokyo, Japan
10.	January	Masayuki Yazawa	TBA	Assistant Professor, Columbia Stem Cell Initiative (CSCI), Columbia University, USA
11.	February	Kanae Ando	TBA	Associate Professor, School of Science, Tokyo Metropolitan University, Japan
12.	March	Keisuke Ito	TBA	Associate Professor, Department of Cell Biology, Albert Einstein College of Medicine, USA

Note: The schedule or venue of these lectures might change due to various reasons. Please check the details with the seminar guide leaflet distributed to each Department beforehand. Also, please check our website for the latest information. We might add the other seminar than the above.

<http://www.medphas.kumamoto-u.ac.jp/medgrad/gakunai/seminar/seminar3/>

A report format of “D5: International Biomedical Research Seminars”

Write 2 essays based on 2 talks chosen from the seminar “D5: International Biomedical Research Seminars”. Length of the essays should be 250-500 words. “D5: International Biomedical Research Seminars” requires students to attend more than 15 lectures as well as to submit at least 2 reports for credit before completion of their thesis research. Send each essay to the IRCMS within one month by E-mail (ircms@jimu.kumamoto-u.ac.jp, not by hard copy or any other digital media). The file of the essay should be included in the E-mail both in an attached file and in the text. A carbon copy E-mail should be also sent to Medical Faculty Educational Affairs Planning Section (iyg-igaku-3@jimu.kumamoto-u.ac.jp). Attendance will be taken in every talk by signing your name at the entrance of the lecture room.

Graduate School of Medical Sciences, Medical Course (Doctor) “D5: International Biomedical Research Seminars” Report

Student : Grade	Registered number	Division	Name
Title of talk:			
Talker:			
Date:			
Place:			
A body of essay: Fill this A4 sheet with 250-500 words			

Course Work subject

(Medical Experiment Course)

Academic Year 2022 Graduate School's Medical Experiment Course

How to take the course: Moodle

e-learning only	1	Introduction to recombinant DNA technique (Molecular Genetics : KAZUTOYO Terada)	3	Principle and application of polymerase chain reaction (Medical Biochemistry : SATO Yoshifumi)
	2	Gene Transfer Technique (Molecular Physiology : CHUJO Takeshi)	4	Research Integrity (Bioethics : KADOOKA Yasuhiro)
	5	Cell imaging and quantitative analysis (Chromosome Biology: ISHIGURO Keiichiro)	7	Analysis of Transcriptional Regulation (Cell Signaling and Metabolic Medicine : KANAMORI Yohei)
	6	Protein Purification (General Methods) (Molecular Cell Biology : YAMANAKA Kunitoshi)	8	Pharmacokinetics (Pharmacology and Therapeutics : SARUWATARI Junji)
	9	Production of polyclonal and monoclonal antibodies (Immunology : IRIE Atsushi)	11	Analytical methods for intracellular signaling (Infection and Hematopoiesis : SUZU Shinya)
	10	Reproductive Engineering Techniques (Reproductive Engineering: TAKEO Toru)	12	Immunohistochemistry (Cell Pathology : KOMOHARA Yoshihiro)
	13	Basic Methods in Immunology (Immunology : IRIE Atsushi)	14	Proteomics (Tumor Genetics and Biology : ARAKI Norie)
	15	Experimental animals and animal Experimentations I (Division of Microbiology and Genetics: TORIGOE Daisuke)	16	Experimental animals and animal Experimentations II (Division of Microbiology and Genetics: TORIGOE Daisuke)
	17	In situ hybridization (Molecular Pharmacology : KIKUCHI Koji)	18	Practice and Guidance for Biological Laboratory Safety (Medical Virology: MAEDA Yosuke)
	19	Introduction to flowcytometry (Immunology : IRIE Atsushi)	20	Experiment study and safety control (Environmental Safety Center: YAMAGUCHI Yoshihiro)
	21	Guidance for Living Modified Organism (LMO) (Division of Genomics : ARAKI Masatake)	22	Methods for Literature Search (Anatomy : FUKUDA Takaichi)

Note 1: Attendance at "Experimental animals and animal Experimentations I and II" is considered as having attended the "Education and Training for Animal Experiment Conductors and Caretakers" conducted by the Animal Experiment Committee. If you have attended "Experimental animals and animal Experimentations I and II" in this lecture, you do not need to attend the "Education and Training for Animal Experiment Conductors and Caretakers" conducted by the Animal Experiment Committee.

※Some of these lectures will be given in Japanese only.

Developmental Biology and Regenerative Medicine

Course Coding(科目ナンバ－)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-024-67-1	2022whole year	Graduate School of Medical Sciences(22140)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Lecture "Tokuron" on Developmental Biology and Regenerative Medicine I(E1 Special Lecture "Tokuron" on Developmental Biology and Regenerative Medicine I)			OGAWA Minetaro, SHIMAMURA Kenji, ERA Takumi, ONO Yusuke, YAMANAKA Kunitoshi, NAKAO Mitsuyoshi, NISHINAKAMURA Ryuichi, OKANO Masaki		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……50% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……10% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint and/or OHP will be used in the lectures, and active participation in the discussion is encouraged. E-learning and reports are considered for those who are regularly absent for unavoidable reasons.				
Course Goals(授業の目的)	Developmental and regenerative medicine aims at curing diseases by revealing molecular mechanisms of organ development. In this course, you learn basic concepts and techniques used in this field. This course serves as introductory for those in the Course of Developmental Biology and Regenerative Medicine, and will also be useful for those in other programs, as you obtain essential knowledge of pluripotent stem cells and tissue stem cells, developmental mechanism of organogenesis derived from ectoderm, endoderm and mesoderm and the molecular basis of epigenetic cell regulation in development and human diseases.				
Course Learning goals(学修目標)	【A level (A水準)】 Students are expected to acquire professional competence to understand and explain the following subjects; (1) cell differentiation and growth, (2) pluripotent stem cells and tissue stem cells, (3) developmental mechanism of organogenesis derived from ectoderm, endoderm, and mesoderm, (4) molecular basis of epigenetic cell regulation in development and human diseases. 【C level (C水準)】 Students are expected to acquire general competence to understand and explain the following subjects; (1) cell differentiation and growth, (2) pluripotent stem cells and tissue stem cells, (3) developmental mechanism of organogenesis derived from ectoderm, endoderm, and mesoderm, (4) molecular basis of epigenetic cell regulation in development and human diseases.				
Course Outline(授業の概要)	Following topics including the most recent progress will be shown and discussed in addition to reading original papers. <ul style="list-style-type: none">・ Stem cell and regenerative medicine・ Development of hematopoietic stem cells・ Development and regeneration of the nervous system・ Cell lineage and developmental regulation of the nematode C. elegans・ C. elegans as a model for human diseases・ Skeletal muscle development and regeneration・ Kidney development and regeneration・ Epigenetic cell regulation in cell differentiation and transformation				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	10/06	Thu. 4th period. Takumi Era 【eE-0】	Pluripotent and tissue stem cells		
2	10/13	Thu. 4th period. Takumi Era 【eE-0】	Stem cell, disease and clinical application		
3	10/20	Thu. 4th period. Minetaro Ogawa	Development of the hematopoietic system		
4	10/27	Thu. 4th period. Minetaro Ogawa	Development of hematopoietic stem cells		
5	11/10	Thu. 4th period. Kenji Shimamura 【eEJ-L】	Neural stem cell biology and regenerative medicine		
6	11/17	Thu. 4th period. Kunitoshi Yamanaka	Cell lineage and developmental regulation of the nematode C. elegans		
7	11/24	Thu. 4th period. Kunitoshi Yamanaka	C. elegans as a model for human diseases		
8	12/01	no schedule	Annual Meeting of the MBSJ		
9	12/08	undecided	undecidet		
10	12/15	Thu. 4th period. Yusuke Ono 【eE-0】	Skeletal muscle development and regeneration		
11	12/22	Thu. 4th period. Yusuke Ono 【eE-0】	Skeletal muscle plasticity		
12	01/05	Thu. 4th period. Ryuichi Nishinakamura	Development of kidney__		
13	01/12	Thu. 4th period. Masaki Okano	Regulatory mechanism of epigenetics in development		
14	01/19	Thu. 4th period. Mitsuyoshi Nakao 【eE-0】	Epigenetic medicine I__		
15	01/26	Thu. 4th period. Mitsuyoshi Nakao 【eE-0】	Epigenetic medicine II		
Estimated out-of-class study time		62 hours			
Required Textbook(テキスト)		Textbooks are not specified, and handouts will be distributed.			
Reading List(参考文献)		“Essential Developmental Biology” (3rd edition by Slack JMW.) Blackwell Publishing (2012) “C. ELEGANS II” (ed. D.L. Riddle, T. Blumenthal, B.J. Meyer, & J.R. Priess) CSHL Press (1997) “EPIGENETICS” (edited by David Allis et al.) Cold Spring Harbor Laboratory Press (2007)			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Grading will be based on the student's understanding of the course subject matter as well as participation in class discussions. The students' understanding will be evaluated on the basis of reports or exams to be scored			

Assessment Methods and Criteria(評価方法・基準)	from 0 to 100 for each session. Final grades will be based on the average of the top 10 scores.
Textbook/Material Language(教科書・資料の言語)	English
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable

Course Coding(科目ナンバ)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-025-79-1	2022whole year	Graduate School of Medical Sciences(22150)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Lecture "Tokuron" on Developmental Biology and Regenerative Medicine II(E2)			NIWA Hitoshi, SUGAWARA Yasuhiko, ISHIGURO Keiichiro, SHINDO Asako, NAKAMURA Kimitoshi, UEDA Mitsuharu, Jiyouno Hirofumi, FUKUSHIMA Satoshi, TAKIZAWA Hitoshi		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・60% 2.Profound inter-disciplinary knowledge・・・25% 3.Global perspective and ability to take initiative action・・・10% 4.Social leadership drive・・・5%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint and/or OHP will be used in the lectures, and active participation in discussion is encouraged.				
Course Goals(授業の目的)	Developmental and regenerative medicine aims at curing diseases by revealing molecular mechanisms of organ development and the origin of diseases in order to develop a diagnosis and treatment for the diseases. Furthermore, this course will up-to-date with the present status of the regeneration medicines, the on going investigations on replacement of lost cells, tissues or organs. In this course, you will obtain essential knowledge on embryonic stem cells, tissue stem cells, their properties and application on regenerative medicine, mechanisms of development and repairs of epithelial tissues, methodologies in the regenerative medicine of sensory and circulatory organ, tissue injury and restoration surgery, genetic defects and their treatments, status and problems in transplant medicine.				
Course Learning goals(学修目標)	【A level (A水準)】 During attending the lectures in this course, students are expected to be familiar with general basics of developmental biology and specific developmental biology and mechanisms of diseases in various organs including the liver, lung, heart, nervous tissue, inner ear and connective tissues. 【C level (C水準)】				
Course Outline(授業の概要)	In this course, lectures on the following fields will be given: ・ Regenerative medicine using embryonic stem cells and tissue stem cells ・ properties and application of endodermal tissue stem cells ・ growth, differentiation and abnormalities of epithelial cells ・ damage, repair and mechanisms of tissue reconstitution ・ pathological analyses of hereditary amyloidosis ・ development of treatment for hereditary amyloidosis ・ development and regeneration of skin (recovery of injury) ・ denervation and reinnervation of the larynx ・ Physiology and pathophysiology of hematopoietic stem cells ・ basic and clinic on vascular neogenesis ・ treatment of ischemic heart disease ・ pathological analysis and treatment of genetic diseases ・ tissue and organ grafts in general, present status and problems of liver transplant				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	02/06	【1st grade】 4th period Hitoshi NIWA [eE-0]	Self-renewal of pluripotent stem cells		
2	02/13	4th period Hitoshi NIWA [eE-0]	Differentiation of pluripotent stem cells		
3	02/20	4th period Takaaki ITO	Growth, differentiation and morphological abnormalities of epithelial cells		
4	02/27	4th period Kimitoshi NAKAMURA	Regenerative medicine for diseases of childhood		
5	03/06	4th period Asako SHINDO	Development and homeostasis of embryonic epithelial tissues		
6	02/02	【2nd grade】 4th period Mitsuharu UEDA	Pathological analyses of hereditary amyloidosis		
7	02/09	4th period Hirofumi JONO	Development of treatment for hereditary amyloidosis		
8	02/16	4th period Satoshi FUKUSHIMA [eJ-0]	Development and regeneration of skin (recovery of injury)		
9	03/02	4th period Hitoshi TAKIZAWA	Physiology of hematopoietic stem cell		
10	03/09	4th period Hitoshi TAKIZAWA	Pathophysiology of hematopoietic stem cell		
11	02/02	【3rd grade】 4th period Keiichiro ISHIGURO	Chromosomal disorders in somatic and germ cells		
12	02/09	4th period Keiichiro ISHIGURO	Germ cells for regenerative medicine		
13	02/16	4th period Kimitoshi NAKAMURA	Pathological analysis and treatment of genetic diseases		
14	03/02	4th period Yoshihiko SUGAWARA	Present status and problems of organ transplants		
15	03/09	4th period Yoshihiko SUGAWARA	Liver grafts from brain-dead and living donor		
Estimated out-of-class study time					
Required Textbook(テキスト)					
Reading List(参考文献)					
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Grading will be based on active class participation, paper summaries, and the final report. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100. Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions.			

Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English
Course Based on Practical Work Experience(実務経験を 活かした授業)	Not applicable

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-026-79-1	2022whole year	Graduate School of Medical Sciences(22160)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Lecture "Tokuron" on Transplantation immunology(E3)			OSHIUMI Hiroyuki, IRIE Atsushi, Hibi Taizou		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・25% 2.Profound inter-disciplinary knowledge・・・25% 3.Global perspective and ability to take initiative action・・・25% 4.Social leadership drive・・・25%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint and/or OHP will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons.				
Course Goals(授業の目的)	The goals of this lecture are to understand the followings: (1) The mechanism of rejection in allo-transplantation (2) Allo-antigens that induce allo-reactivity (3) The structure and function of human major histocompatibility complex (HLA) (4) Basic immunology and clinical immuno-regulation therapy to avoid graft-rejection (5) Current status and future direction of transplantation medicine				
Course Learning goals(学修目標)	[A level (A水準)] Understanding of the mechanisms of rejection in allo-transplantation, the structures of major histocompatibility complexes and the basics in clinical immuno-regulation therapy and transplantation medicine [C level (C水準)]				
Course Outline(授業の概要)	To treat the patients, transplantation of the cells, tissues, or organs obtained from donors is broadly carried out. However, there are structural differences of proteins, lipids, and sugars between different individuals of the same species, due to genetic polymorphism. Therefore, following the transplantation of a graft obtained from an allogeneic donor, the recipient immune system is activated by such polymorphic molecules and reject the graft. Among such allogeneic antigens, MHC are the strongest in stimulating allo-reactive immune response. We will lecture on the basic and clinical immunology related to the methodology to avoid such rejection. In addition, we will provide the latest information on the issue of clinical transplantation and regenerative medicine. We will lecture on the transplantation immunology at the level of cells, tissues, and organs, from the viewpoint of both basic and clinical medicine, including recent advances in the research by the instructors.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1	10/03	Mon 4th period, Hiroyuki Oshiumi	Structure and function of HLA class I		
2	10/17	Mon 4th period, Hiroyuki Oshiumi	Structure and function of HLA class II		
3	10/24	Mon 4th period, Atsushi Irie	Polymorphism of MHC and T cell- activation signals		
4	10/31	Mon 4th period, Atsushi Irie	Recognition of alloantigens by T cells		
5	11/07	Mon 4th period, Hiroyuki Oshiumi	HLA and anti-tumor immunity		
6	11/14	Mon 4th period, Atsushi Irie	Major and minor histocompatibility antigens		
7	11/21	Mon 4th period, Atsushi Irie	Immune response and dendritic cells		
8	11/28	Mon 4th period, Atsushi Irie	Cytokine and Chemokine		
9	12/05	Mon 4th period, Hiroyuki Oshiumi	Graft versus Host reaction (GVHR)		
10	12/12	Mon 4th period, Ken Takashima	Immune tolerance		
11	12/19	Mon 4th period, Hiroyuki Oshiumi,	Host immune responses to xenografts		
12	12/26	Mon 4th period, Hiroyuki Oshiumi	Transplantation immunology and Stem cell		
13	01/16	Mon 4th period, Ken Takashima	Immunosuppressant and transplantation		
14	01/23	Mon 4th period, Taizo Hibi	Transplantation in Japan and the world		
15	01/30	Mon 4th period, Taizo Hibi	Liver transplant from living donor		
Estimated out-of-class study time					
Required Textbook(テキスト)	Textbooks are not specified, and handouts will be distributed.				
Reading List(参考文献)	・ "The Immune System" by Peter Parham. Garland Publishing Inc. New York and London, 2004 ・ "Janeway's Immunobiology Seventh Edition" by Kenneth Murphy, Paul Travers, Mark Walport. Garland Science, Taylor & Francis Group LLC. New York and Abingdon, 2008. ・ "A history of transplantation immunology" (Leslie Brent) Academic Press 1997				
Enrollment Conditions(履修条件)	It is recommended for you to read a syllabus and indicated recommended readings in advance.				
Assessment Methods and Criteria(評価方法・基準)	Achievement of the Objectives will be evaluated by active class participation and the reports of which the theme will be specified after the lectures. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of the reports and brief examinations related to the topics dealt with in the class to be scored from 0 to 100. Final grades will be based on the average of the best 10 scores of the reports and brief examinations as well as the participation in class discussions.				
Language Used in Instruction(使用言語)	Japanese and English				
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English				

語)	Combination of Japanese and English
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-027-81-1	2022whole year	Graduate School of Medical Sciences(22170)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Lecture "Tokuron" on Bioethics(E4)			KADOOKA Yasuhiro		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・25% 2.Profound inter-disciplinary knowledge・・・50% 3.Global perspective and ability to take initiative action・・・25%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	E-learning system will be provided for classes on research ethics/integrity. Classes of "Highly Advanced Medicine" and "Step-up lecture on RCR" are held in intensive courses. Several pedagogic strategies including video-lecture and e-learning will be used according to student condition and COVID-19 status.				
Course Goals(授業の目的)	This special lecture on bioethics will deal with ethical issues involved in developmental biology and regenerative medicine, which may be relevant to organ transplantation, human stem cell research, genetic research and technologies, and so on. This course is aimed to provide life science researchers with adequate knowledge and understanding concerning major bioethical issues and norms to help them conduct ethically sound researches.				
Course Learning goals(学修目標)	【A level (A水準)】 Students are able to 1. recognize a variety of issues on biomedical ethics in life sciences, highly advanced biomedical technologies and biomedical researches, and identify fundamental problems inherent in them, 2. make ethically consistent discussion basing on relevant norms of biomedical ethics, 3. express their own ethical views, and 4. comprehend academic materials in the field of biomedical ethics. 【C level (C水準)】 1. to understand ethical issues related to life sciences, highly advanced biomedical technologies and biomedical researches, and 2. to understand ethical views fundamental to biomedical ethics.				
Course Outline(授業の概要)	The course will consist of lectures concerning important bioethical issues and principles, small group discussion, and students' presentation. Participating students may be required to critically read bioethical papers and present their own arguments.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		【1st grade】 Responsible Conduct of Research (RCR) 1	eAPRIN (CITI e-learning system)		
2		RCR 2	eAPRIN (CITI e-learning system)		
3		RCR 3	eAPRIN (CITI e-learning system)		
4		RCR 4	eAPRIN (CITI e-learning system)		
5		RCR 5	eAPRIN (CITI e-learning system)		
6		【2nd grade】 Highly advanced medicine 1	Organ Transplantation		
7		Highly advanced medicine 2	Regenerative medicine		
8		Highly advanced medicine 3	Gene diagnosis and therapy		
9		Highly advanced medicine 4	Assisted reproductive technology		
10		Highly advanced medicine 5	Enhancement		
11		【3rd grade】 Step-up lecture on RCR 1	Professionalism of scientists		
12		Step-up lecture on RCR 2	Conflict of Interest		
13		Step-up lecture on RCR 3	Research Integrity		
14		Step-up lecture on RCR 4	Researchers' Social Responsibilities		
15		Step-up lecture on RCR 5	Science Communication		
Estimated out-of-class study time					
Required Textbook(テキスト)		Textbooks are not specified and handouts are provided.			
Reading List(参考文献)		The Hastings Center. Bioethics Briefings (https://www.thehastingscenter.org/publications-resources/hastings-center-bioethics-briefings/) Ravitsky V. et al. (Edition) The Penn Center Guide to Bioethics. Springer, 2009. Bonnie Steinbock (Edition) The Oxford handbook of Bioethics. Oxford University Press, 2007. Singer PA. et al (Edition) The Cambridge Textbook of Bioethics. Cambridge university Press, 2008. Carl Mitchan (Editor in Chief) Encyclopedia of Science, Technology, and Ethics. Volume 1-4, Macmillan Reference USA, Thomson/Gale, 2005. Beauchamp TL, Childress JF. Principles of Biomedical Ethics 4th edition. NY, Oxford University Press, 1994. Alastair Campbell. Bioethics the basics. Routledge, 2013. British Medical Association. Medical Ethics Today 3rd edition. London, BMJ, 2011. and so on			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Students are evaluated for their course grades and credits based on the course hours completed, their understanding and knowledge earned about information in the research for bioethics, ability of summarizing and			

Assessment Methods and Criteria(評価方法・基準)	presenting bioethical deliberation of their own themes, and so on. Grading will be based on the student's understanding of the course subjects.
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English
Course Based on Practical Work Experience(実務経験を活かした授業)	Applicable (The teacher with academic degrees of bioethics and medicine, and practical work experiences including research and education on biomedical ethics, ethical review of medical research protocols, and clinical ethics support.)

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-117-99-1	2022whole year	Graduate School of Medical Sciences(22180)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practice "Enshuu" on Developmental Biology and Regenerative Medicine I(Practice "Enshuu" on Developmental Biology and Regenerative Medicine I)			OGAWA Minetaro, NAKAO Mitsuyoshi		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……30% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……20% 4.Social leadership drive ……20%					
Type of Class(授業の形態)	Seminar				
Teaching Method(授業の方法)	PBL, group work training				
Course Goals(授業の目的)	Developmental and regenerative medicine is an extremely interdisciplinary science that involves embryology, cell biology, molecular biology, genetics, immunology, histology, reconstructive surgery, bioethics and other broad fields of biosciences. Characterizing pathological conditions and etiology and developing medical treatment for diseases from the viewpoint of developmental biology, as well as establishing regenerative medicine in an effort to repair ageing and injured tissues and organs, may need to surmount various critical problems that should be related to above interdisciplinary fields. Based on the knowledge learned in the special lectures "Tokuron", this practice intends to enhance the ability of approaching solution of problems from a multilateral perspective by advancing quest for an arbitrarily-selected issue through successive examinations of literatures and discussions.				
Course Learning goals(学修目標)	【A level (A水準)】 Students are expected to acquire the ability to approach solutions to problems from a multilateral perspective based on their knowledge in interdisciplinary fields. 【C level (C水準)】 Students are expected to acquire the ability to approach solutions to problems from a perspective based on their knowledge in the fields.				
Course Outline(授業の概要)	Students form a small group and raise an issue related to developmental and regenerative medicine. (An example of the issue might be finding a way to recover kidney function avoiding relying on dialysis treatment.) Students then find obstacles to settlement of the issue and examine literatures cooperatively with the group members and make discussions in order to explore methodology and strategy to solve the raised problems. The instructors listed above appropriately support the group work to facilitate learning. Results of the study are summarized in a report. Students will also have opportunities for the presentation of the results.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Issues will be raised by students.	Issues will be raised by students.		
Estimated out-of-class study time		60 hours			
Required Textbook(テキスト)					
Reading List(参考文献)					
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Grading will be based on active participation in the group work as well as the final report and presentation. Focus of evaluation are (i) whether problems are appropriately raised from the selected issue, (ii) whether strategies to solve the problems are appropriately presented, (iii) whether both technical and ethical aspects are considered.			
Language Used in Instruction(使用言語)		English			
Textbook/Material Language(教科書・資料の言語)		English			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-118-99-1	2022whole year	Graduate School of Medical Sciences(22190)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practice "Enshuu" on Developmental Biology and Regenerative Medicine II(Practice "Enshuu" on Developmental Biology and Regenerative Medicine II)			OGAWA Minetaro, NAKAO Mitsuyoshi		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……50% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……10% 4.Social leadership drive ……10%					
Type of Class(授業の形態)		Lecture and Seminar			
Teaching Method(授業の方法)		Students attend the seminars that are authorized by the course and write reports. The reports should include summary of the lectures and his/her own discussion about the topics. In principle, one hour seminar is suitable for one report.			
Course Goals(授業の目的)		Developmental and regenerative medicine is an interdisciplinary science that is rapidly evolving as a new field of life science. This practice consists of lectures from researchers who work on developmental biology and regenerative medicine in Japan and overseas. Researchers committed to cutting-edge research will be invited and present latest developments of their own. Students are encouraged to attend the seminars to acquire up-to-date knowledge of regenerative medicine and related fields that may not be covered in the special lectures "Tokuron".			
Course Learning goals(学修目標)		【A level (A水準)】 Students are expected to acquire competence to understand the latest research developments of regenerative medicine. 【C level (C水準)】 Students are expected to acquire competence to understand the research developments of regenerative medicine.			
Course Outline(授業の概要)		Topics of the seminars may encompass full range of issues that are related to developmental biology and regenerative medicine, including cell engineering, genetic engineering, biomedical materials, reproductive medicine and bioinformatics.			
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		the latest research developments of regenerative medicine	the latest research developments of regenerative medicine		
Estimated out-of-class study time		75 hours			
Required Textbook(テキスト)					
Reading List(参考文献)					
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Students are obligated to attend 15 or more lectures and submit reports. The attendance can be extended to four years at maximum. Grading will be based on the reports.			
Language Used in Instruction(使用言語)		English			
Textbook/Material Language(教科書・資料の言語)		English			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Course Coding(科目ナンバ－)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-119-99-1	2022whole year	Graduate School of Medical Sciences(22200)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practice "Enshuu" on Developmental Biology and Regenerative Medicine III(Practice "Enshuu" on Developmental Biology and Regenerative Medicine III)			OGAWA Minetaro, NAKAO Mitsuyoshi		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……30% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……20% 4.Social leadership drive ……20%					
Type of Class(授業の形態)	Seminar				
Teaching Method(授業の方法)	Students attend domestic or international conferences on developmental biology, regenerative medicine and other related research fields, and present findings obtained from their own research.				
Course Goals(授業の目的)	During the process of conducting research on developmental and regenerative medicine, it is necessary to present research findings and discuss with other scientists at domestic and international conferences. This practice aims at expanding capability to make a productive discussion on a subject presented by other researchers and to present and discuss own findings in an effective manner at an academic conference.				
Course Learning goals(学修目標)	【A level (A水準)】 Students are expected to acquire skills to make a productive discussion on a subject presented by other researchers and to present and discuss their own findings in an effective manner at an academic conference. 【C level (C水準)】 Students are expected to acquire skills to make a discussion on a subject presented by other researchers and to present and discuss their own findings at an academic conference.				
Course Outline(授業の概要)	Students attend domestic or international conferences on developmental biology, regenerative medicine and other related research fields. In addition to discuss on the subjects presented by other researchers, students will present findings obtained from their own research in poster or oral sessions. The instructors listed above appropriately support discussions and preparations of presentation. Students finally write a report that includes the state of achievement of the activities at the conferences.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		student's own research theme	student's own research theme		
Estimated out-of-class study time	60 hours				
Required Textbook(テキスト)					
Reading List(参考文献)					
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)	Students are obligated to attend and make a presentation in domestic or international conferences on developmental biology and regenerative medicine. Length of the activities at the conferences should be 4 days or more in sum total. Student should present their own research findings at least once in any of the conferences they attend. The attendance can be extended to four years at maximum. Grading will be based on the final report.				
Language Used in Instruction(使用言語)	English				
Textbook/Material Language(教科書・資料の言語)	English				
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable				

Course Coding(科目ナンバ－)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-120-99-1	2022whole year	Graduate School of Medical Sciences(22210)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practical Training “Jisshuu” on Developmental Biology and Regenerative Medicine(Practical Training “Jisshuu” on Developmental Biology and Regenerative Medicine)			OGAWA Minetaro, TOMIZAWA Kazuhito, SHIMAMURA Kenji, NAKANISHI Hiroyuki, Sou Bunketsu, YAMANAKA Kunitoshi, NAKAO Mitsuyoshi, NISHINAKAMURA Ryuichi		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……50% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……10% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Practice				
Teaching Method(授業の方法)	Each training course will be held in a laboratory in charge. First, the principle of a method or a technique will be lectured, then practical handling will be trained. Results and discussions must be summarized in a report.				
Course Goals(授業の目的)	Various experimental methods and techniques are applied in the field of developmental biology and regenerative medicine, which is an interdisciplinary research based on cell biology, molecular biology, immunology and histology. For researchers in the field, it is required to learn such experimental methods and techniques practically. Even for researcher outside the filed, it is important to understand a background of the experimental methods and techniques, since it gives us a multilateral viewpoint and would support to resolve various problems in specific research fields. Principles and practical procedures for several important experimental methods and techniques were trained in practical training of Developmental Biology and Regenerative Medicine.				
Course Learning goals(学修目標)	【A level (A水準)】 Students are expected to acquire competence to understand principles and practical procedures for several advanced experimental methods and to perform them by themselves. 【C level (C水準)】 Students are expected to acquire competence to understand principles and practical procedures for several general experimental methods and to perform them by themselves.				
Course Outline(授業の概要)	<ul style="list-style-type: none">Scanning electron microscopy (Brain Morphogenesis)Fractionation and isolation of cells by FACS (Cell Differentiation)Isolation of RNA/DNA and quantification by PCR (Medical Cell Biology)Operant conditioning test, Open field test, Fear-conditioning test (Molecular Physiology)Two-photon fluorescence microscopy for neurons (Sensory and Cognitive Physiology)Lipofection, Western blot (Kidney Development)Induction of protein expression in bacteria, protein purification (Molecular Cell Biology) In this course, sessions in Practical Training of Metabolism and Cardiovascular Medicine could also be selected.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Schedule of each session will be forwarded to you separately.	Contents of each session will be forwarded to you separately.		
Estimated out-of-class study time		40 hours			
Required Textbook(テキスト)					
Reading List(参考文献)					
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Students must participate in at least 8 sessions and submit reports for each session. Grading will be based on the student's understanding of the subject matter as well as activities in the classes. The students' understanding will be evaluated on the basis of reports to be scored from 0 to 100 for each session. Final grades will be based on the average of the top 8 scores.			
Language Used in Instruction(使用言語)		English			
Textbook/Material Language(教科書・資料の言語)		English			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Educational Program for Advanced
Research in Infectious
Diseases and AIDS

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-004-99-2	2022whole year	Graduate School of Medical Sciences(25580)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Lecture I on Infectious Diseases and AIDS(B4 Infection and Immune Control)			SATO Yorifumi, Kuwata Takeo, IKEDA Masanori, KUBOTA Ryuji, OKADA Seiji, OSHIUMI Hiroyuki, MATSUI Hirotaka, MOTOZONO Chihiro, MATSUOKA Masao, SAWA Tomohiro, MAEDA Yousuke, SUZU Shinya, NAKATA Hirotomo, IKEDA Terumasa, TANAKA Yasuhito		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……30% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……20% 4.Social leadership drive ……20%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons. (Before starting this course students will be informed of the individual lecture style of instructors in detail.)				
Course Goals(授業の目的)	The aim of this lecture series “Special Lecture I on Infectious Diseases and AIDS” is to learn following topics important for basic and clinical research of infectious diseases: (1) interaction between pathogen and host response, (2) molecular pathogenesis of viral infection, (3) immune control and vaccine research, (4) management of nosocomial/opportunistic infection, (5) diagnosis and treatment of emerging/re-emerging infectious diseases, (6) pathogenesis and treatment of infectious diseases.				
Course Learning goals(学修目標)	【A level (A水準)】 Students will learn following topics important for basic and clinical research of infectious diseases. Students will learn following topics important for basic and clinical research of infectious diseases. (1) interaction between pathogen and host response,(2) molecular pathogenesis of viral infection, (3) immune control and vaccine research, (4) management of nosocomial/opportunistic infection, (5) diagnosis and treatment of emerging/re-emerging infectious diseases, (6) Pathogenesis and treatment of HIV-1 infection. 【C level (C水準)】 Understanding for the following points. (1) interaction between pathogen and host response (2) molecular pathogenesis of viral infection (3) immune control and vaccine research (4) management of nosocomial/opportunistic infection (5) diagnosis and treatment of emerging/re-emerging infectious diseases (6) Pathogenesis and treatment of HIV-1 infection				
Course Outline(授業の概要)	The course addresses the introduction (bacteriology, virology) and particulars of various pathogenic organisms (including gram-positive and negative bacteria, a DNA or RNA viruses) focusing on topics of pathogenesis, control and prevention of infectious diseases and emerging and reemerging infectious diseases. The course addresses protective immunity of host against infectious diseases including HIV-1 infection. Especially, recent topics such as the mechanism of T-cell recognition of the viral antigens, differentiation of immune cells from hematopoietic stem cells and the strategy for the development of effective vaccine against HIV-1 infection will be discussed.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Terumasa Ikeda [eE-O] 16:45~18:15	Retrovirus life cycle		
2		Tomohiro Sawa [eE-O] 16:45~18:15	Bacterial infection and pathogenesis		
3		Hiroyuki Oshiumi [eE-O] 16:45~18:15	Innate immune responses to pathogens		
4		Chihiro Motozono [eE-O] 16:45~18:15	Cellular immune responses to pathogens		
5		Takeo Kuwata [eE-O] 16:45~18:15	Humoral immune responses to pathogens		
6		Yosuke Maeda [eE-O] 16:45~18:15	Pathogenesis of Mycobacterium tuberculosis and HIV confection		
7		Masao Matsuoka [eE-O] 16:45~18:15	Emerging/re-emerging infectious diseases		
8		Shinya Suzu [eE-O] 16:45~18:15	Retroviruses-host interaction		
9		Yorifumi Sato [eE-O] 16:45~18:15	Retroviral infections and latency		
10		Masanori Ikeda [eE-O] 16:45~18:15	Molecular pathogenesis of hepatitis viruses		
11		Yasuhito Tanaka [eE-O] 16:45~18:15	Hepatitis viruses and Liver cancer		
12		Ryuji Kubota [eE-O] 16:45~18:15	Virus-induced neurological diseases		
13		Seiji Okada [eE-O] 16:45~18:15	Animal model research in infectious diseases		
14		Hirotaka Matsui [eE-O] 16:45~18:15	Roles of laboratory medicine for infectious diseases		

15		Hiroto mo Nakata [eE-O] 16:45~18:15	Nosocomial/opportunistic infection
Estimated out-of-class study time	· This course consists of content that requires hours (90 hours) of study. Since the class is 30 hours (2h x 15 frames) , 60 hours of pre- and post-study (including assignments) is necessary to understand the class. It is necessary to deepen.		
Required Textbook(テキスト)	Textbooks are not specified, and handouts will be distributed.		
Reading List(参考文献)	“Atlas of AIDS” edited by Gerald L. Mandell and Donna Mildvan. Current Medicine, Inc. Philadelphia, 2001. “Infectious Diseases and Medical Microbiology” 2nd Edition, Abraham I. Braude et al., W.B. Saunders Company		
Enrollment Conditions(履修条件)	Have basic knowledge concerning what is taught in this course.		
Assessment Methods and Criteria(評価方法・基準)	This class consisted of a series of omnibus lectures by 15 lecturers as listed in the schedule. Evaluation will be done based on active class participation, examination test and/or report for subjects by each lecturer. In order to get credits students have to take more than 2/3 lectures. Grading will be based on the average of top 10 scores among ones obtained by the student.		
Language Used in Instruction(使用言語)	English		
Textbook/Material Language(教科書・資料の言語)	English		
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable		

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-028-81-1	2022whole year	Graduate School of Medical Sciences(25590)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Lecture II on Infectious Diseases and AIDS(Special Lecture II on Infectious Diseases and AIDS (F2))			UENO Takamasa, MATSUSHITA Shuzo, Oka Shinichi, Gatanaga Hiroyuki, Matano Tetsuro, Tachikawa Ai, Maeda Kenji, Shingo Nakahata, Takushi Nomura, Kaneko Noriyo, Sugiura Wataru		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……25% 2.Profound inter-disciplinary knowledge ……35% 3.Global perspective and ability to take initiative action ……35% 4.Social leadership drive ……5%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	PowerPoint will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons. (Before starting this course students will be informed of the individual lecture style of instructors in detail.)				
Course Goals(授業の目的)	The aim of this lecture series “Special Lecture II on Infectious Diseases and AIDS” is to learn following topics important for clinical, epidemiological and social science research of infectious diseases: (1) diagnosis and treatment of infections, (2) pathogenesis and complications in infectious diseases, (3) principles in medical statistics, (4) Surveillance and epidemiology in infections at domestic and global levels, (5) prevention of transmission and educational approaches to high risk groups, (6) antiviral drugs and viral resistance to drugs.				
Course Learning goals(学修目標)	【A level (A水準)】 Students will learn following topics important for clinical, epidemiological and social science research of infectious diseases: (1) diagnosis and treatment of infections, (2) pathogenesis and complications in infectious diseases, (3) principles in medical statistics, (4) Surveillance and epidemiology in infections at domestic and global levels, (5) prevention of transmission and educational approaches to high risk groups, (6) antiviral drugs and viral resistance to drugs. 【C level (C水準)】 Students will learn following topics important for clinical, epidemiological and social science research of infectious diseases: (1) diagnosis and treatment of infections, (2) pathogenesis and complications in infectious diseases, (3) principles in medical statistics, (4) Surveillance and epidemiology in infections at domestic and global levels, (5) prevention of transmission and educational approaches to high risk groups, (6) antiviral drugs and viral resistance to drugs.				
Course Outline(授業の概要)	It would not be an overstatement if we say the history of mankind has been a long history of fight against infectious diseases. Researches on infectious diseases have been contributed enormously to the health and longevity of the life in developed nations at present. Development of diagnosis and treatment strategy against infectious diseases, management of comorbidities and complication, surveillance of infections, understanding epidemics provided a big impact to our society. These accomplishments have been made possible by accumulation and collaboration of research studies in clinical sciences, epidemiology, and social sciences. The up-to-date research results including the lecturers’ own experiences will be presented. In addition, students are expected to learn principles of statistical approaches in medical sciences.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Shuzo Matsushita 【eE-0】	Overview in Clinical aspect of infectious diseases		
2		Shuzo Matsushita 【eE-0】	Natural course and diagnosis of infectious diseases		
3		Shinichi Oka 【eE-0】	Symptoms of HIV infection and AIDS		
4		Shinichi Oka 【eE-0】	Management of comorbidities and complication in HIV infection		
5		Hiroyuki Gatanaga 【eE-0】	Diagnosis and treatment of HIV infection		
6		Hiroyuki Gatanaga 【eE-0】	Clinical pharmacology and long-term toxicity of antiviral agents		
7		Noriyo Kaneko 【eE-0】	Social Aspects of HIV/AIDS		
8		Noriyo Kaneko 【eE-0】	HIV Prevention for high risk population		
9		Wataru Sugiura 【eE-0】	Current issues in global infections		
10		Wataru Sugiura 【eE-0】	Genomics in Infectious diseases		
11		Ai Tachikawa 【eE-0】	Novel approaches in immunotherapy		
12		Tetsuro Matano 【eE-0】	Vaccine-based control of infectious diseases		
13		Kenji Maeda 【eE-0】	Development of antiviral therapy against viral infection		
14		Shingo Nakahata 【eE-0】	Oncology in the area of viral infectious diseases		
15		Takushi Nomura 【eE-0】	Animal models for control of infectious diseases		
Estimated out-of-class study time	This course consists of content that requires 90 hours of study. Since the class is 30 hours long, the equivalent of 60 hours of prior and post-course study is required.				
Required Textbook(テキスト)	Textbooks are not specified, and handouts will be distributed.				
Reading List(参考文献)	“AIDS info Web site; http://AIDSinfo.nih.gov . Atlas of AIDS 3rd edition; Current Medicine, Inc.,2001. (edited by G,L.Mandelland D.Mildvan.) Harrison’ s principles of internal medicine 16th ed.				
Enrollment Conditions(履修条件)					
Assessment Methods and	Evaluation will be done based on active class participation, examination test and/or report for subjects by each				

Criteria(評価方法・基準)	lecturer. In order to get credits students have to take more than 2/3 lectures. Grading will be based on the average of top 5 scores among ones obtained by the student.
Textbook/Material Language(教科書・資料の言語)	English
Course Based on Practical Work Experience(実務経験を 活かした授業)	Not applicable

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-158-82-1	2022whole year	Graduate School of Medical Sciences(25600)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Training I on Infectious Diseases and AIDS(Practice I on Infectious Diseases and AIDS)			SUZU Shinya, MATSUOKA Masao		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……25% 2.Profound inter-disciplinary knowledge ……40% 3.Global perspective and ability to take initiative action ……25% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Training				
Teaching Method(授業の方法)	Attend a 1-week training course as an observer, and lectures related to the diagnosis of infectious diseases, at Kumamoto University Hospital				
Course Goals(授業の目的)	It is very important for basic researchers to know actual clinical practice. Especially on the infectious diseases field to see the advance of treatment allows their research motivations upward. The aim of this course is to visit clinic and see patients with infectious diseases.				
Course Learning goals(学修目標)	【A level (A水準)】 Students can learn importance of feedback of basic research outputs to clinics. 【C level (C水準)】				
Course Outline(授業の概要)	Attend a 1-week training course as an observer, that includes lectures on the following topics: 1. Introduction to Infectious Diseases 2. Overview on opportunistic infections 3. Patient support 4. Outpatient clinic and ward building tours 5. Clinical conference				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		July 8 - July12 1. Introduction to Infectious Diseases 2. Overview on opportunistic infections 3. Patient support 4. Outpatient clinic and ward building tour 5. Clinical conference	Attend practical training courses (as an observer) and lectures		
Estimated out-of-class study time					
Required Textbook(テキスト)		Nothing in particular			
Reading List(参考文献)		Nothing in particular			
Enrollment Conditions(履修条件)		Japanese Medical License holders will be allowed to see patients. Those that do not have a license, will focus on lectures, tours and rounds			
Assessment Methods and Criteria(評価方法・基準)		Evaluation will be performed considering active participation and contribution during the course, in addition to the report			
Language Used in Instruction(使用言語)		Japanese and English			
Textbook/Material Language(教科書・資料の言語)		Combination of Japanese and English			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-159-82-1	2022whole year	Graduate School of Medical Sciences(25610)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Training II on Infectious Diseases and AIDS(Training II on Infectious Diseases and AIDS)			SUZU Shinya, Oka Shinichi, Gatanaga Hiroyuki		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……25% 2.Profound inter-disciplinary knowledge ……40% 3.Global perspective and ability to take initiative action ……25% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Training				
Teaching Method(授業の方法)	Attend a 1-week training course on HIV clinical practice, the as an observer, at the Center Hospital of the National Center for Global Health and Medicine				
Course Goals(授業の目的)	It is very important for basic researchers to know actual clinical practice. Especially on the HIV/AIDS field to see the advance of treatment allows their research motivations upward. The aim of this course is to visit HIV/AIDS clinic and see patients with HIV infection.				
Course Learning goals(学修目標)	【A level (A水準)】 Students can learn importance of feedback of basic research outputs to clinics. 【C level (C水準)】				
Course Outline(授業の概要)	During the 1-week course, you also receive lectures below. 1. HIV review 2. Opportunistic infections associated with HIV infection 3. Patient support 4. Meeting for out-patients 5. Meeting for in-patients				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		1. Introduction to HIV infection 2. Overview on opportunistic infections 3. Patient support 4. Outpatient clinic and ward building tours 5. Clinical conference	Attend practical training courses (as an observer) and lectures		
Estimated out-of-class study time					
Required Textbook(テキスト)		Nothing in particular			
Reading List(参考文献)		Nothing in particular			
Enrollment Conditions(履修条件)		Only Japanese Medical License holders			
Assessment Methods and Criteria(評価方法・基準)		Evaluation will be performed considering active participation and contribution during the course, in addition to the report.			
Language Used in Instruction(使用言語)		Japanese			
Textbook/Material Language(教科書・資料の言語)		Japanese			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-160-79-1	2022whole year	Graduate School of Medical Sciences(25620)	1, 2, 3, 4	8	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practice I on Infectious Diseases and AIDS(Practice I on Infectious Diseases and AIDS)			UENO Takamasa, Oka Shinichi, Gatanaga Hiroyuki, Matano Tetsuro, Tachikawa Ai, Maeda Kenji, OKADA Seiji, SATO Yorifumi, OSHIUMI Hiroyuki, MATSUI Hirotaka, MATSUOKA Masao, SAWA Tomohiro, SUZU Shinya, IKEDA Terumasa, TANAKA Yasuhito		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……40% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……30%					
Type of Class(授業の形態)		Practice			
Teaching Method(授業の方法)		Journal club			
Course Goals(授業の目的)		Students will participate in a journal club held in each laboratory listed above to critically evaluate recent articles in scientific literature (written in English). Students will be given opportunities to present and discuss the latest findings in the form of a journal review.			
Course Learning goals(学修目標)		【A level (A水準)】 Students will get the ability to critically evaluate recent articles also by having opportunity to present articles related to their research 【C level (C水準)】 Students will get the ability to critically evaluate recent articles also by having opportunity to present articles related to their research			
Course Outline(授業の概要)		The format of each journal club may vary. Students are expected to follow the guidelines set forth by each laboratory.			
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Acquire knowledge related to own research topic	Acquire knowledge related to research topic during the reading meetings		
Estimated out-of-class study time		This course consists of content that requires 360 hours of study. Since the class is 240 hours long, the equivalent of 120 hours of prior and post-course study is required.			
Required Textbook(テキスト)		Nothing in particular			
Reading List(参考文献)		Nothing in particular			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Grades will be determined based on active participation and understanding of journal club materials			
Language Used in Instruction(使用言語)		English			
Textbook/Material Language(教科書・資料の言語)		English			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-161-79-1	2022whole year	Graduate School of Medical Sciences(25630)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practice II on Infectious Diseases and AIDS(Practice II on Infectious Diseases and AIDS)			OKADA Seiji		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……30% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……30% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Seminar				
Teaching Method(授業の方法)	Gain insight on the latest progress in the research of infectious diseases and AIDS, by attending the International Symposium "Kumamoto AIDS Seminar"				
Course Goals(授業の目的)	1. Learn about the latest progress by listening to the presentations of leading foreign and Japanese researchers in realted fields 2. Learn about presentation techniques, by presenting your own work in the form of a poster or oral presentation 3. Learn about discussion techiniques, by actively participating in poster or oral presentations				
Course Learning goals(学修目標)	【A level (A水準)】 1. To be able to understand the latest advance in the research of infectious diseases and AIDS, and to be able to further discuss on the topic 2. Learn how to clearly explain the content of your research project to others, and to establish a scientific discussion 【C level (C水準)】 Understand the contents of invited lecture and summarize the point of lecture.				
Course Outline(授業の概要)	Learn about global status of infectious diseases by joining Kumamoto AIDS seminar. Also, learn about discussion skill by making presentation in the international seminar.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		The 22th Kumamoto AIDS seminar	Learn about global status of infectious diseases by joining Kumamoto AIDS seminar. Also, learn about discussion skill by making presentation in the international seminar.		
Estimated out-of-class study time		Pre-study is needed for better understanding the invited lectures. Carefully Read the " Abstract book" in advance.			
Required Textbook(テキスト)		Abstract book of Kumamoto AIDS seminar			
Reading List(参考文献)		NONE			
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Evaluation will be done by reports about presentation. The report contains abstract of the presentation, Q & A, and discussion. Students should submit the report within 2 weels after the seminar.			
Language Used in Instruction(使用言語)		English			
Textbook/Material Language(教科書・資料の言語)		English			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-162-79-1	2022whole year	Graduate School of Medical Sciences(25640)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practice III on Infectious Diseases and AIDS(Practice III on Infectious Diseases and AIDS (WYIS))			IKEDA Terumasa, SATO Yorifumi, UENO Takamasa		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……40% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……30%					
Type of Class(授業の形態)	Practice				
Teaching Method(授業の方法)	Attend the Weely Young Investigator Seminar (WYIS) which involves across laboratories, ask questions and perform presentations related to your research.				
Course Goals(授業の目的)	Gain skills and experience in making presentations and conducting scientific discussions, by attending the Weekly Young Investigator Seminar (WYIS)				
Course Learning goals(学修目標)	【A level (A水準)】 Improve skills and techniques in making presentations and conducting scientific discussions, by attending the Weekly Young Investigator Seminar (WYIS) 【C level (C水準)】 Improve skills and techniques in making presentations and conducting scientific discussions, by attending the Weekly Young Investigator Seminar (WYIS)				
Course Outline(授業の概要)	Presentations in English (15minutes) and debates (15 minutes) will be conducted, in relation to research topics (including introduction, data interpretation, significance and discussion)				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Conduct research presentations and discussion at the WYIS seminar	Research presentations and scientific discussion by each student		
Estimated out-of-class study time		This course consists of content that requires 90 hours of study. Since the class is 60 hours long, the equivalent of 30 hours of prior and post-course study is required.			
Required Textbook(テキスト)					
Reading List(参考文献)					
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Evaluation will be performed based on attendance, active participation, frequency with which students ask questions, content of research presentations, technical improvement. 15 or attendances, and 2 or more presentations are required			
Language Used in Instruction(使用言語)		English			
Textbook/Material Language(教科書・資料の言語)		English			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Course Coding(科目ナンバ－)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-163-79-1	2022whole year	Graduate School of Medical Sciences(25650)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practice IV on Infectious Diseases and AIDS(Practice IV on Infectious Diseases and AIDS)			SUZU Shinya		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……40% 2.Profound inter-disciplinary knowledge ……40% 3.Global perspective and ability to take initiative action ……10% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Seminar				
Teaching Method(授業の方法)	By taking seminars presented by invited qualified speakers.				
Course Goals(授業の目的)	Learn about the latest progress in the fields of Infectious Diseases, Medicine and Life Sciences, from external lecturers.				
Course Learning goals(学修目標)	[A level (A水準)] Students are expected to be exposed by current research topics in vrious fields of research topics, across from infectious diseases and other basic and clinical medicine, as well as life sciences. [C level (C水準)]				
Course Outline(授業の概要)	Students can take “D1 Medical and Life Science Seminar” and “D2 Learning from Experienced Doctor” or occasional seminar presented by invited speakers and Invited Speaker Seminar Series hosted by the Program instructors or by instructors’ laboratories.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		informed accordingly	informed accordingly		
Estimated out-of-class study time					
Required Textbook(テキスト)		Nothing in particular			
Reading List(参考文献)		Nothing in particular			
Enrollment Conditions(履修条件)		Nothing in particular			
Assessment Methods and Criteria(評価方法・基準)		Students are required to attend more than 15 lectures/seminars before completion of the Thesis research. Also, students are required to submit essays/reports based on all lectures attended.			
Language Used in Instruction(使用言語)		English			
Textbook/Material Language(教科書・資料の言語)		English			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Course Coding(科目ナンバ－)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-603-79-2	2022whole year	Graduate School of Medical Sciences(25660)	1, 2, 3, 4	10	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Research on Infectious Diseases and AIDS(Research on Infectious Diseases and AIDS)			UENO Takamasa, Oka Shinichi, Gatanaga Hiroyuki, Matano Tetsuro, Tachikawa Ai, OKADA Seiji, SATO Yorifumi, OSHIUMI Hiroyuki, MATSUI Hirotaka, MATSUOKA Masao, SAWA Tomohiro, SUZU Shinya, IKEDA Terumasa, TANAKA Yasuhito		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability・・・80% 3.Global perspective and ability to take initiative action・・・20%					
Type of Class(授業の形態)	Other				
Teaching Method(授業の方法)	Research at each laboratory and thesis preparation				
Course Goals(授業の目的)	Thesis preparation; students will report their research progress to their research mentor and interim review committee, and receive their comments/advices for further research progress.				
Course Learning goals(学修目標)	【A level (A水準)】 Students will perform research and prepare their thesis based on results obtained. Students will also present their research results at domestic/international conference(s) and publish their results in academic journal(s) as scientific paper(s). 【C level (C水準)】 Students will perform research and prepare their thesis based on results obtained. Students will also present their research results at domestic/international conference(s) and publish their results in academic journal(s) as scientific paper(s).				
Course Outline(授業の概要)	Students will perform research at their laboratory and prepare their thesis. Students will also have an interim interview, and receive the comments/advices for further research progress, and present their research results at domestic/international conference(s).				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Research and thesis preparation	Research on Infectious Diseases and AIDS		
Estimated out-of-class study time	This course consists of content that requires 300 hours of study. Since the class is 240 hours long, the equivalent of 60 hours of prior and post-course study is required.				
Required Textbook(テキスト)	Nothing in particular				
Reading List(参考文献)	Nothing in particular				
Enrollment Conditions(履修条件)	By the beginning of third year, students will have an interim interview, the committee of which consists of 3 members, and receive the comments/advices for further research progress.				
Assessment Methods and Criteria(評価方法・基準)	Grade will be assessed based on their research, preparation of thesis and scientific paper, report of research progress at interim interview, and presentation of research results at domestic/international conference(s).				
Language Used in Instruction(使用言語)	English				
Textbook/Material Language(教科書・資料の言語)	English				
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable				

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-604-79-2	2022whole year	Graduate School of Medical Sciences(25670)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Research I on Infectious Diseases and AIDS(pecial Research I on Infectious Diseases and AIDS)			UENO Takamasa, Oka Shinichi, Gatanaga Hiroyuki, Matano Tetsuro, Tachikawa Ai, OKADA Seiji, SATO Yorifumi, OSHIUMI Hiroyuki, MATSUI Hirotaka, MATSUOKA Masao, SAWA Tomohiro, SUZU Shinya, IKEDA Terumasa, TANAKA Yasuhito		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……50% 3.Global perspective and ability to take initiative action ……50%					
Type of Class(授業の形態)	Other				
Teaching Method(授業の方法)	Research and training activities at advanced research facilities in developed countries or medical facilities in developing countries for 6 weeks or longer				
Course Goals(授業の目的)	High quality research and fostering of world-class researchers through the research and training activities at advanced research facilities in developed countries or medical facilities in developing countries				
Course Learning goals(学修目標)	【A level (A水準)】 High quality research and cultivation of students as future world-class researchers through the research and training activities at advanced research facilities in developed countries or medical facilities in developing countries 【C level (C水準)】 High quality research and cultivation of students as future world-class researchers through the research and training activities at advanced research facilities in developed countries or medical facilities in developing countries				
Course Outline(授業の概要)	Research and training activities at advanced research facilities in developed countries or medical facilities in developing countries for 6 weeks or longer				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Research and training abroad for 6 weeks or longer	Research and training abroad		
Estimated out-of-class study time	This course consists of content that requires 60 hours of study. Since the class is 48 hours long, the equivalent of 12 hours of prior and post-course study is required.				
Required Textbook(テキスト)	Nothing in particular				
Reading List(参考文献)	Nothing in particular				
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)	Grades will be assessed based on research/training plans and reports after the research/training abroad				
Language Used in Instruction(使用言語)	English				
Textbook/Material Language(教科書・資料の言語)	English				
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable				

Course Coding(科目ナンバ－)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-605-79-2	2022whole year	Graduate School of Medical Sciences(25680)	1, 2, 3, 4	4	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Research II on Infectious Diseases and AIDS(Special Research II on Infectious Diseases and AIDS)			UENO Takamasa, Oka Shinichi, Gatanaga Hiroyuki, Matano Tetsuro, Tachikawa Ai, OKADA Seiji, SATO Yorifumi, OSHIUMI Hiroyuki, MATSUI Hirotaka, MATSUOKA Masao, SAWA Tomohiro, SUZU Shinya, IKEDA Terumasa, TANAKA Yasuhito		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……50% 3.Global perspective and ability to take initiative action ……50%					
Type of Class(授業の形態)	Other				
Teaching Method(授業の方法)	Research and training activities at advanced research facilities in developed countries or medical facilities in developing countries for 4 months or longer				
Course Goals(授業の目的)	High quality research and fostering of world-class researchers through the research and training activities at advanced research facilities in developed countries or medical facilities in developing countries				
Course Learning goals(学修目標)	【A level (A水準)】 High quality research and cultivation of students as future world-class researchers through the research and training activities at advanced research facilities in developed countries or medical facilities in developing countries 【C level (C水準)】 High quality research and cultivation of students as future world-class researchers through the research and training activities at advanced research facilities in developed countries or medical facilities in developing countries				
Course Outline(授業の概要)	Research and training activities at advanced research facilities in developed countries or medical facilities in developing countries for 4 months or longer				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Research and training abroad for 4 months or longer	Research and training abroad		
Estimated out-of-class study time	This course consists of content that requires 180 hours of study. Since the class is 120 hours long, the equivalent of 60 hours of prior and post-course study is required.				
Required Textbook(テキスト)	Nothing in particular				
Reading List(参考文献)	Nothing in particular				
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)	Grades will be assessed based on research/training plans and reports after the research/training abroad				
Language Used in Instruction(使用言語)	English				
Textbook/Material Language(教科書・資料の言語)	English				
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable				

Endocrinology and Metabolism Course

Course Coding(科目ナンバ－)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-122-82-0	2022whole year	Graduate School of Medical Sciences(22250)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practical Training of Metabolic Medicine()			Oike Yuuichi, Katou Takahiko, YAMAGATA Kazuya, MATSUI Hirotaka, SAWA Tomohiro, KOMOHARA Yoshihiro, TSUJITA Kenichi, MOROISHI Toshiro		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……30% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……30% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Practice				
Teaching Method(授業の方法)	Each training course will be held in a laboratory in charge. First, the principle of a method or a technique will be lectured, then practical handling will be trained. Results, which will be discussed, must be summarized in a report.				
Course Goals(授業の目的)	Various experimental methods and techniques are applied in the field of Metabolism and Cardiovascular Medicine, which is an interdisciplinary research based on epidemiology, internal medicine, pathology, pharmacology, histology and cell biology. For researchers in the field, it is required to learn such experimental methods and techniques practically. Even for researcher outside the filed, it is important to understand a background of the experimental methods and techniques, since it gives us a multilateral viewpoint and would support to resolve various problems in spesific research fields. Principles and practical procedures for several important experimental methods and techniques were trained in practical training of Metabolism and Cardiovascular Medicine.				
Course Learning goals(学修目標)	【A level (A水準)】 Principles and practical procedures for several important experimental methods and techniques were trained in practical training of Metabolism and Cardiovascular Medicine. 【C level (C水準)】				
Course Outline(授業の概要)	Following methods and techniques are trained: ・ Introduction of epidemiology: Epidemiological and statistical analysis (Public Health) ・ Introduction of metabolic analysis: Method of analyzing metabolic disease (Molecular Laboratory Medicine) ・ Metabolic analysis 1: Analyzing intracellular signal transduction in response to metabolic changes (Cell Signaling and Metabolic Medicine) ・ Metabolic analysis 2: Measurements of insulin by ELISA (Medical Biochemistry) ・ Metabolic analysis 3: Whole body metabolism, CT (Molecular Genetics) ・ Metabolic analysis 4: Cardiovascular disease model (Cardiovascular Medicine) ・ Histological analysis: Histopathology, Immunohistochemistry (Cell Pathology) ・ Oxidative stress analysis: Measurements of reactive oxygen species (Microbiology) In this course, sessions in Practical training of Developmental Biology and Regenerative Medicine also could be selected.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Introduction of epidemiology	Epidemiological and statistical analysis (Public Health)		
2		Introduction of metabolic analysis	Method of analyzing metabolic disease (Molecular Laboratory Medicine)		
3		Metabolic analysis 1	Analyzing intracellular signal transduction in response to metabolic changes(Cell Signaling and Metabolic Medicine)		
4		Metabolic analysis 2	Measurements of insulin by ELISA (Medical Biochemistry)		
5		Metabolic analysis 3	Whole body metabolism, CT (Molecular Genetics)		
6		Metabolic analysis 4	Cardiovascular disease model (Cardiovascular Medicine)		
7		Histological analysis	Histopathology, Immunohistochemistry (Cell Pathology)		
8		Oxidative stress analysis	Measurement of oxidative stress and inflammatory markers (Microbiology)		
Estimated out-of-class study time					
Required Textbook(テキスト)		Textbooks are not specified, and handouts for each practice will be distributed.			
Reading List(参考文献)					
Enrollment Conditions(履修条件)					
Assessment Methods and Criteria(評価方法・基準)		Grading will be based on active class participation and discuttion and the final report. In the report, results and comments concerning at least 8 sessions could be summarized in one or two A4 sheets.			
Language Used in Instruction(使用言語)		Japanese and English			
Textbook/Material Language(教科書・資料の言語)		Combination of Japanese and English			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			

Educational Program for
extension of healthy life
expectancy

Course Coding(科目ナンバ-)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RMD7-164-79-2	2022whole year	Graduate School of Medical Sciences(25790)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Lecture I on CMHA(G1 Special Lecture I on CMHA)			MOROISHI Toshiro, Katou Takahiko, MIURA Kyoko, TOMIZAWA Kazuhito, IWAMOTO Kazuya, YAMAGATA Kazuya, Sou Bunketsu, BABA Hideo, ONO Yusuke, ARAKI Eiichi, INOUE Toshihiro, TAKIZAWA Hitoshi		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……30% 2.Profound inter-disciplinary knowledge ……40% 3.Global perspective and ability to take initiative action ……25% 4.Social leadership drive ……5%					
Type of Class(授業の形態)	Lecture				
Teaching Method(授業の方法)	By taking advantage of repeated learning and attendance from remote locations, lectures will be conducted by e-learning. Students will take a video class, and ask questions they may have after the class. Students will check for comprehension by submitting a report related to the lecture, or by answering questions presented at the end of the lecture.				
Course Goals(授業の目的)	With a rapidly aging global population due to increased life expectancy, it is medically and socially required to bring the healthy life expectancy (=the period during which one can live a healthy life without disturbing daily life) as close as possible to the limit life expectancy. In order to extend healthy life expectancy, we need to elucidate the basic mechanism of aging in humans and develop methods to prevent and treat aging-related diseases (e.g., diabetes, heart failure, cancer, dementia). By taking this class, students are encourage to gain a basic knowledge of aging and aging-related disorders in a wide range of research fields, including the physiology of aging, the pathogenic basis of aging-related diseases, epidemiology, therapeutic strategies, and social medicine.				
Course Learning goals(学修目標)	【A level (A水準)】 The following aims have been excellently achieved. (1) To acquire a basic knowledge of aging and aging-related disorders, including the physiology of aging, the pathogenic basis of aging-related diseases, epidemiology, therapeutic strategies, and social medicine. (2) To discuss the latest academic research on aging and healthy longevity. 【C level (C水準)】 The following aims have been acceptably achieved. (1) To acquire a basic knowledge of aging and aging-related disorders, including the physiology of aging, the pathogenic basis of aging-related diseases, epidemiology, therapeutic strategies, and social medicine. (2) To discuss the latest academic research on aging and healthy longevity.				
Course Outline(授業の概要)	Students will learn about the physiology of aging as well as aging-related diseases (including pathophysiology, prevention and treatment methods). In addition, students will deepen their understanding of latest academic research on aging and healthy longevity through omnibus-style lectures provided by the faculty members in CMHRA (including all research division: Metabolic and Cardiovascular Research / Cancer and Stem Cell Research / Nervous System, Sensory, and Locomotive Research / Animal Models of Aging Research / Epidemiological Research).				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		10/7 (Fri) 4th MIURA Kyoko 【eE-0】	The biology of aging		
2		10/14 (Fri) 4th YAMAGATA Kazuya 【eE-0】	Regulation of glucose metabolism by insulin		
3		10/21 (Fri) 4th YAMAGATA Kazuya 【eE-0】	Molecular mechanism of type 2 diabetes		
4		10/28 (Fri) 4th YAMAGATA Kazuya 【eE-0】	Monogenic form of diabetes mellitus		
5		11/4 (Fri) 4th ARAKI Eiichi 【eE-0】	To achieve healthy longevity -Learn about diabetic complications and their therapeutic approaches-		
6		11/11 (Fri) 4th BABA Hideo 【eE-0】	Diagnosis and treatment for gastroenterological cancer		
7		11/18 (Fri) 4th MOROISHI Toshiro 【eE-0】	Cellular signaling pathways in aging and cancer		
8		11/25 (Fri) 4th TAKIZAWA Hitoshi 【eE-0】	Inflamm-aging of blood system		
9		12/2 (Fri) 4th TOMIZAWA Kazuhito 【eE-0】	RNA modifications and disease onset		
10		12/9 (Fri) 4th SONG Wen-Jie 【eE-0】	Learning and memory		
11		12/16 (Fri) 4th IWAMOTO Kazuya 【eE-0】	Aging-related epigenetic changes and psychiatric disorders		
12		12/23 (Fri) 4th INOUE Toshihiro 【eE-0】	Glaucoma that threatens healthful longevity		
13		1/6 (Fri) 4th ONO Yusuke 【eE-0】	Age-related changes in skeletal muscle and sarcopenia		
14		1/13 (Fri) 4th KATOH Takahiko 【eE-0】	Concepts of social medicine		
15		1/20 (Fri) 4th KATOH Takahiko 【eE-0】	Introduction to epidemiology		
Estimated out-of-class study time	This course consists of content that requires 90 hours of study. Since the lesson is 30 hours (2 hours x 15 frames), 60 hours of pre- and post-study (including reports) is required to deepen the understanding of the lesson.				
Required Textbook(テキスト)	No particular textbook. Materials summarizing the points of the lecture will be distributed.				
Reading List(参考文献)	Biology of Aging (2nd Edition, by Roger B. McDonald) ISBN 9780815345671 The Biology of Senescence: A Translational Approach (by Bernard Swynghedauw) ISBN 9783030151102				
Enrollment Conditions(履修)	Have basic knowledge concerning what is taught in this course.				

条件)	Have basic knowledge concerning what is taught in this course.
Assessment Methods and Criteria(評価方法・基準)	This class consisted of a series of omnibus lectures by 15 lecturers as listed in the schedule. Evaluation will be done based on active class participation, examination test and/or report for subjects by each lecturer. In order to get credits students have to take more than 2/3 lectures. Grading will be based on the average of top 10 scores among ones obtained by the student.
Language Used in Instruction(使用言語)	English
Textbook/Material Language(教科書・資料の言語)	English
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RMD7-165-79-2	2022whole year	Graduate School of Medical Sciences(25800)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Lecture II on CMHA(G2 Special Lecture II on CMHA)			MIURA Kyoko, IWAMOTO Kazuya, YAMAGATA Kazuya, Sou Bunketsu, ARAKI Kimi, KOMOHARA Yoshihiro, KADOMATSU Tsuyoshi, Lu Xi, MOROISHI Toshiro, Morishima Tatuya, SADA Aiko, Chujyo Takeshi, FUJIMAKI Shin		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……35% 2.Profound inter-disciplinary knowledge ……35% 3.Global perspective and ability to take initiative action ……20% 4.Social leadership drive ……10%					
Type of Class(授業の形態)		Lecture and Seminar			
Teaching Method(授業の方法)		All classes will be held remotely using Zoom. The instructor in charge will upload the paper to Moodle in advance. The student in charge of each class will give a presentation in a journal club-style using PowerPoint, and everyone should participate in Q&A and discussion. The students other than the presenter must submit a report for each class to the instructor in charge. The presenter does not need to submit a report for that class. Grades will be evaluated based on the presentation and the reports. (In the first session, the content of the class and the presentation method will be explained. Please note that depending on the number of participants, there may be changes to the course content and schedule. We will contact you via Moodle. Please make sure you have your email set up so that you can receive emails from Moodle.			
Course Goals(授業の目的)		Practical learning of the latest research on the biology of aging, the mechanisms of several age-related diseases, public health, epidemiology, research tools, how to conduct research, and training of presentation etc. in a journal club style.			
Course Learning goals(学修目標)		【A level (A水準)】 Good understanding of the content of the paper, giving an excellent PowerPoint presentation, question and answer session, and report. 【C level (C水準)】 Understanding the contents of the paper, giving a PowerPoint presentation, participating in the question and answer session, and submitting a report.			
Course Outline(授業の概要)		In this course, students will learn the latest researches on the biology of aging, the mechanisms of several age-related diseases, public health, epidemiology, research tools, how to conduct research, and training of presentation etc. in a journal club style. Faculty members of the Center for Metabolic Regulation of Healthy Aging will choose the latest paper related to their research topics, and students will study the contents through making presentations, discussions, and reports.			
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Tutorial 1 (journal club)	Department of Aging and Longevity Research MIURA Kyoko Introduction (How to make a presentation)		
2		Tutorial 2 (journal club)	Department of Aging and Longevity Research MIURA Kyoko The longest-lived rodent, the naked mole-rat Students will study the contents of the assigned paper through presentations, discussions, and report writing.This class will be counted as two classes. Please note that the end time will be late.		
3		Tutorial 3 (journal club)	Department of Medical Biochemistry YAMAGATA Kazuya Regulation of glucose metabolism and its disruption Students will study the contents of the assigned paper through presentations, discussions, and report writing.		
4		Tutorial 4 (journal club)	Department of Molecular Genetics KADOMATSU Tsuyoshi Altered energy metabolism and age-related diseases Students will study the contents of the assigned paper through presentations, discussions, and report writing.		
5		Tutorial 5 (journal club)	Department of Cell Pathology KOMOHARA Yoshihiro Macrophage and cancer Students will study the contents of the assigned paper through presentations, discussions, and report writing.		
6		Tutorial 6 (journal club)	Department of Cell Signaling and Metabolic Medicine MOROISHI Toshiro Cell signaling Students will study the contents of the assigned paper through presentations, discussions, and report writing.		
7		Tutorial 7 (journal club)	Laboratory of Stem Cell Stress MORISHIMA Tatsuya Hematopoiesis under inflammatory stress		

7		Tutorial 7 (journal club)	Students will study the contents of the assigned paper through presentations, discussions, and report writing.
8		Tutorial 8 (journal club)	Department of Molecular Physiology CHUJO Takeshi RNA modification in health, disease, and COVID19 mRNA vaccine Students will study the contents of the assigned paper through presentations, discussions, and report writing.
9		Tutorial 9 (journal club)	Department of Sensory and Cognitive Physiology SOU Bunketsu Hearing and age-related hearing loss Students will study the contents of the assigned paper through presentations, discussions, and report writing.
10		Tutorial 10 (journal club)	Department of Molecular Brain Science IWAMOTO Kazuya Aging and DNA methylation Students will study the contents of the assigned paper through presentations, discussions, and report writing.
11		Tutorial 11 (journal club)	Department of Muscle Development and Regeneration FUJIMAKI Shin Towards overcoming sarcopenia Students will study the contents of the assigned paper through presentations, discussions, and report writing.
12		Tutorial 12 (journal club)	Division of Developmental Genetics ARAKI Kimi Reserch using genetically modified mice Students will study the contents of the assigned paper through presentations, discussions, and report writing.
13		Tutorial 13 (journal club)	Department of Public Health Lu Xi Public health and epidemiology Students will study the contents of the assigned paper through presentations, discussions, and report writing.
14		Tutorial 14 (journal club)	Laboratory of Skin Regeneration and Aging SADA Aiko Stem cell dynamics in skin regeneration and aging Students will study the contents of the assigned paper through presentations, discussions, and report writing.
15		-----	-----
Estimated out-of-class study time			
Required Textbook(テキスト)		None	
Reading List(参考文献)		The instructor for each session will upload the paper on Moodle.	
Enrollment Conditions(履修条件)		Students should have basic knowledge related to this class.	
Assessment Methods and Criteria(評価方法・基準)		Grades will be based on PowerPoint presentations (35 points) and reports (13 x 5 points = 65 points) from the 2nd to 14th classes. Submission of reports will count as attendance. If you are absent from class more than 5 times, you will fail the class. There will be no final exam.	
Language Used in Instruction(使用言語)		English	
Textbook/Material Language(教科書・資料の言語)		English	
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable	

Course Coding(科目番号)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RDM7-000-81-2	2022whole year	Graduate School of Medical Sciences(25850)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Lecture on Bioethics(A1 Medical Informatics and Medical Ethics)			KADOOKA Yasuhiro, KASAOKA Shunji, NAKAMURA Taishi, USUKU Koichiro		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……25% 2.Profound inter-disciplinary knowledge ……25% 3.Global perspective and ability to take initiative action ……25% 4.Social leadership drive ……25%					
Type of Class(授業の形態)	Lecture and Seminar				
Teaching Method(授業の方法)	The course is provided by lecture and discussion or e-Learning using the moodle or CITI Japan.				
Course Goals(授業の目的)	Medical Informatics and Medical Ethics aims at proper management of health information and ethical problems arose from medical practice. In this course, you learn basic concepts used in this filed, including electronic health records, protection of computer-processed personal data, health care system in Japan and other countries, evaluation of medical care and DPC, problems of abortion, euthanasia and death with dignity, informed consent, principle of ethics. This course serves as introductory for all students as you obtain essential knowledge on medical informatics and medical ethics, and emergency medicine.				
Course Learning goals(学修目標)	【A level (A水準)】 To be able to handle or manage health information and ethical problems arose from medical practice. 【C level (C水準)】				
Course Outline(授業の概要)	In order to explain basic principles of medical informatics and medical ethics, it is discussed how the problems are managed. Basic concepts are introduced. More specifically, you are expected to understand the followings: (1) electronic health records; (2) protection of computer-processed personal data; (3) information literacy; (4) ethical issues at the beginning of life; (5) ethical issues at the end of life; (6) informed consent, privacy and principle of ethics, (7) research, high technology medicine and ELSIs, (8) emergency medical service system and (9)disaster medicine. Participants are requested to learn medical ethics through e-learning system offered by the project of Collaborative Institutional Training Initiative (CITI) Japan, or submit a short comment on some lectures, which will be helpful to provide positive feed back to the next session.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		6th period Yasuhiro Kadooka 【eEJ-0】 Class Orientation and eAPRIN	Introduction and orientation of this course Responsible Conduct of Research_RCR Research Misconduct_RCR		
2		6th period eAPRIN 【eEJ-0】	Data Handling_RCR / Rules for Collaborative Research_RCR / Conflicts of Interest_RCR		
3		4th period eAPRIN 【eEJ-0】	Authorship_RCR / Plagiarism(Biomedical)_RCR / Communicating Information to the Public_RCR		
4		4th period eAPRIN 【eEJ-0】	Peer Review(Biomedical)_RCR / Mentoring_RCR / Managing Public Research Funds_RCR		
5		4th period eAPRIN 【eEJ-0】	The History and Principles of Bioethics, and the Development of Its Rules_HSR / Review by an Institutional Review Board (IRB)_HSR / Handling Personal Information in Research_HSR		
6		4th period eAPRIN 【eEJ-0】	Genomic and Genetic Analysis Studies in Human Populations_HSR / Group Harm Arising from Research_HSR / Informed Consent in Research_HSR		
7		4th period eAPRIN 【eEJ-0】	Research Subjects Who Merit Special Considerations_HSR / Records-Based Research_HSR / Social and Behavioral Research for Biomedical Researchers_HSR		
8		4th period eAPRIN 【eEJ-0】	International Studies_HSR / The Ethics of Pluripotent Stem Cell Research I_HSR / The Ethics of Pluripotent Stem Cell Research II_HSR		
9		4th period eAPRIN 【eEJ-0】	Digest: Human Subjects Research_HSR / Care and Use of Laboratory Animals Module 1 Basic Knowledge of Animal Experiments_ACU / Care and Use of Laboratory Animals Module 2 What You Should Consider When Conducting Animal Experiments_ACU		
10		4th period Taishi Nakamura and Koichiro Usuku 【eJ-0】	Health care system in Japan and in the world		
11		4th period Taishi Nakamura and Koichiro Usuku 【eEJ-0】	Future prospects of Electronic medical records, Clinical research and data ware house		
12		4th period Shunji Kasaoka 【eE-0】 【eJ-0】	Emergency Medical Service System, Post-Cardiac Arrest Syndrome		
13		4th period Shunji Kasaoka 【eE-0】 【eJ-0】	Disaster Medicine, Triage		
14		4th period Yasuhiro Kadooka	Step up Lecture for Research Ethics (1)		
15		4th period Yasuhiro Kadooka	Step up Lecture for Research Ethics (2)		
Estimated out-of-class	This subject requires 90 hours of study, and the class is 30 hours. Therefore pre- and post-study on tasks				

study time	equivalent to 60 hours is necessary to deepen the understanding of the class.
Required Textbook(テキスト)	Textbooks are not specified, and handouts will be distributed by the moodle system.
Reading List(参考文献)	Provided in the lectures.
Enrollment Conditions(履修条件)	No prerequisite.
Assessment Methods and Criteria(評価方法・基準)	Grading will be based on active class participation, paper summaries, and the final report. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and questions related to the topics dealt with in class to be scored from grade 1 to 5. Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions.
Language Used in Instruction(使用言語)	Japanese and English
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English
Course Based on Practical Work Experience(実務経験を活かした授業)	Applicable

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RMD7-166-99-2	2022whole year	Graduate School of Medical Sciences(25810)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Special Practice(Special Practice)			MOROISHI Toshiro		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……40% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……20% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Other				
Teaching Method(授業の方法)	Students can take seminars presented by invited speakers (including "D1 Medical and Life Seminar" and "D2 Learning from Experienced Doctor").				
Course Goals(授業の目的)	Students are encouraged to gain a basic knowledge about aging, aging-related diseases, and healthy life expectancy.				
Course Learning goals(学修目標)	【A level (A水準)】 Students excellently acquired a knowledge about aging/aging-related diseases/ therapeutic strategies for healthy life expectancy, and can discuss about the problems. 【C level (C水準)】 Students acceptably acquired a knowledge about aging/aging-related diseases/ therapeutic strategies for healthy life expectancy, and can discuss about the problems.				
Course Outline(授業の概要)	Students can learn about recent advances of the research fields by taking seminars presented by invited speakers (including "D1 Medical and Life Seminar" and "D2 Learning from Experienced Doctor").				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Research seminar	Research seminar by invited speakers		
Estimated out-of-class study time	This course consists of content that requires 90 hours of study. Since the lesson is 30 hours (2 hours x 15 frames), 60 hours of pre- and post-study (including reports) is required to deepen the understanding of the lesson.				
Required Textbook(テキスト)	No particular textbook.				
Reading List(参考文献)	Biology of Aging (2nd Edition, by Roger B. McDonald) ISBN 9780815345671 The Biology of Senescence: A Translational Approach (by Bernard Swynghedauw) ISBN 9783030151102				
Enrollment Conditions(履修条件)	Have basic knowledge concerning what is taught in this course.				
Assessment Methods and Criteria(評価方法・基準)	Students are required to attend seminars (more than 12 times) presented by invited speakers (including "D1 Medical and Life Seminar" and "D2 Learning from Experienced Doctor") for credit before completion of their Thesis research. Students are also required to write at least 4 essays about the seminars. Students have to submit the essay to the professors in charge within one month by e-mail.				
Language Used in Instruction(使用言語)	Japanese and English				
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English				
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable				

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RMD7-167-79-2	2022whole year	Graduate School of Medical Sciences(25820)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practice I on CMHA(Practice I on CMHA)			MOROISHI Toshiro		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……40% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……20% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Other				
Teaching Method(授業の方法)	Students will present their research results at a domestic conferences/meeting.				
Course Goals(授業の目的)	Students can present and discuss their research results (e.g. aging, aging-related diseases, and healthy life expectancy) as a first author at a domestic conferences/meeting.				
Course Learning goals(学修目標)	【A level (A水準)】 Students can excellently present and discuss their research results (e.g. about aging, aging-related diseases, and healthy life expectancy) at a domestic conferences/meeting. 【C level (C水準)】 Students can acceptably present and discuss their research results (e.g. about aging, aging-related diseases, and healthy life expectancy) at a domestic conferences/meeting.				
Course Outline(授業の概要)	Students can present and discuss their research results (e.g. aging, aging-related diseases, and healthy life expectancy) as a first author at a domestic conferences/meeting.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Presentation at domestic conferences/meeting.	Presentation at domestic conferences/meeting.		
Estimated out-of-class study time	This course consists of content that requires 90 hours of study. Since the lesson is 30 hours (2 hours x 15 frames), 60 hours of pre- and post-study (including reports) is required to deepen the understanding of the lesson.				
Required Textbook(テキスト)	No particular textbook.				
Reading List(参考文献)	No particular textbook.				
Enrollment Conditions(履修条件)	Have basic knowledge concerning what is taught in this course.				
Assessment Methods and Criteria(評価方法・基準)	(1) Presentation of research results at domestic conferences/meeting. (2) The record of presentation (e.g. abstract) is necessary.				
Language Used in Instruction(使用言語)	Japanese and English				
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English				
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable				

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RMD7-168-79-2	2022whole year	Graduate School of Medical Sciences(25830)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practice II on CMHA(Practice II on CMHA)			MOROISHI Toshiro		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……40% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……20% 4.Social leadership drive ……10%					
Type of Class(授業の形態)	Other				
Teaching Method(授業の方法)	Students will present their research results at international conferences/meeting.				
Course Goals(授業の目的)	Students can present and discuss their research results (e.g. aging, age-related diseases, and healthy life expectancy) as a first author at international conferences/meeting.				
Course Learning goals(学修目標)	【A level (A水準)】 Students can excellently present and discuss their research results (e.g. aging, aging-related diseases, and healthy life expectancy) at international conferences/meeting. 【C level (C水準)】 Students can acceptably present and discuss their research results (e.g. aging, aging-related diseases, and healthy life expectancy) at international conferences/meeting.				
Course Outline(授業の概要)	Students can present and discuss their research results (e.g. aging, age-related diseases, and healthy life expectancy) as a first author at international conferences/meeting.				
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Presentation at international conferences/meeting	Presentation at international conferences/meeting		
Estimated out-of-class study time	This course consists of content that requires 90 hours of study. Since the lesson is 30 hours (2 hours x 15 frames), 60 hours of pre- and post-study (including reports) is required to deepen the understanding of the lesson.				
Required Textbook(テキスト)	No particular textbook.				
Reading List(参考文献)	No particular textbook.				
Enrollment Conditions(履修条件)	Have basic knowledge concerning what is taught in this course.				
Assessment Methods and Criteria(評価方法・基準)	(1) Presentation of research results at international conferences/meeting. (2) The record of presentation (e.g. abstract) is necessary.				
Language Used in Instruction(使用言語)	Japanese and English				
Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English				
Course Based on Practical Work Experience(実務経験を活かした授業)	Not applicable				

Course Coding(科目ナンバー)	Year/Semester/Term(年度・学期)	Faculty Offering Course(時間割所属・時間割コード)	Eligible Student Year(開講年次)	Credits(単位数)	Weekday and Period(曜日・時限)
RMD7-169-79-2	2022whole year	Graduate School of Medical Sciences(25840)	1, 2, 3, 4	2	others
Course Title(Theme)(科目名(講義題目))			Instructor(s)(担当教員)		
Practice III on CMHA(-)			Kyoko Miura		
Goals with their ratio(学修成果とその割合)					
1.Advanced expert knowledge, skill and research capability ……40% 2.Profound inter-disciplinary knowledge ……30% 3.Global perspective and ability to take initiative action ……20% 4.Social leadership drive ……10%					
Type of Class(授業の形態)		Other			
Teaching Method(授業の方法)		Students will present their research results at CMHA cross-cutting conference (e.g. CMHA borderless conference).			
Course Goals(授業の目的)		Students will present and discuss their research results at CMHA cross-cutting conference (e.g. CMHA borderless conference).			
Course Learning goals(学修目標)		【A level (A水準)】 Students can excellently present and discuss their research results (e.g. aging, aging-related diseases, and healthy life expectancy) at CMHA cross-cutting conferences (e.g. CMHA borderless conference). 【C level (C水準)】 Students can acceptably present and discuss their research results (e.g. aging, aging-related diseases, and healthy life expectancy) at CMHA cross-cutting conferences (e.g. CMHA borderless conference).			
Course Outline(授業の概要)		Students can present and discuss their research results (e.g. aging, aging-related diseases, and healthy life expectancy) at CMHA cross-cutting conferences (e.g. CMHA borderless conference).			
Details for Individual Classes(各回の授業内容)					
No.(回)	Date(月日)	Class Theme(授業テーマ)	Brief Outline of Class(内容概略)		
1		Presentation at CMHA cross-cutting conference	Presentation at CMHA cross-cutting conference		
Estimated out-of-class study time					
Required Textbook(テキスト)		None			
Reading List(参考文献)		None			
Enrollment Conditions(履修条件)		Having basic knowledge about this class.			
Assessment Methods and Criteria(評価方法・基準)		Presentation of research results at CMHA cross-cutting conference at least one time.			
Language Used in Instruction(使用言語)		Japanese and English			
Textbook/Material Language(教科書・資料の言語)		Combination of Japanese and English			
Course Based on Practical Work Experience(実務経験を活かした授業)		Not applicable			