For students admitted in 2023 and later
The Graduate School of Medical Sciences
Kumamoto University
(Doctoral Course)

AY2026 Syllabus

Compulsory subjects and Elective subjects ・・・・・・・・・・・・・Page 3 - 50

A1 Research Ethics and Biomedical Ethics
B1 Pathophysiology and structural biochemistry of biomolecules
B2 Cell Biology
B3 Hematopoietic and Immune System
B4 Infection and Immune Control
B5 Neuroscience
B7 Developmental and Regenerative Medicine
B8 Environmental and Sociomedical Sciences
B9 Medical Informatics, Emergency and Disaster Medicine
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
C10 The Theory of Clinical Research
C11 Training of biostatistics in clinical study *Unavailable at the moment
C12 Overview of clinical study
D1 Medical and Life science Seminar
D2 Learning from Experienced Doctors Seminar
D3 Medicine and Life Science Training
D5 International Biomedical Research Seminars
English (GSMS)

Practice (Jissen) I, II ・Practice (Jissen) III Timetable Code List・・・・Page 51

Course Work subject • **Page 52 - 53**

Medical Experiment Course

Educational Program for Advanced Research in Infectious Diseases and AIDS • • • • • • • • • • • • • **Page 54 - 67**

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 • • • • • • • • • • • **Page 68 - 69**

Practical Training of Metabolic Medicine

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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

Educational Program for the Next Generation Researchers in Advanced Stem Cell Biology Fields • **Page 87 - 94**

H1 Special Lecture I on Advanced Stem Cell Biology

H2 Special Lecture II on Advanced Stem Cell Biology

Practice I on Advanced Stem Cell Biology

Practice II on Advanced Stem Cell Biology

Special Practice on Advanced Stem Cell Biology

Compulsory subjects and Elective subjects

A1

B1～B9・C1～C12

D1～D3・D5

English (GSMS)

Practice (Jissen) I, II , III

Timetable Code List

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)
RDM7-020-81-2	2026whole year	Graduate School of Medical Sciences (26020)	1, 2, 3, 4	2	others

Course Title(Theme)(科目名(講義題目))	Instructor(s)(担当教員)
Research Ethics and Biomedical Ethics(Doctoral Course A1・Master's Course A5)	KADOOKA Yasuhiro

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 ‥‥50%

Type of Class(授業の形態)	Lecture
Teaching Method(授業の方法)	active learning (discussion and presentation) and online learning
Course Goals(授業の目的)	This course aims to support students to have relevant knowledge and practical skills for biomedical ethics in order for graduate research and future career.
Course Learning goals(学修目標)	【A level (A水準)】 to deal with ethical issues in actual settings of biomedical research and medical practice by making interdisciplinary discussion and moral reasoning 【C level (C水準)】 to have basic knowledge for ethical conducts in biomedical research and medical practice
Course Outline(授業の概要)	eAPRIN (CITI) online program will be adopted to learn basic elements of research ethics. Active leaning methods will be adopted to gain skills for ethical conduct of biomedical research and medical decision-making.

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 integrity 1	eAPRIN online program
2		Research integrity 2	eAPRIN online program
3		Research integrity 3	eAPRIN online program
4		Research integrity 4	eAPRIN online program
5		Research ethics 1	eAPRIN online program
6		Research ethics 2	eAPRIN online program
7		Research ethics 3	eAPRIN online program
8	06/25	3rd period Step-up lecture on research ethics 1	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
9	06/25	4th period Step-up lecture on research ethics 1	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
10	07/02	3rd period Step-up lecture on research ethics 2	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
11	07/02	4th period Step-up lecture on research ethics 2	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
12	07/09	3rd period Step-up lecture on research ethics 3	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
13	07/09	4th period Step-up lecture on research ethics 3	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
14	07/16	3rd period Medical ethics 1	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
15	07/16	4th period Medical ethics 2	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)

Estimated out-of-class study time	60 hours of self-learning (out-of-class study) is recommended in addition to 30-hours lecture (2hrs X 15 times).
Required Textbook(テキスト)	NA
Reading List(参考文献)	Principles of Biomedical Ethics. Beauchamp TL and Childress JF. OXFORD University Press. Bioethics Briefings. The Hastings Center. https://www.thehastingscenter.org/publications-resources/hastings-center-bioethics-briefings/ Responsible Conduct of Research. Shamoo AE and Resnik DB. OXFORD University Press. The Oxford Textbook of Clinical Research Ethics. Emanuel EJ, Crady C et al eds. OXFORD University Press. Medical Ethics Today. British Medical Association Ethics Department. Wiley-Blackwell. Resolving Ethical Dilemmas A Guide for Clinicians. Lo B. LWW.
Enrollment Conditions(履修条件)	Participating students are recommended to have basic knowledge life-sciences.
Assessment Methods and Criteria(評価方法・基準)	Students are evaluated for their grades and credits based on the course hours completed, understanding of each subject and abilities of discussion and ethical reasoning.

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)
RDM7-021-79-2	2026whole year	Graduate School of Medical Sciences (26030)	1, 2, 3, 4	1	others

Course Title(Theme)(科目名(講義題目))	Instructor(s)(担当教員)
Pathophysiology and Structural Biochemistry of Biomolecules (For students admitted in 2023 and later)(B1)	ARIMA Yuichiro, YAMAGATA Kazuya, BABA Masaya, MIHARADA Kenichi, TAKAHASHI Yuta

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)	
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 regulating metabolism and its signaling cascades. (2) You will learn fundamental metabolic pathways under normal conditions and its relationship to pathology. (3) The objective of this course is to understand diseases caused by epigenomic abnormalities. (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 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		ARIMA Yuichiro 【eEJ-0】	Pathophysiology of cardiovascular diseases (1)
2		ARIMA Yuichiro 【eEJ-0】	Pathophysiology of cardiovascular diseases (2)
3		YAMAGATA Kazuya 【eEJ-0】	Pathophysiology of glucose/lipid metabolism (1)
4		YAMAGATA Kazuya 【eEJ-0】	Pathophysiology of glucose/lipid metabolism (2)
5		TAKAHASHI Yuta 【eEJ-0】	Epigenomic Abnormalities in Disease
6		MIHARADA Kenichi 【eEJ-0】	Protein quality control and its abnormality
7		MIHARADA Kenichi 【eEJ-0】	Roles for maternal metabolism in fetal development
8		BABA Masaya【eEJ-0】	Hypoxia/mTOR signaling pathway 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, 2016 “Handbook of Lipoprotein Testing” by Nader Rifal et al., AACC 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.
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)
RDM7-002-79-2	2026whole 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, BUNDO Miki, ONO Yusuke, TATEISHI Satoshi, HINO Shinjirou, NOMURA Takushi, NAKACHI Yutaka, TAKAHASHI Yuta

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)	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		Kazuhito Tomizawa【eE-0, eJ-0】	Regulation in physiology and pathophysiology
2		Kazuhito Tomizawa【eE-0, eJ-0】	Regulation by protein phosphorylation
3		Shinjiro Hino【eE-0, eJ-0】	Cross talk between metabolism and epigenome
4		Yusuke Ono【eE-0, eJ-0】	Stem cells and tissue regeneration/adaptation I
5		Yusuke Ono【eE-0, eJ-0】	Stem cells and tissue regeneration/adaptation II
6		Yutaka Nakachi【eE-0, eJ-0】	Osteoblasts and Osteoclasts I
7		Yutaka Nakachi【eE-0, eJ-0】	Osteoblasts and Osteoclasts II
8		Miki Bundo【eE-0, eJ-0】	Single cell analysis of brain functions
9		Yuta Takahashi【eEJ-O】	Epigenetic regulation in embryonic development
10		Takushi Nomura【eE-O】	Analysis of immune responses to viral infection using animal models
11		Kazuya Iwamoto【eE-０, eJ-0】	Neuroepigenetics I
12		Kazuya Iwamoto【eE-０, eJ-0】	Neuroepigenetics II
13		Satoshi Tateishi【eEJ-0】	Cell growth and cell cycle
14		Satoshi Tateishi【eEJ-0】	About Mitosis and Meiosis
15		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)	Not specified.
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)
RDM7-003-79-2	2026whole 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)	OSHIUMI Hiroyuki, OGUCHI Hiroto, OKADA Seiji, SASHIDA Goro, SATO Yorifumi, 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 lecures. 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		Minetaro Ogawa 【eJ-0】	Ontogeny of hematopoietic system-1
2		Minetaro Ogawa 【eJ-0】	Ontogeny of hematopoietic system-2
3		Saori Koga【eJ-0】	Ontogeny of hematopoietic system-３
4		Seiji Okada 【eJ-0,eE-0】	Differentiation of immune cells
5		Seiji Okada 【eJ-0,eE-0】	Application of Humanized mice
6		Goro Sashida 【eEJ-0】	Molecular mechanism of myeloid malignancies
7		Shinya Suzu 【eEJ-0】	Regulation of Hematopoiesis
8		Hitoshi Takizawa 【eE-0】	Role of inflammation on hematopoiesis
9		Yorifumi Sato 【eEJ-0】	T-cell and retroviral infection
10		Hiroto Ohguchi 【eEJ-0】	Molecular pathogenesis of plasma cell neoplasm
11		Hiroyuki Oshiumi 【eJ-0】	Role of innate immune cells during viral infection
12		Takushi Nomura【eEJ-0】	Flow cytometric analysis for T-cells
13		Hiroyuki Oshiumi 【eJ-0】	Development and function of innate lymphoid cells
14		Takushi Nomura 【eEJ-0】	T-cell responses in SARS-CoV-2 infection
15		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	2026whole 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)	UENO Takamasa, IKEDA Masanori, KUBOTA Ryuji, OKADA Seiji, Yasunaga Jiyunichirou, SATO Yorifumi, OSHIUMI Hiroyuki, MOTOZONO Chihiro, SAWA Tomohiro, SUZU Shinya, MONDE Kazuaki, 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】	Retrovirus life cycle
2		Tomohiro Sawa【eE-O】	Bacterial infection and pathogenesis
3		Hiroyuki Oshiumi 【eE-O】	Innate immune responses to pathogens
4		Chihiro Motozono【eE-O】	Cellular immune responses to pathogens
5		No Class	No class
6		Kazuaki Monde【eE-O】	Adaptive evolution of viral genes
7		Jun-ichirou Yasunaga 【eE-O】	Emerging/re-emerging infectious diseases
8		Shinya Suzu 【eE-O】	Retroviruses-host interaction
9		Yorifumi Sato【eE-O】	Retroviral infections and latency
10		Masanori Ikeda 【eE-O】	Molecular pathogenesis of hepatitis viruses
11		Yasuhito Tanaka【eE-O】	Hepatitis viruses and Liver cancer
12		Kouki Matsuda【eE-O】	Development of therapeutic approaches toward curing HIV infection
13		Seiji Okada 【eE-O】	Animal model research in infectious diseases
14		Masahiro Ono	CD4 T Cell Immunity to Infection: Mechanisms of Host Defense and Pathogenesis
15		Hirotomo Nakata【eE-O】	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)	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)
RDM7-022-79-2	2026whole year	Graduate School of Medical Sciences (26040)	1, 2, 3, 4	2	others

Course Title(Theme)(科目名(講義題目))	Instructor(s)(担当教員)
Neuroscience (For students admitted in 2023 and later)(B5)	IWAMOTO Kazuya, MIZUNO Hidenobu, TODA Chitoku, SHIODA Norifumi, SHIMAMURA Kenji, BUNDO Miki, SOU Bunketsu, ERA Takumi, TAKEBAYASHI Minoru, TAKEZAKI Tatsuya, UEDA Mitsuharu, TAKEMOTO Makoto, HATAKEYAMA Jun, NAKACHI Yutaka, CHUJO Takeshi

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 ‥‥30% 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)	Mainly by e-learning
Course Goals(授業の目的)	Understand the sturucture and function of brain, higher functions, neuropsychiatric disorders and the methods for treatment.
Course Learning goals(学修目標)	【A level (A水準)】 Students can explain and understand the sturucture and function of brain, higher functions, neuropsychiatric disorders and the methods for treatment. 【C level (C水準)】 Students can understand the sturucture and function of brain, higher functions, neuropsychiatric disorders and the methods for treatment.
Course Outline(授業の概要)	The lecturers will teach about general introductions to the sturucture and function of brain, neurocircuit, higher functions, neuropsychiatric disorders and the methods for treatment.

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		Kenji Shimamura (eE-0)	Regionalization and histogenesis of the brain primordium
2		Jun Hatakeyama (eEJ-0)	Human brain development: How is brain development in humans and mice different?
3		Tatsuya Takezaki (eEJ-0)	Neuromodulation
4		Hidenobu Mizuno (eEJ-0)	Somatosensation and circuit development
5		Bunketsu Sou (eEJ-0)	Hearing and hearing loss
6		Makoto Takemoto (eEJ-0)	Neuroscience of emotions
7		Chitoku Toda (eE-0)	Neuronal circuit to regulate feeding behavior
8		Takeshi Chujo (eEJ-0)	RNA in neurons: molecular functions and related diseases
9		Minoru Takebayashi (eJ-0)	Molecular basis of mood disorders
10		Kazuya Iwamoto (eE-0)	Genetics and epigenetics of psychiatric disorders
11		Miki Bundo (eE-0)	Somatic mutations and psychiatric disorders
12		Mitsuharu Ueda (eEJ-0)	Pathogenesis of intractable neurological diseases and disease-modifying therapies
13		Yutaka Nakachi (eEJ-0)	Sexual differentiation of the brain
14		Takumi Era (eJ-0, eE-0)	New medical application to diseases of the nervous system using stem cell
15		Norifumi Shioda (eE-0)	The potential of nucleic acid structures as a therapeutic target for neurological diseases

Estimated out-of-class study time	This course consists of content that requires 90 hours of study. Since class is 30 hours (2 hours X 15 times), 60 hours of pre- and post-study is necessary.
Required Textbook(テキスト)	Not specified.
Reading List(参考文献)	Not specified.
Enrollment Conditions(履修条件)	none
Assessment Methods and Criteria(評価方法・基準)	Based on the scores of quizzes reated to the topics. Final grades will be made by averaging 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
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)
RDM7-007-79-2	2026whole 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, OKAE Hiroyuki, YABUKI Yasushi, MIHARADA Kenichi, NAKAMURA Akira, NODA Taichi, ERA Takumi, OKI Shinya, ONO Yusuke, NIWA Hitoshi, KOGA Saori, TAKEO Toru, ARIMA Yuichiro, KOBAYASHI Akio

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)　Genome editing technology and knockout mice; (4) Maintenance and differentiation of stem cells; (5) Placental development and fetomaternal relationship; (6) Organ development and disease including the kidney, liver, pancreas, muscle, neuron, gonad, blood, heart and vasculature; (7) 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		Ryuichi NISHINAKAMURA【eE-0】	Overview & Kidney development
2		Toru TAKEO【eE-0】	Reproductive engineering
3		Taichi NODA【eE-0】	Generation of genetically modified mice and their application
4		Hitoshi NIWA【eE-0】	Molecular basis of embryonic stem cells I
5		Hitoshi NIWA【eE-0】	Molecular basis of embryonic stem cells II
6		Takumi ERA 【eE-0】	iPS cells, their applications for the medicine
7		Hiroaki OKAE 【eE-0】	Pregnancy in mammals
8		Kenichi MIHARADA【eE-0】	Fetal-maternal crosstalk: maternal metabolism and fetal development
9		Yuichiro ARIMA【eE-0】	Differentiation, Maturation, and Regeneration of the Heart and Blood Vessels
10		Saori KOGA【eE-0】	Development of the blood system
11		Akio KOBAYASHI 【eE-0】	Development of the urogenital system
12		Akira NAKAMURA 【eE-0】	germ cell formation: preformation and epigenesis
13		Yusuke ONO【eE-0】	Muscle development and regeneration
14		Yasushi YABUKI【eE-0】	iPS cells and neurodegeneration
15		Shinya OKI 【eE-0】	Bioinformatics in developmental biology

Estimated out-of-class study time	60 hrs
Required Textbook(テキスト)	
Reading List(参考文献)	・ “Developmental Biology, 12th edition” by Barresi MJF& Gilbert S 2019. ・ “Essential Developmental Biology, 4th edition” by Slack JMW &Dale L.,Blackwell Publishing 2021 ・ “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	English

Instruction(使用言語)	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)
RDM7-008-81-2	2026whole 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)	SANO Rie, Katou Takahiko, MATSUI Kunihiko, SOEJIMA Hirofumi, Oomori Hisamitsu, Lu Xi, MASUDA Shota

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		Takahiko Katoh 【eE-0, eJ-0】	Public health：Meaning of social medicine
2		Takahiko Katoh 【eE-0, eJ-0】	Public health：Epidemiology
3		Hisamitsu Omori【eEJ-0】	Public health：Medical Screening
4		Rie Sano【eE-0, eJ-0】	Definition and purpose of forensic medicine
5		Rie Sano【eE-0, eJ-0】	Forensic medicine & forensic science
6		Rie Sano 【eE-0, eJ-0】	Social aspect of human death (1)
7		Xi Lu 【eE-0】	Medical Statistics
8		Xi Lu【eE-0】	Research Design of Epidemiology
9		Hirofumi Soejima【eE-0, eJ-0】	General Medicine: Atherosclerosis
10		Rie Sano 【eE-0, eJ-0】	Social aspect of human death (2)
11		Kunihiko Matsui【eJ-L】	General Medicine: Clinical studies, interpretation for results
12		Shota Masuda【eE-0】	Public Health: Sets of statistics of a population in Japan
13		Shota Masuda【eE-0】	Public Health ：Social Security System and Medical Insurance System in Japan
14		Hirofumi Soejima【eE-0, eJ-0】	Blood Coagulation and Fibriolysis
15		Hirofumi Soejima【eE-0, eJ-0】	Lifestyle and Coronary Artery 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)	・ "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)
RDM7-000-81-2	2026whole year	Graduate School of Medical Sciences (26050)	1, 2, 3, 4	1	others

Course Title(Theme)(科目名(講義題目))	Instructor(s)(担当教員)
Medical Informatics, Emergency and Disaster Medicine (For students admitted in 2023 and later)(Become proficient in Medical Informatics, Emergency and Disaster Medicine)	KASAOKA Shunji, IRIE Hiroki, NAKAMURA Taishi

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)	It is conducted via e-learning using Moodle.
Course Goals(授業の目的)	Medical Informatics, Emergency and Disaster Medicine aims to acquire basic knowledge about emergency and disaster medicine, which requires a holistic approach, as well as the correct use of various information in medicine.
Course Learning goals(学修目標)	【A level (A水準)】 Learn about medical informatics, emergency medicine, and disaster medicine, and be able to explain practical details. 【C level (C水準)】 Learn about medical informatics, emergency medicine, and disaster medicine and be able to explain the main points.
Course Outline(授業の概要)	In Medical Informatics, students learn about medical information systems and information processing, and information coordination in emergency and disaster situations. In Emergency Medicine, students learn about the emergency medical system and initial trauma care. In Disaster Medicine, students learn about medical response to disasters and how to deal with post-cardiac arrest syndrome.

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		NAKAMURA Taishi Introduction to Medical Informatics 【eJ-0】	Medical Information Systems and Information Processing
2		NAKAMURA Taishi Regional Medical Cooperation 【eJ-0】	Community Healthcare Visions and Medical Information Aggregation for Emergency Disaster Situations
3		NAKAMURA Taishi Vision 2030 【eJ-0】	Data-based Health Management Initiatives; KMN and Healthcare DX promotion
4		KASAOKA Shunji Post-Cardiac Arrest Syndrome 【eJ-0】	Post-Cardiac Arrest Syndrome, Cardiopulmonary Resuscitation
5		KASAOKA Shunji Disaster Medicine 1 【eJ-0】	Disaster Medicine (General), Triage
6		KASAOKA Shunji Disaster Medicine 2 【eJ-0】	Disaster Medicine (Details), Natural Disasters and Human Damage
7		IRIE Hiroki Emergency Medical Care System 【eJ-0】	Activities of Paramedics and the Acceptance System in the Hospital
8		IRIE Hiroki Emergency Medicine 【eJ-0】	Initial Trauma Care

Estimated out-of-class study time	This course requires 45 hours of study, 12 hours of classroom work, and 33 hours worth of pre- and post-work in assignments and other activities to deepen understanding of the course.
Required Textbook(テキスト)	No particular designation will be made, but materials summarizing the main points of the lecture will be distributed via moodle.
Reading List(参考文献)	This will be introduced as appropriate during the lecture.
Enrollment Conditions(履修条件)	Nothing in particular
Assessment Methods and Criteria(評価方法・基準)	Students will be evaluated comprehensively based on their understanding of the course objectives, e-Learning participation, and assignment 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)	Applicable (Teachers with expertise in hospital information systems, emergency medicine, or disaster medicine will give lectures in their areas of responsibility.)

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	2026whole 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)	HIRAI Toshinori, MIKAMI Yoshiki, GOTO Hiroki, SHIRAISHI Shinya, KOMOHARA Yoshihiro, UEDA Mitsuharu, Jiyouno Hirofumi, SHINRIKI Satoru, Misumi Youhei, 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)	Other
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, we will outline advanced diagnostic approaches through genome analysis and databases in the post-genome era, and introduce the basics and practices of "cancer genomic medicine" that are currently being practiced. 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, basic research such as SPECT and immuno-PET using mouse models, as well as RI molecular imaging and nuclear medicine treatments are outlined. 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		Sato Y (Pathol Exp Med) 【eJ-0】	Tumor diagnosis with immunohistochemistry.
2		Komohara Y (Cell Pathol) 【eJ-0】	pathology and immunity; Cancer Immunotherapy and PD-L1
3		Komohara Y (Cell Pathol) 【eJ-0】	Pathology and Immunity: The Microenvironment of Cancer
4		Komohara Y (Cell Pathol) 【eJ-0】	Pathology and Immunity: Cancer Immunity and Lymph Nodes
5		Mikami Y (Pathol Diagnosis)【eJ-0】	Histopathologic approach to diagnostic oncology: a logic for interpretation of morphology.
6		Ueda M (Neurology) 【eJ-L0】	Recent advances in diagnostic methods for intractable neurological diseases
7		Misumi Y (Neurology) 【eJ-0】	Advanced diagnostic approaches for rare and inherited diseases
8		Shinriki S (Laboratory Medicine) 【eJ-0】	Application of next generation sequencing for clinical diagnosis
9		Shinriki S (Laboratory Medicine) 【eJ-0】	Practice and prospect of clinical diagnostic medicine
10		Jono H (Clin Pharm Sci) 【eJ-0】	Drug discovery research based on basic and clinical evidence
11		Hirai T (Diag Radiology) 【eJ-0】	Forefront of MR imaging and research approaches
12		Hirai T (Diag Radiology) 【eJ-0】	Forefront of CT imaging and research approaches
13		Goto H (RI Science) 【eJ-0】	Molecular Imaging Using RI [Basics]
14		Shiraishi S (RI Imaging) 【eJ-0】	Molecular Imaging Using RI [Clinical]
15		Not open this year	

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)
RDM7-010-82-2	2026whole 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, MIYAMOTO 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		Miyamoto Hideaki【eJ-0】	Progress in endoscopic treatment and diagnosis of gastrointestinal diseases
2		Tanaka Yasuhito 【eJ-0】	State-of the art in diagnosis and treatment of hepatic disease
3		Tanaka Yasuhito 【eJ-0】	Molecular targeting therapy in gastrointestinal & hepatic diseases
4		Sakagami Takuro 【eJ-0】	Progress in diagnosis and treatment of respiratory diseases
5		Sakagami Takuro 【eJ-0】	Topics of allergic respiratory diseases
6		Sakagami Takuro 【eJ-0】	Topics of diagnosis and treatment of lung cancer
7		Miyamaru Satoru【eJ-0】	The diagnosis and management of dysphagia
8		Ise Momoko 【eJ-0】	Treatment using cochlear implant for severe sensorineural hearing loss
9		Murakami Daizo 【eJ-0】	Endoscopic treatment of head and neck diseases
10		Hibi Taizo 【eJ-0】	Organ transplantation; the past and the present
11		Hibi Taizo 【eJ-0】	Liver transplantation; basis and clinical application
12		Kamba Tomomi 【eJ-0】	Current therapeutic strategy for urogenital cancers
13		Kamba Tomomi 【e-0】	Endoscopic treatments for urinary diseases
14		Fukushima Satoshi 【eJ-0】	Molecular targeting therapy for autoimmune diseases in skin
15		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 class to be scored from 0 to 100.

Assessment Methods and Criteria(評価方法・基準)	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)
RDM7-011-82-2	2026whole 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)	KUBOTA Naoto, MATSUMURA Takeshi, YOKOI Hideki, Gotou Tomomi, SUGITA Michiko, Oike Yuuichi, ADACHI Masataka, TSUJITA Kenichi, Yamamoto Eiichirou, IZUMI Yuichiro, HIRATA Naoyuki, MATSUZAWA Yasushi

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		Yasushi Matsuzawa 【eE-0】	Endothelial Dysfunction and Atherosclerosis: From Molecular Mechanisms to Clinical Management
2		Eiichiro Yamamoto 【eE-0】	Molecular mechanisms and therapeutic strategies of chronic heart failure
3		Kenichi Tsujita【eE-0】	Mechanisms of atherosclerosis and therapeutic strategies
4		Michiko Sugita【eE-0】	Perioperative Stress and Invasive Control Mechanisms
5		Tomomi Gotoh 【eE-0】	NO and nitrogen metabolism disorders
6		Naoto Kubota【eE-0】	Insulin and its actions–their molecular basis
7		Takeshi Matsumura【eE-0】	Diabetic complications and their therapeutic approaches
8		Naoyuki Hirata【eE-0】	Mechanisms and therapeutic strategies of perioperative organ injury

9		Naoyuki Hirata【eE-0】	Mechanisms and therapeutic strategies of Postoperative cognitive decline
10		Masataka Adachi【eE-0】	Renal potassium handling
11		Hideki Yokoi 【eE-0】	Structure and function of nephron
12		Yuichiro Izumi【eE-0】	Sodium and water handling by the kidney
13		Tomomi Gotoh 【eE-0】	ER stress-related diseases
14		Naoto Kubota 【eE-0】	Pathogenesis and therapies of metabolic diseases
15		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)		・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 (English)	
Textbook/Material Language(教科書・資料の言語)		English (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)
RDM7-012-82-2	2026whole 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, KONDO Eiji, NAKAZATO Hitoshi, MATSUMOYO Shiro, KIDO Jun, YAMAGUCHI Munekage, KURAOKA Shohei, ANAN Kotaro, OZASA a Shiro, SAWADA Takaaki, ISONO Kaori, IWAGOI Yutaka, NAKAMURA Miwa, Hibi Taizou, MURAYAMA Kei

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)	----------
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 abdomanal 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		Kimitoshi Nakamura 【eE-0】	Inborn errors of metabolism
2	10/08	5th period　Yutaka Iwagoi	Clinical Pathophysiology of Perinatal Disorders
3		Hitoshi Nakazato 【eJ-0】	Hereditary Nephropathy
4	10/22	5th period　Miwa Nakamura	Assisted reproductive technology and Oncofertility
5		Kei Murayama 【eE-0】	Enzyme replacement therapy and gene therapy for inherited diseases during childhood
6	11/05	5th period　Shohei Kuraoka	Modeling Kidney Disease with Pluripotent Stem Cells
7		Takaaki Sawada【eE-0】	Congenital abnormalities and genetic counseling
8		Kotaro Anan【eE-0】	Molecular basis and therapeutic strategies for pediatric disorders in children
9		Shiro Ozasa【eE-0】	The Molecular Pathogenesis and Therapeutic Strategies of Pediatric Neuromuscular disorders ― Duchenne Muscular Dystrophy and Spinal Muscular Atrophy ―
10		Shiro Matsumoto【eE-0】	Amino acid metabolism and Disorders
11		Jun Kido【eE-0】	New diagnostics and treatments for rare pediatric diseases
12		Eiji Kondoh【eE-0】	Management of preeclampsia
13		Munekage Yamaguchi【eJ-0】	Villous macrophages in the human placenta: a variety of functions and perinatal complications
14		Kaori Isono【eJ-0】	Relationship between macrophages and microbiota in maintaining intestinal homeostasis
15		Taizo Hibi【eE-0】	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)	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	2026whole 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, NAKAYAMA Hideki, YOSHIDA Ryoji,HIROSUE Akiyuki,IWATSUKI Masaaki, Ikeda Kouei, Miyamoto Yuuji, IDA Satoshi, HAYASHI Hiromitsu, OKABE Hirohisa,

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		Araki Norie 【eEJ-L】	Tumor Genetics and biology (introduction)
2		Araki Norie 【eEJ-L】	Tumor Genetics and biology 1
3		Araki Norie 【eEJ-L】	Tumor Genetics and biology 2
4		Iwatsuki Masaaki 【eJ-0】	Gastroenterological surgery (introduction)
5		Okabe hirohisa 【eE-0】	Gastroenterological surgery 1
6		Hayashi Hiromitsu 【eJ-0】	Gastroenterological surgery 2
7		Ida satoshi 【eE-0】	Gastroenterological surgery 3
8		Iwatsuki Masaaki 【eE-0】	Gastroenterological surgery 4
9		Miyamoto Yushi【eE-0】	Gastroenterological surgery 5
10		Nakayama Hideki 【eJ-0】	The role of immunotherapy in multimodal treatment of oral cancer and treatment strategies using immune checkpoint inhibitors.
11		Yoshida Ryoji 【eJ-0】	Advancements in oral cancer treatment and research: progressing toward a truly multidisciplinary approach.
12		Hirosue Akiyuki 【eJ-0】	Tumor microenvironment and cellular regulation via epigenomic alterations in oral cancer.
13		Suzuki Makoto 【eE-0】	General discussion of Thoracic Surgery
14		Suzuki Makoto 【eJ-0】	Specific discussion of Thoracic Surgery, Lung Cancer ---
15		Ikeda Koei 【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)
RDM7-014-83-2	2026whole 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 brathytherapy, 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		Natsuo Oya 【eJ-0】	“Radiation biology and physics”
2		Natsuo Oya 【eJ-0】	“Stereotactic radiotherapy and intensity-modulated raidotherapy”
3		Ryuji Murakami 【eJ-0】	“Image-guided radiotherapy and adaptive radiotherapy”
4		Yutaka Yamamoto 【eJ-0】	“Biological features of breast cancer”
5		Yutaka Yamamoto 【eJ-0】	“Paradigm shift in breast cancer treatment”
6		Yutaka Yamamoto 【eJ-0】	“Molecular target therapy for breast cancer”
7		Takeshi Motohara【eJ-0】	“Epidemiology of gynecological malignancies”
8		Takeshi Motohara 【eJ-0】	“Radiation therapy for gynecological malignancies”
9		Fumitaka Saito 【eJ-0】	“Paradigm shift of the treatment for gynecological malignancies”
10		Akitake Mukasa 【eJ-0】	“Character of brain tumor”
11		Akitake Mukasa 【eJ-0】	“Brain tumor diagnosis”
12		Akitake Mukasa 【eJ-0】	“Brain tumor therapy”
13		Eisaku Iwanaga 【eJ-0】	“Hematological oncology I - leukocytes”
14		Kisato Nosaka 【eJ-0】	“Hematological oncology II - lymphocytes”
15		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 Language(教科書・資料の言	Japanese

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)
RDM7-015-83-2	2026whole 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　Restorative Medicine)	FUKUI Toshihiro, FUKUSHIMA Satoshi, MIYAMOTO Takeshi, NISHIKAWA Takeshi, MATSUMURA Takeshi, Yasunaga Jiyunichiro, KAWANO Hiroaki, NAKATA Hirotomo,

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		Satoshi Fukushima【eJ-0】	Mechanism of Wound healing
2		Satoshi Fukushima【eJ-0】	Reconstruction by local frap
3		Satoshi Fukushima【eJ-0】	Reconstruction with microsurgery
4		Takeshi Miyamoto　【eJ-0】	Pathophysiology of bone metabolism
5		Takeshi Miyamoto　【eJ-0】	Physiology and biology of articular cartilage
6		Takeshi Miyamoto　【eJ-0】	Inflammatory arthritis
7		Takeshi Nishikawa　【eJ-0】	Hypothesis and Design of Clinical Researches
8		Junichiro Yasunaga　【eJ-0】	Hematopoiesis in the bone marrow and hematopoietic stem cell transplantation therapy
9		Hirotomo Nakata　【eJ-0】	
10		Hiroaki Kawano　【eJ-0】	Risk factors for acute coronary syndrome and gender difference
11		Toshihiro Fukui　【eJ-0】	Sugical treatment of heart failure
12		Toshihiro Fukui　【eJ-0】	Surgical treatment of ischemic heart disease
13		Toshihiro Fukui　【eJ-0】	Surgery of valvular heart disease
14		Takeshi Matsumura　【eJ-0】	Hypothesis and design from the perspective of diabetic complications researches
15		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)
RDM7-016-83-2	2026whole 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 Yorihisa, NAKAYAMA Hideki, NOSAKA Kisato, YAMAMOTO Yutaka, FUKUSHIMA Satoshi, IWATSUKI Masaaki, 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		Yasuhito Tanaka 【eJ-0】	Medical treatment of the gastrointestinal cancer
2		Masaaki Iwatsuki 【eJ-0】	Surgical cure of the digestive cancer
3		Takuro Sakagami 【eJ-0】	Medical treatment of the lung cancer
4		Makoto Suzuki 【eJ-0】	Surgical treatment of the lung cancer
5		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		Yorihisa Orita 【eJ-0】	The treatment of the head and neck cancer
7		Takeshi Miyamoto 【eJ-0】	The treatment of the bone soft part tumor
8		Yutaka Yamamoto 【eJ-0】	Treatment of breast cancer
9		Takeshi Motohara 【eJ-0】	The treatment of the gynecologic malignant tumor
10		Tomomi Kamba 【eJ-0】	The treatment of genitourinary cancers
11		Satoshi Fukushima 【eJ-0】	Skin cancer therapy___
12		Taizo Hibi 【eJ-0】	Pediatric Solid Cancer Therapy
13		Akitake Mukasa 【eJ-0】	The treatment of the brain tumor
14		Kisato Nosaka 【eJ-0】	The treatment of the hematologic malignancies
15		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)
RDM7-018-83-2	2026whole 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)	YAMAMOTO Yutaka, SUZUKI Makoto, MUKASA Akitake, MATSUI Kunihiko, Kanba Tomomi, Jiyouno Hirofumi, Miyamoto Yuuji, IDA Satoshi, HAYASHI Hiromitsu

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% 4.Social leadership drive ‥‥20%

Type of Class(授業の形態)	Lecture
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		Yamamoto Yutaka, eEJ-O	Basic of clinical research 1(Clinical trials and observational studies)
2		Yamamoto Yutaka, eEJ-O	Basic of clinical research 1(Clinical research using biomarkers)
3		Matsui Kunihiko, eEJ-O	Details of ethical guideline for clinical research
4		Jono Hirofumi, eEJ-O	Basics of Pharmacokinetics/Pharmacodynamics
5		Jono Hirofumi, eEJ-O	Clinical Application of Pharmacokinetics/Pharmacodynamics
6		Yutaka Yamamoto, eEJ-O	Design and Assessment of clinical trailas
7		Makoto Suzuki, eE-O	Clinical trials on lung cancer (1)
8		Makoto Suzuki, eE-O	Clinical trials on lung cancer (2)
9		Satoshi Ida, eE-O	Clinical trials on gastric cancer
10		Yuji Miyamaoto, eE-O	Clinical trials on colorectal cancer
11		Hiromitsu Hayashi, eE-O	Clinical trials on hepatic cell carcinoma
12		Yutaka Yamamoto, eEJ-O	Clinical trials on breast cancer (1)
13		Yutaka Yamamoto, eEJ-O	Clinical Trials on breast cancer (2)
14		Tomomi Kamba, eEJ-O	Clinical Trials on urinary organ cancer
15		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 Therapeurics” 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.

Textbook/Material Language(教科書・資料の言語)	Combination of Japanese and English (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 reserch 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	2026whole year	Graduate School of Medical Sciences (25240)	1, 2, 3, 4	2	others

Course Title(Theme)(科目名(講義題目))	Instructor(s)(担当教員)
Training of biostatistics in clinical study(C11)	TOMIZAWA Kazuhito, HASHIMOTO Kenyu

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		HASHIMOTO Kenyu,【eJ-0】	Data representation
2		HASHIMOTO Kenyu,【eJ-0】	Dataset construction
3		HASHIMOTO Kenyu,【eJ-0】	Comparing two groups
4		HASHIMOTO Kenyu,【eJ-0】	Comparing three or more groups
5		HASHIMOTO Kenyu,【eJ-0】	Correlation and simple linear regression
6		HASHIMOTO Kenyu,【eJ-0】	Contingency table analysis
7		HASHIMOTO Kenyu,【eJ-0】	Fundamentals of statistical inference
8		HASHIMOTO Kenyu,【eJ-0】	Statistical design 1
9		HASHIMOTO Kenyu,【eJ-0】	Statistical design 2
10		HASHIMOTO Kenyu,【eJ-0】	Sample size determination
11		HASHIMOTO Kenyu,【eJ-0】	Multivariate analysis 1
12		HASHIMOTO Kenyu,【eJ-0】	Multivariate analysis 2
13		HASHIMOTO Kenyu,【eJ-0】	Multivariate analysis 3
14		HASHIMOTO Kenyu,【eJ-0】	Survival analysis 1
15		HASHIMOTO Kenyu,【eJ-0】	Survival 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)
RDM7-157-99-1	2026whole year	Graduate School of Medical Sciences (25250)	1, 2, 3, 4	2	others

Course Title(Theme)(科目名(講義題目))	Instructor(s)(担当教員)
Overview of clilnical study(Overview of clilnical study（C12）)	TSUJITA Kenichi, SAKAGAMI Takuro, YAMAZAKI Hajime, KAWAGUCHI Takayoshi, MATSUI Kunihiko, SANUKI Tetsuji, NOSAKA Kisato, NAKAMURA Taishi, MIYASHITA Azusa, Morinaga Jiyun, NAGAOKA Katsuya, YAMASAKI Akira

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 and Seminar
Teaching Method(授業の方法)	Face-to-face or e-learning lectures using handouts.
Course Goals(授業の目的)	The purpose of this lecture is to provide young researchers who are about to start clinical research with the basic knowledge necessary to plan and conduct their research.
Course Learning goals(学修目標)	【A level (A水準)】 Acquire sufficient knowledge to plan and conduct clinical research, in addition to concepts related to the framework of observational and interventional research, research ethics, statistics, regulations, practices, big data construction and utilization, leveraging AI in research, intellectual property, etc. 【C level (C水準)】 Acquire essential knowledge to plan and conduct clinical research, in addition to concepts related to the framework of observational and interventional research, research ethics, statistics, regulations, practices, big data construction and utilization, leveraging AI in research, intellectual property, etc.
Course Outline(授業の概要)	The course provides an overview of observational and intervention research, research ethics, statistical concepts, study design, regulations and practices, and big data construction and utilization, leveraging AI in research, as well as the essence of knowledge about intellectual property.

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		SAKAGAMI Takuro, 【eJ-O】	Introduction to clinical research: Translational research(Active Learning)
2		HONDA Munenori, 【eJ-O】	Research Ethics: Protecting participants in clinical research
3		MORINAGA Jun, 【eJ-O】	Statistical principles in clinical research
4		MORINAGA Jun, 【eJ-O】	Introduction of study design in clinical research
5		MIYASHITA Azusa,【eJ-O】	Understanding guidelines and laws in clinical research
6		MIYASHITA Azusa, MORINAGA Jun,【eJ-O】	Introduction of protocol writing in clinical research
7		MATSUI Kunihiko, 【eJ-O】	Promotion and practice of observational study
8		TSUJITA Kenichi, 【eJ-O】	Promotion and practice of interventional study
9		NAKAMURA Taishi, 【eJ-O】	Construction and application of medical big data
10		NOSAKA Kisato, 【eJ-O】	Clinical Trial Regulations and Project Management
11	12/10	Thu. 4th period. SANUKI Tetsuji, 【eJ-L】	Management of medical device development
12	12/17	NAGAOKA Katsuya, 【eJ-L】	Potential for AI Applications in Clinical Research
13		KAWAGUCHI Takayoshi, 【eJ-O】	Importance of intellectual property in clinical development
14	01/14	Thu. 3th period. YAMAZAKI Hajime, 【eJ-L】	Practice of study design in clinical research 1 (Active Learning)
15	01/14	Thu. 4th period. YAMAZAKI Hajime, 【eJ-L】	Practice of study design in clinical research 2 (Active Learning)

Estimated out-of-class study time	This course consists of material requiring 90 hours of study. The course comprises 30 hours of class time (15 sessions of 2 hours each).
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)	The level of understanding of the lectures will be evaluated by examining the reports and scores in quizzes related to the lectures.
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	Applicable

D1 Medicine & Life Science Seminar (Elective 2 credits) Subject code:20220

Academic Year 2026, D1 Medicine & Life Science Seminar【eE-L】

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

№	Schedule	Speaker	Title	Affiliation	Host Dept.
1	Apr 22 (Wed)	Kozo Tomita	Structure and mechanism of RNA processing machinery	Professor / Department of Computational Biology and Medical Sciences, The University of Tokyo	Molecular Physiology
2	May 13 (Wed)	Kei Sato	Evolution of sarbecoviruses including SARS-CoV-2	Professor / The Institute of Medical Science, The University of Tokyo	Hematology, Rheumatology and Infectious Disease
3	Jul 1 (Wed)	Daisuke Nanba	Analysis of Human Epidermal Stem Cell Dynamics and Application to Regenerative Medicine	Professor / Division of Regenerative Medicine and Therapeutics, Department of Genomic Medicine and Regenerative Therapy, School of Medicine, Faculty of Medicine, Tottori University	Immunology
4	Aug 18 (Tue)	Toshiyuki Ko	Single cell RNA seq analysis of cardiovascular diseases.	Assistant Professor / Department of Frontier Cardiovascular Science, Graduate School of Medicine, The University of Tokyo	Anatomy
5	Sep 9 (Wed)	Ayuko Hoshino	Exosomes in pathophysiological conditions	Professor / RCAST, University of Tokyo	Neuropsychiatry
6	Oct 2 (Fri)	Kunimasa Ota	Regulation of neural stem cells by extracellular factors (Tsukushi and Akhirin)	Professor / Department of Stem Cell Biology, Faculty of Arts and Science, Kyushu University	Histology
7	Oct 16 (Fri)	Motohiro Yamauchi	Roles of mRNA splicing factors in DNA repair and the maintenance of genome integrity	Division Head / Central Radioisotope Division, National Cancer Center Research Institute	Radioisotope and Tumor Pathobiology
8	Oct 21 (Wed)	Yusuke Kishi	The role of epigenetics in neurons and brain function	Associate Professor / Institute for Quantitative Biosciences, The University of Tokyo	Molecular Brain Science
9	Nov 18 (Wed)	Nobuaki Takahashi	Life and Stress: An Evolutionary Journey Through Adaptive Strategies	Professor / Synthetic Chemistry and Biological Chemistry, Kyoto University	Microbiology

Note: The date, time or place of these lectures are subject to change.
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 a seminar other than the above. (http://www.medphas.kumamoto-u.ac.jp/en/medgrad/gakunai/seminar/)

***** Each seminar will be held in English *****

*Only those who have registered for D1 Seminar can take the e-learning course.
However, some seminar sessions may not be recorded due to the content of the seminar or the instructor's availability.
An announcement will be made if a lecture will not be recorded. For details, please contact the Student Affairs Office.
*Face-to-face seminars can be taken by students who have not registered for the course.

D2 Learning from Experienced Doctors Seminar (Elective 2 credits) Subject code 20230

Academic Year 2026, D2 Learning from Experienced Doctors Seminar【eJ-L】

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

№	Schedule	Speaker	Title	Affiliation	Host Dept.
1	May 20 (Wed)	Noriko Osumi	Exploring molecular pathogenesis of microcephaly	Executive Director / Japan Society for the Promotion of Science	Molecular Brain Science
2	Jun 5 (Fri)	Koki Ueda	Platelets as a Readout of Stem Cell Dysfunction in Myeloproliferative Neoplasms	Associate Professor / Department of Blood Transfusion and Transplantation Immunology, School of Medicine, Fukushima Medical University	Radioisotope and Tumor Pathobiology
3	Jun 24 (Wed)	Makoto Yamagishi	Integrated multi-omics for HTLV-1-associated diseases: from analysis to therapeutic discovery	Associate Professor / Laboratory of Viral Oncology and Genomics, Department of Computational Biology and Medical Sciences, Graduate School of Frontier Sciences, The University of Tokyo	Hematology, Rheumatology and Infectious Disease
4	Jul 8 (Wed)	Seitaro Nomura	Single-cell omics analysis for the development of precision cardiovascular medicine	Associate Professor / Department of Frontier Cardiovascular Science, The University of Tokyo Graduate School of Medicine	Molecular Genetics
5	Jul 15 (Wed)	Kamimoto, Kenji	Decode, predict, and control biological systems through omics and AI modeling approaches.	Professor / Research Institute for Microbial Diseases, Osaka University	Functional Genomics
6	Jul 29 (Wed)	Takahiro A. Kato	Multidimensional Approach toward Hikikomori and Modern-Type Depression: From Psychoanalysis to Digital Intervention	Professor / Department of Psychiatry, Hokkaido University Graduate School of Medicine	Psychiatry and Neuroscience
7	Aug 5 (Fri)	Shinji Kume	Metabolism and Kidney Diseases	Professor / Department of Medicine, Division of Diabetology, Endocrinology and Nephrology, Shiga University of Medical Science	Anatomy
8	Sep 16 (Wed)	ODA, Jun	Medicine at Mass Gatherings: Establishing Healthcare Systems and Clinical Outcomes: The Case of Osaka-Kansai Expo 2025	Professor / The University of Osaka Graduate School of Medicine	Disaster and Critical Care Medicine
	Dec 2 (Wed)	Shingo Iwami	Analyzing Clinical Data through Data Science	Graduate School of Science, Nagoya University	Neuropsychiatry
9	Jan 15, 2027 (Fri)	Mitsutoshi Nakada	Neuroscience conducted by neurosurgeon	Professor / Department of Neurosurgery, Kanazawa University	Histology

Note: The date, time or place of these lectures are subject to change.
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 a seminar other than the above. (http://www.medphas.kumamoto-u.ac.jp/en/medgrad/gakunai/seminar/)

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

*Only those who have registered for D2 Seminar can take the e-learning course.
However, some seminar sessions may not be recorded due to the content of the seminar or the instructor's availability.
An announcement will be made if a lecture will not be recorded. For details, please contact the Student Affairs Office.
*Face-to-face seminars can be taken by students who have not registered for the course.

Approval of Credits of Elective Subject in Doctoral Course, D3 Medicine and Life Science Training (Subject code 22220)

1. In the wake of realization of doctoral course lessons in the graduate school, presentations at academic meetings, such as academic conferences and lecture meetings, under the sponsorship of academic societies and universities, but not under the sponsorship of private organizations will be approved as credits.

2. “D3 Medicine and Life Science Training” is an elective subject in the doctoral course and up to a maximum of 2 credits can be awarded from presentations at academic conferences. (Refer to the list of lecture course/subject and credit in the syllabus.)

3. The criteria for credit approval are stipulated below. In addition, academic meetings that meet the above criteria such as academic conferences, lecture meetings and symposiums, will be judged by the committee of the postgraduate education.

1) In international academic meetings such as conferences, meetings, and symposiums, which are held domestically and abroad, or in national conferences and study meetings, which are held domestically, attendance as a leading presenter of a poster or an oral presentation as the first author of the abstract will be approved for a maximum of 2 credits.

2) In local academic meetings, such as conferences, lecture meetings and seminars, leading a poster or oral presentation as the first author of the abstract will be approved for a maximum of 1 credit.

For relation of the term of academic meetings and the number of credits to be approved, refer to the detailed regulations as shown in the next page.

4. How to apply for credits and the process of approving credits (The stipulations of this matter and the necessary forms are published on the website for the Graduate School of Medical Sciences and can be downloaded from the website).

1) Graduate students should record and submit the necessary information. Record in the prescribed application form (Refer to Format 1) the names of academic meetings, the term of the meetings and reports. Submit the written form to the Educational Affairs Planning Section (Ext. 5029) with 1) a certificate of participation (a copy is acceptable), 2) a copy of the program in which the presentation is published in and 3) a copy of the abstract that the student has published as a leading presenter. In principle, submit the forms within the same academic year as conference participation. The application form will be examined by the committee of the postgraduate education (generally held on every third Wednesday).

2) The committee of the postgraduate education will review all submissions and calculate credit based on the detailed regulations (Attachment 1). The credits will be calculated, and when they reach 2 or more, they will be given to SOSEKI by the Educational Affairs Planning Section. Students need to view SOSEKI to check their acquired credits. If the number of credits doesn’t reach 2, it will not be approved (0 credits).

(Format 1)

Application Form for Credits of
D3 Medicine and Life Science Training: (Presentations at academic meetings)

Application date: (year/month/day)

Name:	___ Year	Student number:	Affiliation :
Course name (if applicable): Phone number: E-mail address:			
Name of academic meeting:			
Date of meeting (y/m/d): ～		City and venue of meeting:	
Date when the applicant participated in the meeting(y/m/d): ～ (_____ days)			
Presenters' names (all):			
Title of the presentation: (circle one) oral poster			
The number of credits to be applied for approval (Refer to the detailed regulations in Attachment 1 about how to calculate): _____ credits			
Report about what you have learned through participating in the academic meeting (Write 200 words or more below.)			

Submit 1) a certificate of participation in the academic meeting (a copy is acceptable), 2) a copy of the program in which the presentation is published in, 3) a copy of the abstract that the student has published as a leading presenter in written form together with this application form to Student Affairs Section . (Screening for approval of credits will be conducted in the committee of the postgraduate education, which is held on every third Wednesday.)

Approval of Credits of Elective Subject in Doctoral Course, D3 Medicine and Life Science Training (Subject code 22220)

1. In the wake of realization of doctoral course lessons in the graduate school, presentations at academic meetings, such as academic conferences and lecture meetings, under the sponsorship of academic societies and universities, but not under the sponsorship of private organizations will be approved as credits.

2. “D3 Medicine and Life Science Training” is an elective subject in the doctoral course and up to a maximum of 2 credits can be awarded from presentations at academic conferences. (Refer to the list of lecture course/subject and credit in the syllabus.)

3. The criteria for credit approval are stipulated below. In addition, academic meetings that meet the above criteria such as academic conferences, lecture meetings and symposiums, will be judged by the committee of the postgraduate education.

1) In international academic meetings such as conferences, meetings, and symposiums, which are held domestically and abroad, or in national conferences and study meetings, which are held domestically, attendance as a leading presenter of a poster or an oral presentation as the first author of the abstract will be approved for a maximum of 2 credits.

2) In local academic meetings, such as conferences, lecture meetings and seminars, leading a poster or oral presentation as the first author of the abstract will be approved for a maximum of 1 credit.

For relation of the term of academic meetings and the number of credits to be approved, refer to the detailed regulations as shown in the next page.

4. How to apply for credits and the process of approving credits (The stipulations of this matter and the necessary forms are published on the website for the Graduate School of Medical Sciences and can be downloaded from the website).

1) Graduate students should record and submit the necessary information. Record in the prescribed application form (Refer to Format 1) the names of academic meetings, the term of the meetings and reports. Submit the written form to the Educational Affairs Planning Section (Ext. 5029) with 1) a certificate of participation (a copy is acceptable), 2) a copy of the program in which the presentation is published in and 3) a copy of the abstract that the student has published as a leading presenter. In principle, submit the forms within the same academic year as conference participation. The application form will be examined by the committee of the postgraduate education (generally held on every third Wednesday).

2) The committee of the postgraduate education will review all submissions and calculate credit based on the detailed regulations (Attachment 1). The credits will be calculated, and when they reach 2 or more, they will be given to SOSEKI by the Educational Affairs Planning Section. Students need to view SOSEKI to check their acquired credits. If the number of credits doesn’t reach 2, it will not be approved (0 credits).

3) For the credit application, “Kumamoto University” shall be indicated as your affiliation. If your affiliation is not Kumamoto University, your academic supervisor shall be included in your co-speakers.

4) A credit application would be accepted by attending a meeting online as well, only when the school educational committee accepts it. A participant certification of such meeting or an approval from the academic supervisor can be submitted for the required submission, 1)-1).

The Detailed Regulations for Approving the Number of Credits in D3 Medicine and Life Science Training

In a faculty meeting on May 28, 2008, it was approved that beginning from the academic year of 2009, students can acquire up to a maximum of 2 credits as D3 Medicine and Life Science Training (which is an elective subject in the doctoral course) by participating in academic meetings as a leading presenter. The detailed regulations of credit approval are stipulated below.

1. Presentations at academic meetings given in 2008 by students who entered in the academic year of 2008 can be approved for credit. However, the application form and the documents that show proof of the students' presentations must be submitted within the 2008 academic year.

2. The relation between the term of academic meetings and the number of credits to be approved is based on the following criteria.

1) The maximum credits will be given for participation in three (3) day academic meetings. "Riron" lecture-style classes, are lecture courses in a subject that consist of fifteen (15) 90-minute sessions (32.5 hours in total). These are worth 2 credits. Academic meetings are generally held from 8 a.m. to 6 p.m. It can be considered that three days participation in academic meetings is equivalent to about thirty (30) hours of study in a regular class.

2) An academic meeting, which is held for half a day should be counted one sixth (1/6) of one credit. For example, one third (1/3) of the stipulated maximum credits should be given by an academic meeting held for one (1) day, a half (1/2) for one and a half (1 1/2) days and two thirds (2/3) for two (2) days.

3) Specific examples of calculating credits:
When a student gives a presentation as the leading presenter at international meetings or domestic national academic meetings held for three days or more, 2 credits should be given. When meetings are held for one day, two thirds (2/3) of one credit will be given, when they are held for one and a half days, one (1) credit should be given, and when they are held for two days, four thirds (4/3) should be given.

When a student gives a presentation as the leading presenter at local academic meetings held for two days, two thirds (2/3) of one credit should be given, when meetings are held for one day, one third (1/3) of one credit should be given and when they are held for half a day, one sixth (1/6) of one credit should be given.

3. When the number of days a student participate in does not match the stipulations above, credits to be awarded will be decided, after deliberations, by the committee of the postgraduate education.

(Format 1)

Application Form for Credits of
D3 Medicine and Life Science Training: (Presentations at academic meetings)

Application date: (year/month/day)

Name:	___ Year	Student number:	Affiliation :
Course name (if applicable): Phone number: E-mail address:			
Name of academic meeting:			
Date of meeting (y/m/d): ～		City and venue of meeting:	
Date when the applicant participated in the meeting(y/m/d): ～ (_____ days)			
Presenters' names (all):			
Title of the presentation: (circle one) oral poster			
The number of credits to be applied for approval (Refer to the detailed regulations in Attachment 1 about how to calculate): _____ credits			
Report about what you have learned through participating in the academic meeting (Write 200 words or more below.)			

Submit 1) a certificate of participation in the academic meeting (a copy is acceptable), 2) a copy of the program in which the presentation is published in, 3) a copy of the abstract that the student has published as a leading presenter in written form together with this application form to Student Affairs Section . (Screening for approval of credits will be conducted in the committee of the postgraduate education, which is held on every third Wednesday.)

(Format 2)

Appeal for D3 Medicine and Life Science Training (Conference Presentation)

Student ID No.: _____

Affiliation: _____

Name (hand-writing): _____

Academic supervisor (hand-writing): _____

Name of Conference:
Appeals:

【Subject code：10230（Master’s Elective Subject）】
【Subject code：26052（Doctoral Elective Subject）】
*Note that the codes are different for master's and doctoral students.

English (GSMS)

1. To improve English language skills, English language proficiency will be assessed and two credits will be awarded according to the CEFR (The Common European Framework of Reference for Languages) standards, which are widely recognized as international standards for language communication skills.

2. The University has established English subjects as elective subjects in the Master's and Doctoral Programs of the Graduate School of Medical Sciences, and requires students to take the STEP (Eiken), GTEC/CBT, GTEC for STUDENTs, IELTS, TEAP, TOEFL iBT, TOEFL Junior Comprehensive, or TOEIC/ TOEIC S&W. Credit will be granted by submitting test scores of those tests.

3. Level A is defined as C1 level and Level C as B1 level according to the CEFR standards. Evaluation will be based on the following criteria.
   AA: CEFR C2 level
   A: CEFR C1 level
   B: CEFR B2 level
   C: CEFR B1 level (See Note below)
   Fail: CEFR A2 level or below

(Note) The CEFR B1 level score will be regarded as ‘Fail’ if it has not improved from the English score at the time of admission.

4. Conversion of each English test’s scores to the CEFR standards will be based on the table approved by the faculty meeting.

5. Evaluation will be made on English scores taken after the second year of the graduate school after a minimum of 90 hours of English study overall, including English conversation in the laboratory and English papers study after entering the graduate school.

Reference

2015/09/29版

各試験団体のデータによるCEFRとの対照表

CEFR	Cambridge English	英検	GTEC CBT	GTEC for STUDENTS	IELTS	TEAP	TOEFL iBT	TOEFL Junior Comprehensive	TOEIC / TOEIC S&W
C2	CPE (200+)				8.5-9.0				
C1	CAE (180-199)	1級 (2810-3400)	1400		7.0-8.0	400	95-120		1305-1390 L&R 945~ S&W 360~
B2	FCE (160-179)	準1級 (2596-3200)	1250-1399	980 L&R&W 810	5.5-6.5	334-399	72-94	341-352	1095-1300 L&R 785~ S&W 310~
B1	PET (140-159)	2級 (1780-2250)	1000-1249	815-979 L&R&W 675-809	4.0-5.0	226-333	42-71	322-340	790-1090 L&R 550~ S&W 240~
A2	KET (120-139)	準2級 (1635-2100)	700-999	565-814 L&R&W 485-674	3.0	186-225		300-321	385-785 L&R 225~ S&W 160~
A1		3級-5級 (790-1875)	-699	-564 L&R&W -484	2.0				200-380 L&R 120~ S&W 80~

英検： 日本英語検定協会 http://www.eiken.or.jp/forteachers/data/cefr/
http://www.eiken.or.jp/association/info/2014/pdf/0901/20140901_pressrelease_01.pdf
TOEFL：米国ETS http://www.ets.org/Media/Research/pdf/RM-15-06.pdf?WT.ac=dkb
IELTS：ブリティッシュ・カウンシル（および日本英語検定協会）資料より
TEAP： 第1回 英語力の評価及び入試における外部試験活用に関する検討会 吉田研作教授資料より
Cambridge English（ケンブリッジ英検）：ケンブリッジ大学英語検定機構 http://www.cambridgeenglish.org/exams-and-qualifications/cefr/cefr-exams/
http://www.cambridgeenglish.org/exams/cambridge-english-scale/
※各試験団体の公表資料より文部科学省において作成

GTEC ：ベネッセコーポレーションによる資料より
「L&R&W」の記載が無い数値が４技能の合計点
TOEIC ： IIBC http://www.toeic.or.jp/toeic/about/result.html
「L&R」または「S&W」の記載が無い数値が４技能の合計点

Source: Ministry of Education, Culture, Sports, Science and Technology Website (https://www.mext.go.jp/b_menu/shingi/chousa/shotou/117/shiryo/__icsFiles/afieldfile/2015/11/04/1363335_2.pdf)

Academic Year 2026, D5: International Biomedical Research Seminars

- Place: Meeting Lounge, IRCMS 1F or online
- Time & Date: From 16:00 (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 2026 to March 2027, 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	Research Field/The title for the lecture	Title / Affiliation
1.	May (Online)	Junren Chen	AI in diagnosis and treatment of hematological malignancies	Institute of Hematology & Blood Diseases Hospital, Chinese Academy of Medical Sciences (IHCAMS), China
2.	June (Onsite)	Mitinori Saitou	Germ cells	Director / PI, ASHBi, Kyoto University
3.	July (Online)	Carlos Lois	Neural science	Professor, Division of Biology and Biological Engineering, Caltech, USA
4.	August (Onsite)	Koji Hase	Mucosal barrier disfunction	Professor, Faculty of Pharmacy, Department of Pharmaceutical Sciences, Keio University
5.	September (Online)	Alejandro Aguilera Castrejon	In vitro development	Group Leader, HHMI, Janelia Research Campus, USA
6.	October (Onsite)	Hiroki Ueda	Systems biology	Professor, Graduate School of Medicine, Department of Systems Pharmacology, The University of Tokyo
7.	November (Online)	Louise E Purton	Blood stem cell biology	Professor, St. Vincent's Institute of Medical Research in Melbourne, Australia
8.	December (Onsite)	Yoshiko Takahashi	Developmental biology	Professor, Department of Zoology, Graduate School of Science, Kyoto University
9.	January (Online)	Satoshi Toda	Synthetic biology	Associate Professor, Institute for Protein Research, The University of Osaka
10.	February (Onsite)	Azusa Inoue	Epigenome inheritance	Team Director, RIKEN IMS
11.	March (Online)	Qianfei Wang	Genomics and precision medicine	Professor, Application Development Department, Beijin Institute of Genomics, Chinese Academy of Sciences, China
12.	TBD	Maki Mizukai	World peace from the perspective of medicine and health	Lecturer, Center for Student Development, Hagoromo University of International Studies

Note: The schedule or venue of these lectures are subject to change. 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 a seminar other 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 10 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

Practice (Jissen) I, II ・Practice (Jissen) III Timetable Code List

Please refer to the link below for further details of "Departmental Course Practice (Jissen) I, II ・Practice (Jissen) III".
http://syllabus.kumamoto-u.ac.jp/

Field		Subject	Practice I	Practice Ⅱ
Basic Medicine	1	Anatomy	20380	21190
	2	Histology	20280	21090
	3	Sensory and Cognitive Physiology	20390	21200
	4	Molecular Physiology	20250	21060
	5	Molecular and Medical Pharmacology	26055	26056
	6	Medical Biochemistry	20500	21310
	7	Molecular Genetics	20240	21050
	8	Pathology and Experimental Medicine		
	9	Cell Pathology	20510	21320
	10	Microbiology	20480	21290
	11	Immunology	20290	21100
	12	Molecular Brain Science	25070	25080
	13	Lifelong Health Education	25860	25870
	14	Medical Oncology and Translational Research	22890	23020
	15	Neuroscience for Metabolic Control	26053	26054
	16	Medical Education	26059	26060
	17	Psychiatry and Neuroscience	26077	26078
	18	Disease Prevention and Control	26073	26074
Environmental and Socio Medical Sciences	19	Public Health	23060	23070
	20	Forensic Medicine	21010	21820
	21	Bioethics	21020	21830
	22	Clinical Ethics	21040	21850
	23	Clinical Psychology	21030	21840
	24	Regulatory Science	23040	23050
Internal Medicine and Pediatrics	25	Respiratory Medicine	22790	22920
	26	Cardiology	22800	22930
	27	Endocrinology and Metabolism	20700	21510
	28	Nephrology	20720	21530
	29	Gastroenterology and Hepatology	20690	21500
	30	Hematology,Rheumatology and Infectious Disease	25130	25140
	31	Neurology	25420	25430
	32	Pediatrics	20740	21550
	33	Diagnostic Medicine	23080	23090
	34	Diagnostic Radiology	20630	21440
	35	Radiation Oncology	20620	21430
	36	Neuropsychiatry	22810	22940
	37	Disaster and Critical Care Medicine	25960	25970
	38	General Medicine and Clinical Epidemiology	25980	25990
	39	Health Care Science	21000	21810
	40	Medical Information Sciences	20660	21470
	41	Diagnostic Pathology	25540	25550
	42	Physiological Function Assessment	22230	22240
	43	Advanced Cardiovascular Medicine	22730	22750
Surgery	44	Gastroenterological Surgery	20870	21680
	45	Thoracic Surgery and Breast Surgery	25880	25890
	46	Cardiovascular Surgery	20860	21670
	47	Pediatric Surgery and Transplantation	22880	23010
	48	Neurosurgery	20920	21730
	49	Orthopaedic Surgery	22850	22980
	50	Obstetrics and Gynecology	22580	22700
Surgery	51	Urology	22820	22950
	52	Ophthalmology	22830	22960
	53	Otolaryngology-Head and Neck Surgery	22840	22970
	54	Oral and Maxillofacial Surgery	22860	22990
	55	Dermatology and Plastic Surgery	22570	22690
	56	Anesthesiology	22870	23000
	57	International Medical Cooperation	20950	21760
Institute of Molecular Embryology and Genetics	58	Kidney Development	22490	22610
	59	Brain Morphogenesis	22500	22620
	60	Cell Modulation	22510	22630
	61	Cell Maintenance	22520	22640
	62	Cell Differentiation	22530	22650
	63	Stem Cell Biology	22550	22670
	64	Medical Cell Biology	22560	22680
	65	Muscle Development and Regeneration	25690	25700
	66	Trophoblast Research	26057	26058
Joint Research Center for Human Retrovirus Infection	67	Infection and Hematopoiesis	25320	25330
	68	Infection and Immunity	25340	25350
	69	AIDS Therapeutics	25360	25370
	70	Vaccine	25380	25390
	71	Molecular Virology & Genetics	25750	25760
	72	Virology and Pathology	26000	26010
	73	Human Molecular Immunology	26075	26076
Institute of Resource Development And Analysis	74	Reproductive Engineering	20370	21180
	75	Disease Epigenetics	25560	25570
	76	Radioisotope and Tumor Pathobiology	26061	26062
	77	Functional Genomics	26065	26066
International Research Center for Medical Sciences	78	Stem Cell Stress	25440	25450
	79	Developmental Morphogenesis	25480	25490
	80	Multi-dimensional Imaging	25520	25530
	81	Proteostasis in Stem Cell	25900	25910
	82	Epigenetic Inheritance	26063	26064

83	Metabolomics Practice II		21860
84	Metabolic Information Epidemology Practice II		21870

		Practice Ⅲ
85	Diagnostic Image Analysis Practice Ⅲ	21880
86	Surgocal therapeutics for Cancer Practice Ⅲ	21890
87	Radiation Oncology Practice Ⅲ	21900
88	Cancer Chemotherapy Practice Ⅲ	21910
89	Paliative Care Practice Ⅲ	21920
90	Clinical Metabolic Informatics Practice Ⅲ	21930

Coursework subject

(Medical Experiment Course)

【Timetable code : 10170（Master's Elective Subject）】【Timetable code : 20200（Doctoral Compulsory Subject）】

***Note that the codes are different for master's and doctoral students.**

Academic Year 2026 Graduate School's Medical Experiment Course

Location: Lecture Room 2(Medical Education & Library Building 3F)

Date	AM			PM		
April 6 (Mon.)	1	8:45 ～ 10:15	Introduction to recombinant DNA technique 【eEJ-L】 (Molecular Genetics: TERADA Kazutoyo)	3	13:15 ～ 14:45	Fundamentals and Applications of PCR【eEJ-L】 (Medical Biochemistry: SATO Yoshifumi)
	2	10:30 ～ 12:00	Gene Trasfer Technique 【eEJ-L】 (Molecular Physiology: CHUJO Takeshi)	4	15:00 ～ 16:30	Practice and Guidance for Biological Laboratory Safety 【eEJ-L】 (Clinical Microbiology: TSUTSUKI Hiroyasu)
April 7 (Tue.)	5	8:45 ～ 10:15	Introduction to Cell Imaging and Image Analysis 【eEJ-L】 (Gastroenterological Surgery: OKABE Hirohisa)	6	13:15 ～ 14:45	Analysis of Transcriptional Regulation 【eEJ-L】 (Molecular and Medical Pharmacology: SAKAMOTO Yasuhisa)
		10:30 ～ 12:00		7	15:00 ～ 16:30	Pharmacokinetics【eEJ-L】 (Pharmacology and Therapeutics: SARUWATARI Junji)
April 8 (Wed.)	8	8:45 ～ 10:15	Production of polyclonal and monoclonal antibodies 【eEJ-L】 (Immunology: IRIE Atsushi)	10	13:15 ～ 14:45	Analytical methods for intracellular signaling 【eEJ-L】 (Infection and Hematopoiesis: SUZU Shinya)
	9	10:30 ～ 12:00	How to use ChIP-Atlas【eEJ-L】 (Institute of Resource Development and Analysis: OKI Shinya)		15:00 ～ 16:30	
April 9 (Thu.)	11	8:45 ～ 10:15	Immunohistochemistry【eEJ-L】 (Tumor Pathology: YANO Hiromu)		13:15 ～ 14:45	
	12	10:30 ～ 12:00	Basic Methods in Immunology 【eEJ-L】 (Immunology: IRIE Atsushi)	13	15:00 ～ 16:30	Proteomics【eEJ-L】 (Tumor Genetics and Biology: ARAKI Norie)
April 10 (Fri.)	14	8:45 ～ 10:15	Experimental animals and animal Experimentations I 【eJ-L】 (Division of Microbiology and Genetics: TORIGOE Daisuke)		13:15 ～ 14:45	
	15	10:30 ～ 12:00	Experimental animals and animal Experimentations II 【eJ-L】 (Division of Microbiology and Genetics: TORIGOE Daisuke)		15:00 ～ 16:30	
April 13 (Mon.)		8:45 ～ 10:15		17	13:15 ～ 14:45	Reproductive Engineering Techniques (Reproductive Engineering: TAKEO Toru)
	16	10:30 ～ 12:00	Introduction to flowcytometry【eEJ-L】 (Immunology : IRIE Atsushi))		15:00 ～ 16:30	
e-learning only	18		Experiment study and safety control【eEJ-0】 (Environmental Safety Center: YAMAGUCHI Yoshihiro)			

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	2026whole 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)	UENO Takamasa, IKEDA Masanori, KUBOTA Ryuji, OKADA Seiji, Yasunaga Jiyunichirou, SATO Yorifumi, OSHIUMI Hiroyuki, MOTOZONO Chihiro, SAWA Tomohiro, SUZU Shinya, MONDE Kazuaki, 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】	Retrovirus life cycle
2		Tomohiro Sawa【eE-O】	Bacterial infection and pathogenesis
3		Hiroyuki Oshiumi 【eE-O】	Innate immune responses to pathogens
4		Chihiro Motozono【eE-O】	Cellular immune responses to pathogens
5		No Class	No class
6		Kazuaki Monde【eE-O】	Adaptive evolution of viral genes
7		Jun-ichirou Yasunaga 【eE-O】	Emerging/re-emerging infectious diseases
8		Shinya Suzu 【eE-O】	Retroviruses-host interaction
9		Yorifumi Sato【eE-O】	Retroviral infections and latency
10		Masanori Ikeda 【eE-O】	Molecular pathogenesis of hepatitis viruses
11		Yasuhito Tanaka【eE-O】	Hepatitis viruses and Liver cancer
12		Kouki Matsuda【eE-O】	Development of therapeutic approaches toward curing HIV infection
13		Seiji Okada 【eE-O】	Animal model research in infectious diseases
14		Masahiro Ono	CD4 T Cell Immunity to Infection: Mechanisms of Host Defense and Pathogenesis
15		Hirotomo Nakata【eE-O】	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)	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)
RDM7-028-81-1	2026whole 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, MIZUSHIMA Daisuke, SUGIURA Wataru, YAMAMOTO Hiroyuki, TOYODA Mako, TOKUNAGA Kenzo, MAEDA Kenji, WATANABE Koji, NAKAHATA Shingo, TAKAHASHI Naofumi, NOMURA Takushi, SUGETA Kenji

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		Daisuke Mizushima 【eE-0】	Diagnosis and treatment of HIV infection2
2		Daisuke Mizushima 【eE-0】	Prevention of HIV and sexually transmitted infections3
3		Wataru Sugiura 【eE-0】	Current issues in global infections
4		Wataru Sugiura 【eE-0】	Genomics in Infectious diseases
5		Watanabe Koji【eE-0】	opportunistic infection among progressed HIV infected patients
6		Watanabe Koji【eE-0】	Epidemiological strategy based on the size of transmission source
7		Hiroyuki Yamamoto【eE-0】	Antiviral immunity: defense versus perturbation
8		Hiroyuki Yamamoto【eE-0】	Adaptive immune responses in HIV/SIV infection
9		Mako Toyoda 【eE-0】	Current Status and Challenges of Viral Infections in Mothers and Children
10		Kenzo Tokunaga【eE-0】	Molecular mechanisms of host factors inhibiting viral replication 11
11		Kenji Maeda【eE-0】	Development of antiviral therapy against viral infection
12		Shingo Nakahata【eE-0】	Oncology in the area of viral infectious diseases
13		Takushi Nomura【eE-0】	Animal models for control of infectious diseases
14		Kenji Sugata【eE-0】	Antigen presentation and T cell response of infectious disease
15		Naoumi Takahashi【eE-0】	Issues regarding viral persistence

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 Criteria(評価方法・基準)	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 5 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)
RDM7-158-82-1	2026whole 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, Yasunaga Jiyunichirou

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	2026whole 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, 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	2026whole 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, GATANAGA Hiroyuki,TACHIKAWA Ai, YAMAMOTO Hiroyuki, MIZUSHIMA Daisuke, MACHIDA Shinichi, YASUNAGA Junichiro, OSHIUMI Hiroyuki, SAWA Tomohiro, SUZU Shinya, IKEDA Terumasa, TANAKA Yasuto, MOTOZONO Chihiro, NOMURA Takushi

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	2026whole 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)	MOTOZONO Chihiro

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 27th Kumamoto AIDS seminar (Tentative: 14-15th September 2026)	Learn about global status of infectious diseases by joining the Kumamoto AIDS seminar. Also, learn about discussion skills by making presentations 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 weeks after the seminar. Please be sure to include your student ID number and name in the subject line of the email.
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	2026whole 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

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 (5 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)
RDM7-163-79-1	2026whole 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)
RDM7-603-79-2	2026whole 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,GATANAGA Hiroyuki, TACHIKAWA Ai, YAMAMOTO Hiroyuki, MIZUSHIMA Daisuke, MACHIDA Shinichi, YASUNAGA Junichiro, OSHIUMI Hiroyuki, SAWA Tomohiro, SUZU Shinya, IKEDA Terumasa, TANAKA Yasuhito, MOTOZONO Chihiro

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)	Practice and Training
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)
RDM7-604-79-2	2026whole 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, GATANAGA Hiroyuki, TACHIKAWA Ai, YAMAMOTO Hiroyuki, MIZUSHIMA Daisuke, MACHIDA Shinichi, YASUNAGA Junichiro, OSHIMI Hiroyuki, SAWA Tomohiro, SUZU Shinya, IKEDA Terumasa, TANAKA Yasuhito, MOTOZONO Chihiro

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)	Practice and Training
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)
RDM7-605-79-2	2026whole 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, GATANAGA Hiroyuki, TACHIKAWA Ai, YAMAMOTO Hiroyuki, MIZUSHIMA Daisuke, MACHIDA Shinichi, YASUNAGA Junichiro, OSHIUMI Hiroyuki, SAWA Tomohiro, SUZU Shinya, IKEDA Terumasa, TANAKA Yasuto, MOTOZONO Chihiro

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)	Practice and Training
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)
RDM7-122-82-0	2026whole 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, SAWA Tomohiro, KOMOHARA Yoshihiro, TSUJITA Kenichi

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 lecureted, then practical handling will be trained. Results, which will be discussed, must be surmarized 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 sould 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)
RDM7-164-79-2	2026whole 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)	ARIMA Yuichiro, TOMIZAWA Kazuhito, IWAMOTO Kazuya, YAMAGATA Kazuya, Sou Bunketsu, ONO Yusuke, SENOKUCHI Takafumi, INOUE Toshihiro, TAKIZAWA Hitoshi, MIYAMOTO Hideaki, KUROTAKI Daisuke

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)	Seminar
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		1st ARIMA Yuichiro【eE-0】	The biology of aging
2		2nd YAMAGATA Kazuya【eE-0】	Regulation of glucose metabolism by insulin
3		3rd YAMAGATA Kazuya【eE-0】	Molecular mechanism of type 2 diabetes
4		4th YAMAGATA Kazuya【eE-0】	Monogenic form of diabetes mellitus
5		5th SENOKUCHI Takafumi【eE-0】	To achieve healthy longevity -Learn about diabetic complications and their therapeutic approaches
6		6th MIYAMOTO Hideaki【eE-0】	The latest advances in gastrointestinal cancer treatment
7		7th KUROTAKI Daisuke【eE-0】	Overview of Chromatin Structure Analysis
8		8th TAKIZAWA Hitoshi【eE-0】	Inflamm-aging of blood system
9		9th KUROTAKI Daisuke【eE-0】	Overview of Chromatin Structure Analysist
10		10th SONG Wen-Jie【eE-0】	Learning and memory
11		11th IWAMOTO Kazuya【eE-0】	Aging-related epigenetic changes and psychiatric disorders
12		12th INOUE Toshihiro【eE-0】	Glaucoma that threatens healthful longevity
13		13th ONO Yusuke【eE-0】	Age-related changes in skeletal muscle and sarcopenia
14		14th ARIMA Yuichiro【eE-0】	Cardiovascular diseases that increase with aging 1
15		15th ARIMA Yuichiro【eE-0】	Cardiovascular diseases that increase with aging 2

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)
RDM7-165-79-2	2026whole 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)	OKI Shinya, CHUJO Takeshi, SOU Bunketsu, KADOMATSU Tsuyoshi, TAKAHASHI Yuta, ZOU Zhaonan

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)	This class can be completed within one year or extended over multiple years to earn credits. Both remote and face-to-face formats. The student in charge will commence the presentation with a self-introduction and post-PhD plans, followed by a detailed explanation of their research, including an overview of relevant previous studies. Active participation in Q&A sessions and discussions is anticipated from all participants. Non-presenting students are required to submit reports for each session, while presenters are exempt from this requirement. Grades will be determined based on both presentations and reports.
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.
Course Learning goals(学修目標)	【A level (A水準)】 Students are expected to have a good understanding of their own research content, give an excellent PowerPoint presentation, actively participate in the question and answer session, and submit a comprehensive report. 【C level (C水準)】 Students should understand their own research content, give a PowerPoint presentation, participate in the question and answer session, and submit a report.
Course Outline(授業の概要)	In this course, students will study research on the biology of aging, the mechanisms of several age-related diseases, public health, epidemiology, research tools, and learn how to conduct research and improve presentation skills through making presentations, engaging in discussions, and writing 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: Oct. 9th, 6th period (18:30 - 20:00)	Introduction (How to make a presentation)This class will be counted as two classes, and the end of the class will be delayed.
2		Tutorial 1: Oct. 16th, 6th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing.
3		Tutorial 1: Oct. 23rd, 6th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing.
4		Tutorial 1: Oct. 30th, 6th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing.
5		Tutorial 1: Nov. 6th, 6th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing.
6		Tutorial 1: Nov. 13th, 6th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing.
7		Tutorial 1: Nov. 20th, 6th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing.
8		Tutorial 1: Nov. 27th, 6th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing.
9		Tutorial 1: Dec. 4th, 6th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing.
10		Tutorial 1: Dec. 11th, 6th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing.
11		Tutorial 1: Dec. 18th, 6th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing.
12		Tutorial 1: Jan. 8th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing.
13		Tutorial 1: Jan. 15th period (18:30 - 20:00)	Students will study the contents of their respective research through presentations, discussions, and report writing. This class will be counted as two classes, and the end of

13		Tutorial 1: Jan. 15th period (18:30 - 20:00)	the class will be delayed.
14		-----	------
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)	Students must attend over 10 classes within a single year or across multiple years before completing their Thesis research. Additionally, students must deliver at least one PowerPoint presentation. For all classes except the one they present in, students are required to submit essays/reports on the class's presentation via Moodle within one month (for more than 9 classes). Attendance is recorded upon report submission. There will be no final exam. Note: Classes marked as 'counted as two' will be recorded as two attendances/reports in a single session, even if they end later.		
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)
RDM7-020-81-2	2026whole year	Graduate School of Medical Sciences (26051)	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 (For students admitted in 2023 and later)(Doctoral Course A1・Master's Course A5)	KADOOKA Yasuhiro

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 ‥‥50%

Type of Class(授業の形態)	Lecture
Teaching Method(授業の方法)	active learning (discussion and presentation) and online learning
Course Goals(授業の目的)	This course aims to support students to have relevant knowledge and practical skills for biomedical ethics in order for graduate research and future career.
Course Learning goals(学修目標)	【A level (A水準)】 to deal with ethical issues in actual settings of biomedical research and medical practice by making interdisciplinary discussion and moral reasoning 【C level (C水準)】 to have basic knowledge for ethical conducts in biomedical research and medical practice
Course Outline(授業の概要)	eAPRIN (CITI) online program will be adopted to learn basic elements of research ethics. Active leaning methods will be adopted to gain skills for ethical conduct of biomedical research and medical decision-making.

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 integrity 1	eAPRIN online program
2		Research integrity 2	eAPRIN online program
3		Research integrity 3	eAPRIN online program
4		Research integrity 4	eAPRIN online program
5		Research ethics 1	eAPRIN online program
6		Research ethics 2	eAPRIN online program
7		Research ethics 3	eAPRIN online program
8	06/25	3rd period Step-up lecture on research ethics 1	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
9	06/25	4th period Step-up lecture on research ethics 1	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
10	07/02	3rd period Step-up lecture on research ethics 2	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
11	07/02	4th period Step-up lecture on research ethics 2	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
12	07/09	3rd period Step-up lecture on research ethics 3	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
13	07/09	4th period Step-up lecture on research ethics 3	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
14	07/16	3rd period Medical ethics 1	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)
15	07/16	4th period Medical ethics 2	Active learning will be held. (The instructor will set a related topic. Students will audit a small lecture, discuss and then make presentation or comment.)

Estimated out-of-class study time	60 hours of self-learning (out-of-class study) is recommended in addition to 30-hours lecture (2hrs X 15 times).
Required Textbook(テキスト)	NA
Reading List(参考文献)	Principles of Biomedical Ethics. Beauchamp TL and Childress JF. OXFORD University Press. Bioethics Briefings. The Hastings Center. https://www.thehastingscenter.org/publications-resources/hastings-center-bioethics-briefings/ Responsible Conduct of Research. Shamoo AE and Resnik DB. OXFORD University Press. The Oxford Textbook of Clinical Research Ethics. Emanuel EJ, Crady C et al eds. OXFORD University Press. Medical Ethics Today. British Medical Association Ethics Department. Wiley-Blackwell. Resolving Ethical Dilemmas A Guide for Clinicians. Lo B. LWW.
Enrollment Conditions(履修条件)	Participating students are recommended to have basic knowledge life-sciences.
Assessment Methods and Criteria(評価方法・基準)	Students are evaluated for their grades and credits based on the course hours completed, understanding of each subject and abilities of discussion and ethical reasoning.

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)
RDM7-166-99-2	2026whole 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)	ARIMA Yuichiro, YAMAGATA Kazuya, Oike Yuuichi, TSUJITA Kenichi

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)
RDM7-167-79-2	2026whole 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)	ARIMA Yuichiro, YAMAGATA Kazuya, Oike Yuuichi, TSUJITA Kenichi

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

(Reference Translation)

Guidelines for Approval of Credits for Practice I on CMHA (Presentation at domestic conferences)

(Purpose)

Article 1

These guidelines prescribe the matters regarding the approval of credits for Practice I on CMHA (hereinafter referred to as "Practice I") offered by the Educational Program for Extension of Healthy Life Expectancy of the Graduate School of Medical Sciences.

(Overview of Practice I)

Article 2

In Practice I, students are required to attend academic conferences, lectures, symposiums, and other academic meetings organized by universities and other academia (excluding those organized by the private sector) held in Japan (hereinafter referred to as "academic conferences"), and credits are granted for oral or poster presentations at academic conferences.

(The number of credits to be granted)

Article 3

In Practice I, a maximum of two (2) credits shall be granted according to the type of academic conference at which the presentation is made, as listed below. However, the judgment as to which academic conferences credits can be granted for shall be made by the chief instructor of Practice I.

(1) A maximum of two (2) credits is allowed for each oral or poster presentation at a domestic academic conference as the first author of the presentation abstract.

(2) For presentations at regional conferences (regional meetings, etc.), the maximum number of credits is one (1) per attendance with oral or poster presentation as the first author of the presentation abstract.

2 The criteria for the number of credits to be granted shall be as listed in the following table according to the number of days of the academic conferences mentioned in each item of the preceding paragraph.

Academic conference	The number of credits to be granted	Examples of credits to be granted
National	One third (1/3) of one credit is granted for each half day (approximately 5 hours) of the conference period.	・1-day conference: 2/3 ・2-day conference: 4/3 ・3 or more-day conference: 2
Regional	One sixth (1/6) of one credit is granted for each half day (approximately 5 hours) of the conference period.	・1-day conference: 1/3 ・2-day conference: 2/3 ・3 or more-day conference: 1
*Remarks (a) In principle, the stipulated maximum number of credits shall be granted for three days of attendance at an academic conference. The rationale for this is that 15 hours of class attendance in lectures and seminar courses at the Graduate School of Medical Sciences is defined as one credit and that as the regular program of academic conferences is from 8:00 a.m. to around 6:00 p.m., three days of attendance at an academic conference is equivalent		

to approximately 30 hours of class attendance.
(b) When the academic conference is held online only, the number of days actually attended online should be counted for credits.
(c) When an academic conference is held as a hybrid of on-site and online meeting, and there is a period of streaming service, such period should not be included in the number of days of the conference, but only the number of days held on-site should be counted for credits.
(d) The number of credits for attendance at academic conferences that do not conform to the above-mentioned rules shall be determined by the chief instructor of Practice I.

(Application)
Article 4

When a student wishes to earn credits for Practice I, the documents listed below must be submitted, in principle, during the academic year in which the presentation is made to the Student Affairs Office of the Graduate School of Medical Sciences (hereinafter referred to as the "GSMS Student Affairs Office").

(1) Application for Approval of Credits for Practice I on CMHA (Presentation at domestic academic conferences) (Form 1)
(2) A copy of the certificate of participation in the academic conference
(3) A copy of the conference program containing the applicant's presentation information
(4) A copy of the conference abstract containing the applicant's name as a leading presenter
(5) Request for Approval of Credits for Practice I on CMHA (Presentation at domestic academic conferences) (Form 2)
（Submit this form when the applicant has lost any of the required documents above or has participated in an online conference.）

2 The application requirements for credits are as follows:

(1) The applying student must be the first presenter.
(2) The applicant's affiliation must be with Kumamoto University, in principle. If the applicant's affiliation is not with Kumamoto University, the applicant's academic advisor must be included in the presentation as a co-presenter.
(3) In principle, conferences shall be attended in person. In the case of online attendance, the request form stipulated in (5) of Article 4 must be submitted.

(Screening)
Article 5

The instructor of Practice I shall review the application documents submitted to the GSMS Student Affairs Office and calculate the number of credits requested in accordance with the credit conversion table stipulated in Paragraph 2 of Article 3.

(Approval of Credits)
Article 6

The instructor of Practice I shall approve the credits calculated as in the preceding Article and report the granted

credits to the GSMS Student Affairs Office. When two credits are to be granted, a grade evaluation shall be made at the same time.

2 The number of credits approved in accordance with the preceding paragraph may be accumulated from year to year until two credits are earned. When the total number of credits accumulated reaches two credits, the instructor shall grant the credits and grade the student.

Supplementary Provisions

1. These guidelines shall come into effect as of May 29, 2024.
2. Only within the academic year 2024, regardless of the provisions of Paragraph 1 of Article 4, students may apply with respect to conferences attended in the past.

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)
RDM7-168-79-2	2026whole 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)	ARIMA Yuichiro, YAMAGATA Kazuya, Oike Yuuichi, TSUJITA Kenichi

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

(Reference Translation)

Guidelines for Approval of Credits for Practice II on CMHA (Presentation at international conferences*)

*Academic conferences held outside of Japan

(Purpose)

Article 1

These guidelines prescribe the matters regarding the approval of credits for Practice II on CMHA (hereinafter referred to as "Practice II") offered by the Educational Program for Extension of Healthy Life Expectancy of the Graduate School of Medical Sciences.

(Overview of Practice II)

Article 2

In Practice II, students are required to attend academic conferences, lectures, symposiums, and other academic meetings organized by universities and other academia (excluding those organized by the private sector) held outside of Japan (hereinafter referred to as "academic conferences"), and credits are granted for oral or poster presentations at academic conferences.

(The number of credits to be granted)

Article 3

In Practice II, a maximum of two (2) credits shall be granted according to the type of academic conference at which the presentation is made, as listed below. However, the judgment as to which academic conferences credits can be granted for shall be made by the chief instructor of Practice II.

(1) A maximum of two (2) credits is allowed for each oral or poster presentation at an international academic conference as the first author of the presentation abstract.

(2) For presentations at regional conferences (regional meetings, etc.), the maximum number of credits is one (1) per attendance with oral or poster presentation as the first author of the presentation abstract.

2 The criteria for the number of credits to be granted shall be as listed in the following table according to the number of days of the academic conferences mentioned in each item of the preceding paragraph.

Academic conference	The number of credits to be granted	Examples of credits to be granted
International conferences held outside of Japan	One third (1/3) of one credit is granted for each half day (approximately 5 hours) of the conference period.	・1-day conference: 2/3 ・2-day conference: 4/3 ・3 or more-day conference: 2
Regional conferences held outside of Japan	One sixth (1/6) of one credit is granted for each half day (approximately 5 hours) of the conference period.	・1-day conference: 1/3 ・2-day conference: 2/3 ・3 or more-day conference: 1
*Remarks (a) In principle, the stipulated maximum number of credits shall be granted for three days of attendance at an academic conference. The rationale for this is that 15 hours of class attendance in lectures and seminar courses at the Graduate School of Medical Sciences is defined as one credit and that as the regular program of academic conferences is from 8:00 a.m. to around 6:00 p.m., three days of attendance at an academic conference is equivalent		

to approximately 30 hours of class attendance.
(b) When the academic conference is held online only, the number of days actually attended online should be counted for credits.
(c) When an academic conference is held as a hybrid of on-site and online meeting, and there is a period of streaming service, such period should not be included in the number of days of the conference, but only the number of days held on-site should be counted for credits.
(d) The number of credits for attendance at academic conferences that do not conform to the above-mentioned rules shall be determined by the chief instructor of Practice II.

(Application)
Article 4

When a student wishes to earn credits for Practice II, the documents listed below must be submitted, in principle, during the academic year in which the presentation is made to the Student Affairs Office of the Graduate School of Medical Sciences (hereinafter referred to as the "GSMS Student Affairs Office").

(1) Application for Approval of Credits for Practice II on CMHA (Presentation at international academic conferences) (Form 1)
(2) A copy of the certificate of participation in the academic conference
(3) A copy of the conference program containing the applicant's presentation information
(4) A copy of the conference abstract containing the applicant's name as a leading presenter
(5) Request for Approval of Credits for Practice II on CMHA (Presentation at international academic conferences) (Form 2)
（Submit this form when the applicant has lost any of the required documents above or has participated in an online conference.）

2 The application requirements for credits are as follows:

(1) The applying student must be the first presenter.
(2) The applicant's affiliation must be with Kumamoto University, in principle. If the applicant's affiliation is not with Kumamoto University, the applicant's academic advisor must be included in the presentation as a co-presenter.
(3) In principle, conferences shall be attended in person. In the case of online attendance, the request form stipulated in (5) of Article 4 must be submitted.

(Screening)
Article 5

The instructor of Practice II shall review the application documents submitted to the GSMS Student Affairs Office and calculate the number of credits requested in accordance with the credit conversion table stipulated in Paragraph 2 of Article 3.

(Approval of Credits)
Article 6

The instructor of Practice II shall approve the credits calculated as in the preceding Article and report the granted

credits to the GSMS Student Affairs Office. When two credits are to be granted, a grade evaluation shall be made at the same time.

2 The number of credits approved in accordance with the preceding paragraph may be accumulated from year to year until two credits are earned. When the total number of credits accumulated reaches two credits, the instructor shall grant the credits and grade the student.

Supplementary Provisions

1. These guidelines shall come into effect as of May 29, 2024.
2. Only within the academic year 2024, regardless of the provisions of Paragraph 1 of Article 4, students may apply with respect to conferences attended in the past.

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)
RDM7-169-79-2	2026whole 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(-)	OKI Shinya, YAMAGATA Kazuya, Oike Yuuichi, TSUJITA Kenichi

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

Educational Program for the Next Generation Researchers in Advanced Stem Cell Biology Fields

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)
	2026whole year	Graduate School of Medical Sciences (26067)	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 Advanced Stem Cell Biology(H1)	MIHARADA Kenichi, TAKIZAWA Hitoshi, SHENG Guojun, OSHIUMI Hiroyuki, TAKAHASHI Yuta, MIZUNO Hidenobu, UMEMOTO Terumasa, ARIMA Yuichiro, ASAI Rieko, LIU Norika, KUROTAKI Daisuke

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)	Lectures using presentation slides, followed by Q&A and a mini test
Course Goals(授業の目的)	Stem cells continuously generate the constituent cells of various organs and tissues over long periods of time and maintain homeostasis by repairing damage when it occurs. For this reason, stem cell biology is an essential field not only for understanding a wide range of pathological conditions, but also for the development of regenerative medicine technologies such as cell- and gene-based therapies. Research in this field is advancing at a remarkable pace, and the content to be learned is updated year by year. In this course (Advanced Lecture II), students will focus primarily on topics related to stem cell biology and molecular biology, with the aim of understanding the latest findings on mechanisms regulating stem cells and their therapeutic applications. All lectures in this course will be conducted in English.
Course Learning goals(学修目標)	【A level (A水準)】 Students will be able to develop an in-depth understanding of the following topics and explain them in detail, including relevant technical terminology and underlying molecular mechanisms: (1) mechanisms regulating self-renewal and differentiation of hematopoietic stem cells (2) the roles and dynamics of stem cells in neural circuit formation (3) cellular and genetic regulation in innate immunity (4) the roles of metabolic pathways in stem cell regulation (5) the roles of stem cells in embryonic development and developmental abnormalities (6) applications of stem cell research to regenerative medicine technologies 【C level (C水準)】 Students will be able to understand the following topics and explain their basic concepts and overall outlines: (1) mechanisms regulating self-renewal and differentiation of hematopoietic stem cells (2) the roles and dynamics of stem cells in neural circuit formation (3) cellular and genetic regulation in innate immunity (4) the roles of metabolic pathways in stem cell regulation (5) the roles of stem cells in embryonic development and associated abnormalities (6) applications of stem cell research to regenerative medicine technologies
Course Outline(授業の概要)	The course will primarily consist of lectures on the following topics, followed by Q&A sessions and short tests. Hematopoietic stem cells and regulation of hematopoiesis Neural circuits and stem cells Viruses and innate immunity Stem cells and metabolic regulation Embryonic development and stem cells Stem cells and cardiac development

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	6th period: MIHARADA Kenichi	Introduction to advanced stem cell biology
2	10/13	6th period: TAKIZAWA Hitoshi	Blood- and bone-forming stem cells I
3	10/20	6th period: TAKIZAWA Hitoshi	Blood- and bone-forming stem cells II
4	10/27	6th period: UMEMOTO Terumasa	Regenerative medicine and hematopoietic stem cells
5	11/10	6th period: MIZUNO Hidenobu	Stem cells in neuronal circuit formation
6	11/17	6th period: TAKAHASHI Yuta	Establishment and reprogramming of the epigenome during development
7	11/24	6th period: OSHIUMI Hiroyuki	Anti-viral innate immunity I
8	12/01	6th period: OSHIUMI Hiroyuki	Anti-viral innate immunity II
9	12/08	6th period: ARIMA Yuichiro	The Interplay Between Metabolism and Stem Cell Biology
10	12/15	6th period: ASAI Rieko	Neural crest development, multipotency, and congenital disorders
11	12/22	6th period: LIU Norika	Bench to Bedside: From basic research in cardiac development to stem cell–based therapies
12	01/05	6th period: SHENG Guojun	Animal development I (vertebrate body plan)
13	01/12	6th period: SHENG Guojun	Animal development II (gastrulation and stem cells in development)
14	01/19	6th period: KUROTAKI Daisuke	Epigenetic and chromatin structure analysis methods
15	01/26	6th period: MIHARADA Kenichi	Stem cells to red blood cells
Estimated out-of-class		As this is a 2-credit course, it is designed to require a total of 90 hours of student learning. Of these, 30 hours are	

study time	allocated to in-class instruction (2 hours × 15 sessions). The remaining 60 hours are expected to be devoted to preparatory and follow-up study, including assignments, in order to deepen understanding of the course content.
Required Textbook(テキスト)	No specific textbooks are assigned. Materials distributed by the instructor will be used as needed.
Reading List(参考文献)	Not specified
Enrollment Conditions(履修条件)	
Assessment Methods and Criteria(評価方法・基準)	Assessment will be based on the cumulative score of in-class question-and-answer sessions and post-lecture test (10 points each), with a maximum total score of 150 points.
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)
	2026whole year	Graduate School of Medical Sciences (26068)	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 Advanced Stem Cell Biology(Advanced Stem Cell Biology)	OKAE Hiroaki

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)	Lectures using presentation slides, followed by Q&A
Course Goals(授業の目的)	Stem cells play a central role in the development and maintenance of tissue and organ homeostasis. For this reason, stem cell biology is an essential field not only for understanding normal development and congenital disorders, but also for the development of regenerative medicine technologies, including cell- and gene-based therapies. Research in this field is advancing at a remarkable pace in recent years, and the content to be learned is updated year by year. In this course (Advanced Lecture II), students will focus on topics related to stem cell biology and molecular biology, with the aim of understanding the latest findings on the roles of stem cells in embryonic development and on disease research using stem cells, in order to gain insights into the latest advances in the field. All lectures in this course will be conducted in English.
Course Learning goals(学修目標)	【A level (A水準)】 Students will be able to develop an in-depth understanding of the following topics and explain them in detail, including relevant technical terminology and underlying molecular mechanisms: ・Mechanisms regulating self-renewal and differentiation of pluripotent and somatic stem cells ・Reproductive engineering technologies supporting stem cell research ・Epigenomic regulation in stem cell research ・Roles of stem cells in embryonic development and their abnormalities ・Applications of stem cell research to regenerative medicine technologies 【C level (C水準)】 Students will be able to understand the following topics and explain their basic concepts and overall outlines: ・Mechanisms regulating self-renewal and differentiation of pluripotent and somatic stem cells ・Reproductive engineering technologies supporting stem cell research ・Epigenomic regulation in stem cell research ・Roles of stem cells in embryonic development and their abnormalities ・Applications of stem cell research to regenerative medicine technologies
Course Outline(授業の概要)	The course will primarily consist of lectures on the following topics, followed by Q&A sessions. ・Pluripotent stem cells and somatic stem cells ・Reproductive engineering technologies ・Epigenomic regulation in stem cells ・Embryonic development and stem cells ・Stem cells and disease 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	10/08	6th period: Hitoshi Niwa	Mouse preimplantation development and stem cells
2	10/15	6th period: Takumi Era	Application of pluripotent stem cells for disease research
3	10/22	6th period: Toru Takeo	Frontiers in Assisted Reproductive Technologies
4	10/29	6th period: Hiroaki Okae	Historical background and basic principles of stem cell culture
5	11/05	6th period: Ryuichi Nishinakamura	Kidney Organoids: Present and Future
6	11/12	6th period: Shinjiro Hino	Stem cell regulation by nutrients and metabolites
7	11/19	6th period: Satoshi Tateishi	Cell cycle, Cellular senescence
8	11/26	6th period: Shinya Oki	Mammalian body axis formation
9	12/03	6th period: Akira Oike	Human pregnancy and placental development
10	12/10	6th period: Kazuya Matsuo (It is scheduled to be held online.)	Stem Cell Therapy for Neurodegeneration: Revisiting Disease Mechanisms
11	12/17	6th period: Joji Watase	The Role and Maintenance Mechanisms of Germline Stem Cells in Drosophila
12	12/24	6th period: Kenji Shimamura	Biology of neural stem cells and regenerative medicine
13	01/07	6th period: Jun Hatakeyama	Neural stem cell evolution and human brain development
14	01/14	6th period: Yusuke Ono	The biology of skeletal muscle stem cells
15	01/21	6th period: Saori Koga	Molecular mechanisms of hematopoietic stem cell development

Estimated out-of-class study time	As this is a 2-credit course, it is designed to require a total of 90 hours of student learning. Of these, 30 hours are allocated to in-class instruction (2 hours × 15 sessions). The remaining 60 hours are expected to be devoted to preparatory and follow-up study, including assignments, in order to deepen understanding of the course content.
Required Textbook(テキスト)	No specific textbooks are assigned. Materials distributed by the instructor will be used as needed.
Reading List(参考文献)	Not specified

Enrollment Conditions(履修条件)	
Assessment Methods and Criteria(評価方法・基準)	Assessment will be based on a post-lecture test or a report for each lecture, each worth 10 points, with a maximum total score of 150 points.
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)
	2026whole year	Graduate School of Medical Sciences (26070)	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 Advanced Stem Cell Biology(Practice I on Advanced Stem Cell Biology)	MIHARADA Kenichi

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 ‥‥20% 4.Social leadership drive ‥‥10%

Type of Class(授業の形態)	Lecture
Teaching Method(授業の方法)	Presentation and discussion at Advanced Stem Cell Biology Seminar
Course Goals(授業の目的)	This course aims to provide students with foundational knowledge in stem cell biology, developmental biology, and molecular biology. Students will develop the ability to clearly present and explain their own research and to engage in logical and critical discussions in response to questions from faculty members. In addition to deepening scientific understanding, the course also seeks to improve students' academic presentation and communication skills.
Course Learning goals(学修目標)	【A level (A水準)】 Acquiring sufficient knowledge of stem cell biology, developmental biology, and molecular biology, and developing the ability to effectively present and critically discuss their own research at the Advanced Stem Cell Biology Seminar. 【C level (C水準)】 Acquiring sufficient knowledge of stem cell biology, developmental biology, and molecular biology, and developing the basic level of ability to present and discuss their own research at the Advanced Stem Cell Biology Seminar.
Course Outline(授業の概要)	Students will give a research presentation using slides at the Advanced Stem Cell Biology Seminar and engage in question-and-answer discussions with participating faculty members.

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 and discussion at Advanced Stem Cell Biology Seminar	
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Estimated out-of-class study time	This course is designed to require a total of 90 hours of study. Of these, 30 hours are allocated to in-class instruction (2 hours × 15 sessions). To deepen understanding of the course content, students are expected to complete an additional 60 hours of preparatory and follow-up study, including assignments.
Required Textbook(テキスト)	Not specified
Reading List(参考文献)	Not specified
Enrollment Conditions(履修条件)	Having basic knowledge of stem cell biology, developmental biology, and molecular biology.
Assessment Methods and Criteria(評価方法・基準)	Students are required to give at least one presentation at the Advanced Stem Cell Biology Seminar and to participate in question-and-answer discussions with attending faculty members.
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)
	2026whole year	Graduate School of Medical Sciences (26071)	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 Advanced Stem Cell Biology(Practice II on Advanced Stem Cell Biology)	TAKIZAWA Hitoshi

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 ‥‥10% 3.Global perspective and ability to take initiative action ‥‥40% 4.Social leadership drive ‥‥10%

Type of Class(授業の形態)	Practice and Training
Teaching Method(授業の方法)	Students will present their research results at international conferences/meeting following rehearsal under their supervisors, and submit the summary report to the student affair office within 2 weeks after the meeting which will crosscheck and forward it to respective supervisor .
Course Goals(授業の目的)	Students can present and discuss their research results (e.g. stem cell, stem cell-related diseases) as a first author at international conferences/meeting, and think of future plan to improve quality of the paper.
Course Learning goals(学修目標)	【A level (A水準)】 Students can excellently present and discuss their research results (e.g. stem cell, stem cell-related diseases) at international conferences/meeting, and think of future plan to improve quality of the paper. 【C level (C水準)】 Students can acceptably present and discuss their research results (e.g. stem cell, stem cell-related diseases) at international conferences/meeting, and think of future plan to improve quality of the paper.
Course Outline(授業の概要)	Students can present and discuss their research results (e.g. stem cell, stem cell-related diseases) as a first author at international conferences/meeting, and think of future plan to improve quality of the paper.

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	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)	Having basic knowledge concerning what is taught in this course.
Assessment Methods and Criteria(評価方法・基準)	(1) Presentation of your research at international conferences/meeting. (2) The record of presentation (e.g. abstract) is necessary.
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)
	2026whole year	Graduate School of Medical Sciences (26072)	1, 2, 3, 4	2	others

Course Title(Theme)(科目名(講義題目))	Instructor(s)(担当教員)
Special Practice on Advanced Stem Cell Biology()	SHENG, Guojun

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 and Training
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)】 【C level (C水準)】
Course Outline(授業の概要)	This Special Practice on Advanced Stem Cell Biology course will give students to chance to gain practical knowledge of stem-cell related techniques and the ability to ask biological questions and design and perform experiments to address those questions.

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)	
Reading List(参考文献)	none
Enrollment Conditions(履修条件)	
Assessment Methods and Criteria(評価方法・基準)	
Language Used in Instruction(使用言語)	English (instruction will be done mainly in English)
Textbook/Material Language(教科書・資料の言語)	English (Textbook and/or reading materials will be mainly in English)
Course Based on Practical Work Experience(実務経験を活かした授業)	Applicable