

Academic Year 2023

**GRADUATE SCHOOL OF HEALTH SCIENCES
SYLLABUS
DOCTOR'S COURSE, 1st grade**

**FUJITA HEALTH UNIVERSITY
GRADUATE SCHOOL OF HEALTH SCIENCES**

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Concerning the curriculum of the Graduate School of Health Sciences (Doctoral Program), Fujita Health University

Aiming to acquire an extensive knowledge in medical science and draft an original doctoral dissertation

Kuniaki Saito, Dean of the Graduate School of Health Sciences, Fujita Health University

The Major in Medical Sciences, Graduate School of Health Sciences (Doctoral Program), Fujita Health University, is based on the founding spirit of “creating one solid principle of your own.” We aim to cultivate versatile human resources who can respond widely to the sophistication, complexity, and diversification of modern medical care in addition to displaying the specialized knowledge and skills gained through the master’s program. In April 2015, we established the three department, clinical laboratory sciences (medical technology sciences), radiological sciences (radiation sciences), and rehabilitation therapy sciences (rehabilitation sciences). To become well-rounded educators, researchers, and leaders, students are exposed to the advanced academic foundation of health science common to medical science. In addition to the above department, medical and health care collaboration, and health care regulatory sciences (medical and health care sciences) were established in the academic year of 2020. In April 2023, we abolished the field of medical and health care sciences and established the department of nursing integrated sciences (nursing medical sciences).

At Fujita Health University, a unique curriculum is tailored in accordance with the aforementioned slogan, helping students gain a working knowledge in medical science. In the first year of each field, students learn rudimentary concepts of medical science that are common to each field through the common (collaboration) subjects of introduction to medical science, research methodology of medical sciences, and introduction to medical and health care professional collaboration. In the specialized course, students deepen their knowledge and skills of the medical profession and are exposed to the present-day theory and knowledge in each field. Seminars help students acquire basic ideas on exploring the problems to be solved and provide the right training for thinking to solve the problems. Through the specialized research conducted from the 1st to 3rd years and by exploring cutting-edge, up-to-date knowledge and examining issues in technological development, students are able to improve their creativity, theory-building skills, and active problem-solving abilities. As specialized research is built upon continuous investigation and accumulation of results, it is best to study this subject continuously for three years. During the first semester of the first year, a research plan will be decided, and the development of the research commences in the second semester. In the third year, a doctoral dissertation on the researched topics should be formulated, and as the lead authors, students ought to publish their research results in international journals to widely disseminate their research findings.

In the syllabus, the course periods, outline, goals, lesson plans, evaluation methods, teaching materials/textbooks/reference materials, preparatory learning, and points to note while pursuing a course are all listed for each subject to allow the graduate students decide on their learning activities as independently as possible. It is also vital for faculty members and graduate students to come up with effective ways to achieve learning outcomes, clearly

understand their responsibilities and obligations, and work together. It is my hope that the graduate students maintain a broad view of the entire class in accordance with the syllabus and that they enthusiastically engage in learning activities with a strong sense of purpose.

It is the desire of all faculty and staff members that the three years of research will be a fulfilling experience, providing a strong basis for future career development for the graduate students at the Graduate School of Health Sciences, Fujita Health University.

The Three Policies of the Graduate School of Health Sciences

1. Admissions Policy

The Doctoral Course, Major in Medical Sciences, Graduate School of Health Sciences seeks prospective students who possess the following qualities:

- (1) Individuals with a desire to conduct research to resolve diverse issues through exploration of scientific evidence in all areas of medical and health care sciences
- (2) Individuals with the drive to pursue truth through the development of new expertise and techniques that are relevant to their individual research topics
- (3) Individuals who aspire to become educators, researchers, and instructors
- (4) Individuals with a strong desire to publish research results and contribute to the development of medical and health care sciences

2. Curriculum Policy

In order to acquire the skills stated in the Diploma Policy, the Doctoral Course, Major in Medical Sciences, Graduate School of Health Sciences is structured in a way that allows for a systematic allocation of subjects between coursework (such as lectures, seminars and practical exercises) and research work (graduate thesis). It is based on the following policies:

- (1) Compulsory common subject provides the academic basis for students to become educators, researchers, and instructors through a wider study of essential medical science concepts that are common to each discipline.
- (2) Seminars and Exercises conducted in courses related to the major subject teach students the ability to tackle problems and solve them by gaining in-depth medical professional knowledge and studying latest techniques.
- (3) Graduate thesis helps students acquire the capacity to write academic essays, which can be submitted to international journals, through the exploration of cutting-edge knowledge and resolution of issues found in theoretical synthesis and technical developments.
- (4) Inter-disciplinary research seminars equip students with the ability to present their ideas and make proposals, through discussions involving all the supervisors who are involved in the teaching of graduate thesis.

3. Diploma Policy

To be conferred the Doctoral Degree in Medical Sciences, Graduate School of Health Sciences, students have to be enrolled in the course for the stipulated minimum number of years, complete the stipulated number of stated units according to the educational philosophy and objectives, and demonstrate that they have acquired the following skills through an examination of the thesis and their final examinations.

- (1) Skills to articulate a problem and analyze it from a unique perspective based on an understanding of existing research
- (2) Skills to select and implement the appropriate research and analytical methods to solve problems
- (3) Skills to present new findings and propose new techniques or theories that can contribute to the development of the professionalism in relevant disciplines

The number of total required credits

1) Medical Technology Sciences, Radiation Sciences, Rehabilitation Sciences

Course	Number of credits		Notes
	Required	Elective	
Common subjects	4 credits		4 credits or more
Medical Technology Sciences	6 credits	4 credits	10 credits for each fields
Radiation Sciences	6 credits	4 credits	
Rehabilitation Sciences	6 credits	4 credits	
Total	14 credits or more		

2) Nursing Medical Sciences

Course	Number of credits		Notes
	Required	Elective	
Common subjects	6 credits		
Nursing Integrated Sciences	6 credits	4 credits	
Total	16 credits or more		

Curriculum table

Field	Subject	Credit (Hours)		1st year		2nd year		3rd year	
		Required	Elective	Autumn semester	Spring semester	Autumn semester	Spring semester	Autumn semester	Spring semester
Common Subjects	Introduction to Medical Sciences	2 (30)			2				
	Research Methodology of Medical Sciences	2 (30)		2					
	Introduction to medical and health care professional collaboration		2 (30)	2					
Clinical Laboratory Sciences	Clinical Laboratory Sciences I, Advanced		2 (30)		2				
	Clinical Laboratory Sciences Exercise I (Development of Medical Technology)		2 (30)	2					
	Clinical Laboratory Sciences Exercise II (Molecular Pathogenesis Analysis)		2 (30)	2					
	Clinical Laboratory Sciences Exercise III (Bioinformatics and Physiological Sciences)		2 (30)	2					
	Graduate Thesis of Clinical Laboratory Sciences	6 (180)		1		2	1	1	1
Radiological Sciences	Radiological Sciences, Advanced		2 (30)		2				
	Radiological Sciences Exercise		2 (30)	2					
	Graduate Thesis of Radiological Sciences	6 (180)		1		2	1	1	1
Rehabilitation Therapy Sciences	Rehabilitation Therapy Science, Advanced I (Rehabilitation Educational Sciences)		2 (30)		2				
	Rehabilitation Therapy Science, Advanced II (Motor Control Instrumentation Sciences)		2 (30)		2				
	Rehabilitation Therapy Sciences Exercise I (Rehabilitation Educational Sciences)		2 (30)	2					
	Rehabilitation Therapy Sciences Exercise II (Motor Control Instrumentation Sciences)		2 (30)	2					
	Graduate Thesis of Rehabilitation Therapy Science	6 (180)		1		2	1	1	1
Nursing Integrated Sciences	Nursing Integrated Sciences, Advanced I		2 (30)		2				
	Nursing Integrated Sciences, Advanced II		2 (30)		2				
	Nursing Integrated Sciences, Exercise I		2 (30)	2					
	Nursing Integrated Sciences, Exercise II		2 (30)	2					
	Graduate Thesis of Nursing Integrated Sciences	6 (180)		1		2	1	1	1

Subjects and instructors

Field	Course Title	Credits	Hours	Instructor
Common Subjects	Introduction to Medical Sciences	2	30	KANADA Yoshikiyo, SAITO Kuniaki TAKEMATSU Hiromu, NARUSE Hiroyuki, SUZUKI Koji, IHIRA Masaru, KOBAYASHI Shigeki, ASADA Yasuki, TAKATSU Yasuo, TERANISHI Toshio SAKURAI Hiroaki, YAMADA Kouji INAMOTO Yoko, TAKEHARA Kimie, TANABE Shigeo
	Research Methodology of Medical Sciences	2	30	SAITO Kuniaki, TAKEMATSU Hiromu, NARUSE Hiroyuki, SUZUKI Koji, IHIRA Masaru, MOURI Akihiro KOBAYASHI Shigeki, TAKATSU Yasuo, TERANISHI Toshio, YAMADA Kouji, INAMOTO Yoko, ONOGI Keiko, TANABE Shigeo, NAKAMURA Sayuri, SEKO Rumi
	Introduction to medical and health care professional collaboration	2	30	SUGAMA Junko, MURAYAMA Ryoko
Clinical Laboratory Sciences	Clinical Laboratory Sciences I, Advanced	2	30	SAITO Kuniaki, ICHINO Naohiro, TAKEMASTU Hiromu NARUSE Hiroyuki, SUZUKI Koji IHIRA Masaru, MORI Akihiro, NAGAO Shizuko
	Clinical Laboratory Sciences Exercise I (Development of Medical Technology)	2	30	SAITO Kuniaki, SUZUKI Koji IHIRA Masaru
	Clinical Laboratory Sciences Exercise II (Molecular Pathogenesis Analysis)	2	30	TAKEMATSU Hiromu, MORI Akihiro, NAGAO Shizuko
	Clinical Laboratory Sciences Exercise III (Bioinformatics and Physiological Sciences)	2	30	ICHINO Naohiro, NARUSE Hiroyuki
	Graduate Thesis of Clinical Laboratory Sciences	6	180	SAITO Kuniaki, ICHINO Naohiro TAKEMASTU Hiromu NARUSE Hiroyuki, SUZUKI Koji IHIRA Masaru, MORI Akihiro, NAGAO Shizuko
Radiological Sciences	Radiological Sciences, Advanced	2	30	KOBAYASHI Shigeki, ASADA Yasuki TAKATSU Yasuo
	Radiological Sciences Exercise	2	30	KOBAYASHI Shigeki, ASADA Yasuki TAKATSU Yasuo
	Graduate Thesis of Radiological Sciences	6	180	KOBAYASHI Shigeki, ASADA Yasuki TAKATSU Yasuo

Field	Course Title	Credits	Hours	Instructor
Rehabilitation Therapy Sciences	Rehabilitation Therapy Science, Advanced I (Rehabilitation Educational Sciences)	2	30	KANADA Yoshikiyo, SAKURAI Hiroaki INAMOTO Yoko
	Rehabilitation Therapy Science, Advanced II (Motor Control Instrumentation Sciences)	2	30	TERANISHI Toshio, YAMADA Kouji, TANABE Shigeo, TAKEDA Kotaro
	Rehabilitation Therapy Sciences Exercise I (Rehabilitation Educational Sciences)	2	30	KANADA Yoshikiyo, SAKURAI Hiroaki INAMOTO Yoko
	Rehabilitation Therapy Sciences Exercise II (Motor Control Instrumentation Sciences)	2	30	TERANISHI Toshio, YAMADA Kouji, TANABE Shigeo, TAKEDA Kotaro
	Graduate Thesis of Rehabilitation Therapy Science	6	180	TERANISHI Toshio, KANADA Yoshikiyo, SAKURAI Hiroaki YAMADA Kouji, INAMOTO Yoko ONOGI Keiko, TANABE Shigeo, TAKEDA Kotaro
Nursing Integrated Sciences	Nursing Integrated Sciences, Advanced I	2	30	SUGAMA Junko, MURAYAMA Ryoko, NAKAMURA Sayuri, TAKEHARA Kimie
	Nursing Integrated Sciences, Advanced II	2	30	SEKO Rumi
	Nursing Integrated Sciences, Exercise I	2	30	SUGAMA Junko, MURAYAMA Ryoko, NAKAMURA Sayuri, TAKEHARA Kimie
	Nursing Integrated Sciences, Exercise II	2	30	SEKO Rumi
	Graduate Thesis of Nursing Integrated Sciences	6	180	SUGAMA Junko, MURAYAMA Ryoko, TAKEHARA Kimie

1. Common Subjects

Introduction to Medical Sciences

専攻分野 Major Field	common(collaboration)	学年 Grade	1st year	期間 Semester	1st semester
授業形態 Style	lecture	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	remote class	使用言語 Language	English		
担当教員名 Instructor	KANADA Yoshikiyo (Course Manager), SAITO Kuniaki, TAKEMATSU Hiromu, NARUSE Hiroyuki, SUZUKI Koji, IHIRA Masaru, KOBAYASHI Shigeki, ASADA Yasuki, TAKATSU Yasuo, SAKURAI Hiroaki, TERANISHI Toshio, YAMADA Kouji, INAMOTO Yoko, TAKEHARA Kimie, TANABE Shigeo,				
科目概要 Course Aims	<p>These lectures will be given on research topics in medical sciences (bioinformatics, medic quantum science, rehabilitation therapy science, nursing integrated science) by omnibus format. In these lectures, students will acquire a wide range of knowledge and ideas common to medical sciences, conduct Q & A sessions, and build a research base for specialized subjects.</p> <p>These lectures will be instructed in English only, including questions, answers, and opinions. (Omnibus style / Total 15 chapters)</p>				
到達目標 Objectives	<p>The goals of this course are to be able to</p> <ul style="list-style-type: none"> - respond to a wide variety of modern medical needs. - become a true leader in team medicine. - acquire a wide range of knowledge and ideas common to medical science and build a research foundation for specialized subjects. <p>and final goal of these lectures are to be able to discuss in English.</p>				
回数 Chapters	授業計画 Course schedule (topic for each time)			担当教員 Instructor	
1	Introduction to medical sciences			KANADA Yoshikiyo	
2	Recent advances in Preemptive medicine			SAITO Kuniaki	
3	Evolutional medicine; human-specific inflammatory condition			TAKEMATSU Hiromu	
4	Risk stratification using biomarkers in cardiovascular disease			NARUSE Hiroyuki	
5	Molecular epidemiological study regarding life-style related diseases			SUZUKI Koji	
6	Detection of nucleic acid for POCT using isothermal amplification methods			IHIRA Masaru	
7	Latest research of clinical use for photon-counting technology			KOBAYASHI Shigeki	
8	The diagnostic reference levels			ASADA Yasuki	
9	Academic research on abdominal imaging			TAKATSU Yasuo	
10	Relationship between advanced clinical technical education using OSCE and clinical training			SAKURAI Hiroaki	
11	Fall risk management (Balance evaluation tools, Fall risk assessment tools)			TERANISHI Toshio	
12	Basic research that can be applied clinically from the viewpoint of functional anatomy			YAMADA Kouji	
13	Swallowing physiology and swallowing disorders			INAMOTO Yoko	
14	Robotic systems for rehabilitation			TANABE Shigeo	
15	Advanced foot care focusing on tinea pedis			TAKEHARA Kimie	
評価法・基準 Grading Policies	<p>Grading will be described based on students' attitude (30%), Discussion with faculty members etc. (70%) by course manager KANADA Yoshikiyo.</p> <p>In order to measure the level of comprehension of the goals, assign tasks such as reports, material creation, etc., oral examinations for each.</p>				

教科書 Text Book	Distribute each time.	教材・参考書 Reference Book	If necessary, introduce appropriate.
オフィス アワー Office Hour	KANADA: by email SAITO: by email TAKEMASTU: by email NARUSE: by email SUZUKI: by email IHIRA: by email KOBAYASHI: by email ASADA: by email TAKATSU: by email SAKURAI: by email TERANISHI: by email YAMADA: by email INAMOTO: by email TAKEHARA: by email TANABE: by email	連絡先 Contact	KANADA: SAITO: TAKEMASTU: NARUSE: SUZUKI: IHIRA: KOBAYASHI: ASADA: TAKATSU: SAKURAI: TERANISHI: YAMADA: INAMOTO: TAKEHARA: TANABE:
準備学習 Preparation of study	These lectures will be instructed in English only, including questions, answers and opinions. Preparatory study of the specified theme for about 30 minutes. After the lecture, review the lecture with handout for about 1 hour and summarize them in a notebook.	履修上の注意点 Notice for Students	None

Research Methodology of Medical Sciences

専攻分野 Major Field	Common (collaboration)	学年 Grade	1st year	期間 Semester	2nd semester
授業形態 Style	Lecture	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	remote class	使用言語 Language	Japanese		
担当教員名 Instructor	SAITO Kuniaki(Course Manager), TAKEMATSU Hiromu, NARUSE Hiroyuki, SUZUKI Koji, IHIRA Masaru, MOURI Akihiro, KOBAYASHI Shigeki, TAKATSU Yasuo, TERANISHI Toshio, YAMADA Kouji, INAMOTO Yoko, ONOGI Keiko, TANABE Shigeo, NAKAMURA Sayuri, SEKO Rumi				
科目概要 Course Aims	To provide instruction on the latest research in the fields of bioinformatics, medical quantum science, rehabilitation therapy science and nursing integrated science based on concrete examples. The course is designed to engage students in active discussion to learn about collaborative research among the aforementioned four fields of medical science and utilize it in their own fields (Omnibus format/total of 15 lectures).				
到達目標 Objectives	To obtain working knowledge and skills related to research in physiology/biochemistry, statistical epidemiology, pathology, diagnostic imaging, motor control measurement science, and rehabilitation education science in the three fields of medical science as well as acquire the ability to utilize the aforesaid knowledge for research				
回数 Chapters	授業計画 Course schedule (topic for each time)			担当教員 Instructor	
1	Elegant dissertation writing and research ethics			SAITO Kuniaki	
2	Epidemiological research methods			SUZUKI Koji	
3	Molecular biological analysis (molecules vs phenomena)			TAKEMATSU Hiromu	
4	Molecular biological analysis (molecular techniques for detecting viruses)			IHIRA Masaru	
5	Etiology analysis method 1:			MOURI Akihiro	
6	Etiology analysis method : cardiovascular disease			NARUSE Hiroyuki	
7	Etiology analysis method 1: image analysis 1			KOBAYASHI Shigeki	
8	Etiology analysis method 4: image analysis 2			TAKATSU Yasuo	
9	Research in the field of medical rehabilitation			TERANISHI Toshio	
10	Basic research that can be applied clinically from the viewpoint of functional anatomy			YAMADA Kouji	
11	Image analysis : Kinematic analysis of swallowing			INAMOTO Yoko	
12	Evaluation for activities of daily living			ONOGI Keiko	
13	Activity assistive devices used for rehabilitation			TANABE Shigeo	
14	Overview of nursing research contributing to the development of nursing science			NAKAMURA Sayuri	
15	Community health problems and related factors			SEKO Rumi	
評価法・基準 Grading Policies	Grading will be done based on students' attitude (30%) and discussion with faculty members and other staff (70%) by the Course Manager SAITO Kuniaki.				

教科書 Text Book	Distributed each time	教材・参考書 Reference Book	When necessary, introduced appropriately
オフィス アワー Office Hour	SAITO : by email TAKEMATSU : by email NARUSE : by email SUZUKI : by email IHIRA : by email MOURI : by email KOBAYASHI : by email TAKATSU : by email TERANISHI : by email YAMADA : by email INAMOTO : by email ONOGI : by email TANABE : by email NAKAMURA : by email SEKO : by email	連絡先 Contact	SAITO : TAKEMATSU : NARUSE : SUZUKI : IHIRA : MOURI : KOBAYASHI : TAKATSU : TERANISHI : YAMADA : INAMOTO : ONOGI : TANABE : NAKAMURA : SEKO :
準備学習 Preparation of study	Preparatory study of the specified theme for about 30 minutes. The lecture should be reviewed using the handout for about 1 hour after its delivery, and a summary should be written in a notebook.	履修上の注意点 Notice for Students	

Introduction to medical and health care professional collaboration

専攻分野 Major Field	common(collaboration)	学年 Grade	1st year	期間 Semester	2 nd semester
授業形態 Style	lecture	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	remote class	使用言語 Language	Japanese		
使用言語 Language	Japanese				
担当教員名 Instructor	SUGAMA Junko, MURAYAMA Ryoko				
科目概要 Course Aims	In order to demonstrate a high level of expertise in health care and to create innovation in medicine and health care, it is important to foster a research mindset and create systems in clinical practice. In this course, students will learn about paragraphs that form the basis of the structure of academic papers. Students will also learn the basics of creating clinical practice guidelines necessary for healthcare collaboration. In addition, students will learn the basics of biodesign necessary for innovation.				
到達目標 Objectives	In this class, students will learn to: 1. Explain the elements of writing paragraph, which is a basic structure of an article, and easy-to-understand sentences 2. Explain the structure of clinical practice guidelines and how to develop them 3. Explain the concept and methods of biodesign				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1	Paragraph structure 1			SUGAMA Junko	
2	Paragraph structure 2			SUGAMA Junko	
3	Unity and coherence 1			SUGAMA Junko	
4	Unity and coherence 2			SUGAMA Junko	
5	Using outside sources			SUGAMA Junko	
6	From paragraph to essay			SUGAMA Junko	
7	Structure and content of the clinical practice guideline			SUGAMA Junko	
8	Systematic reviews in clinical practice guidelines			SUGAMA Junko	
9	Critical examination of clinical practice guidelines 1			SUGAMA Junko	
10	Critical examination of clinical practice guidelines 2			SUGAMA Junko	
11	Biodesign 1: Biodesign and Innovation			MURAYAMA Ryoko	
12	Biodesign 2: Needs Exploration			MURAYAMA Ryoko	
13	Biodesign 3: Needs Screening			MURAYAMA Ryoko	
14	Biodesign 4: Concept Creation			MURAYAMA Ryoko	
15	Biodesign 5: Development Strategy			MURAYAMA Ryoko	
評価法・基準 Grading Policies	Evaluation will be based on assignment reports, seminar materials, and presentations (70%) and class attitude (30%). In order to confirm the level of understanding of the objectives, students will be required to write reports and prepare materials for each of them, and explanations will be given after each assignment.				
教科書 Text Book	Alice Oshima 著. Longman Academic Writing Serie, Paragraphs to Essays, PEARSON 社		教材・参考書 Reference Book	Paul G. Yock, et al. BIODESIGN: The process of innovating medical technologies. (Second edition),	

			Cambridge University Press Minds manual for guideline development. 2020 Ver.3.0
オフィス アワー Office Hour	Junko Sugama: Available online for 30 minutes after class Ryoko Murayama: accepts questions via email.	連絡先 Contact	SUGAMA: MURAYAMA:
準備学習 Preparation of study	Preparatory study of the specified theme for about 60 minutes. In addition, perform an extended review for about one hour as the lecture progresses. Be interested in everything and learn with a positive attitude.	履修上の注意点 Notice for Students	Materials to be used in class should be uploaded to Teams in advance

2. Medical Technology Sciences

Clinical Laboratory Sciences I, Advanced

専攻分野 Major Field	Clinical Laboratory Sciences	学年 Grade	1st year	期間 Semester	1st semester
授業形態 Style	lecture, seminar	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	remote class	使用言語 Language	Japanese		
担当教員名 Instructor	SAITO Kuniaki (subject manager), ICHINO Naohiro, TAKEMASTU Hiromu,, NARUSE Hiroyuki, SUZUKI Koji, IHIRA Masaru, MOURI Akihiro, NAGAO Shizuko				
科目概要 Course Aims	<p>Clinical laboratory science is a field aimed to understand human health through metabolomic status of individuals' body fluids. Therefore, development of the field relies on the development of methodology, enabling actual measurements and analyses. In this advanced seminar, topics are chosen in relation to the development of the clinical laboratory science. Topics includes novel methodologies in mass-spectrometry measurements, gene amplifications, etc. Students will read and discuss their own opinions based on cutting edge articles in the field. This course also aimed for students to plan their own experimental studies.</p>				
到達目標 Objectives	<ol style="list-style-type: none"> 1. Understand the current and future clinical laboratory science and able to plan own project. 2. Understand fundamental aspects on genetics and genetic modification methods as a basis to understand current biomedical research. Understand how glycan and lipid expression is regulated as a comparison with proteins, that are directly encoded by gene. 3. Learn for gene amplification technology, and understand for the technology to construction of measurement system for gene expression. 4. Learn epidemiological study design and field work in epidemiological studies and understand statistical analysis according to the type of the data and purpose. 5. The aim of this course is to help students acquire an understanding of the relationship between physiological cardiac electrical activity and respiratory dynamics in human development from newborn to adulthood. 6. Learn about how to establishment methods of biomarkers from topics related to biomarkers and acquire the ability to formulate research plans that can be developed independently. 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1	Scientific direction for the future genomic Research			SAITO Kuniaki	
2	Non-invasive assessment of liver fibrosis using ultrasonography			ICHINO Naohiro	
3	Assessment of arteriosclerosis using carotid ultrasonography			ICHINO Naohiro	
4	Cell surface expression of glycans and its function			TAKEMASTU Hiromu	
5	Intracellular signaling			TAKEMASTU Hiromu	
6	Current diagnosis in cardiovascular disease			NARUSE Hiroyuki	
7	Current treatment in cardiovascular disease			NARUSE Hiroyuki	
8	Evaluation of reactivation Herpesvirus infection by organ-transplantation (Relationship between active infection and clinical symptoms)			IHIRA Masaru	
9	Reactivation of herpesvirus infection by organ-transplantation			IHIRA Masaru	
10	Development of the therapeutics for the neuro-psychiatric disease			MOURI Akihiro	
11	Development of the diagnostics for the neuro-psychiatric disease			MOURI Akihiro	
12	Topics about biomarkers -blood and urine-			NAGAO Shizuko	
13	Topics about biomarkers -genome-			NAGAO Shizuko	
14	Community-based epidemiology			SUZUKI Koji	

15	Statistical analysis according to data types and purpose		SUZUKI Koji
評価法・基準 Grading Policies	Your overall grade in the class will be decided based on the presentation and short reports. Feedback of your presentation will be provided by each instructor.		
教科書 Text Book	Regimen will be provided in the class.	教材・参考書 Reference Book	Not specified
オフィス アワー Office Hour	Contact us by email if you have any questions.	連絡先 Contact	(SAITO Kuniaki) (ICHINO Naohiro) (TAKEMASTU Hiromu) (NARUSE Hiroyuki) (SUZUKI Koji) (HIRA Masaru) (MOURI Akihiro) (NAGAO Shizuko)
準備学習 Preparation of study	Students prepare about each theme for 30 minutes before the class and review about the theme for 60 minutes.	履修上の注意点 Notice for Students	Doctoral students are advised to summarize each topics after the class.

Clinical Laboratory Sciences Exercise I (Development of Medical Technology)

専攻分野 Major Field	Clinical Laboratory Sciences	学年 Grade	1st year	期間 Semester	2nd semester
授業形態 Style	exercise, seminar	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	SAITO Kuniaki (subject manager), SUZUKI Koji, IHIRA Masaru				
科目概要 Course Aims	<p>To master various technical theories, such as chemical, physical, biological, immunological and informatic methods, which are essential in the medical science field.</p> <p>For the development of new laboratory science and technology, it is necessary to comprehensively and practically learn the fundamentals of analytical technology supported by related academic systems such as analytical chemistry.</p> <p>You will learn these technical features and the knowledge necessary for data analysis and evaluation mainly by reading Japanese and foreign documents and practicing data analysis.</p> <p>Through the explanations and discussions, we will build a base of knowledge and technology that can contribute to the development of laboratory science, such as methods for improving laboratory science and technology, development of advanced analytical instruments, and searching for new biomarkers.</p>				
到達目標 Objectives	<p>The goals of this course are to</p> <ul style="list-style-type: none"> - be able to explain the knowledge and skills of each research by development the ability to the research. - be able to explain the references searched of each research themes. - be able to develop the ability to make presentations with your own thoughts. 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1	Medical innovation in the future			SAITO Kuniaki	
2	Relation between Amino acid metabolism and immune function			SAITO Kuniaki	
3	Omix Analyses for new blood biomarker development			SAITO Kuniaki	
4	Scientific evaluation for functional food in human health			SAITO Kuniaki	
5	Role of Personal Health Record for mental illness			SAITO Kuniaki	
6	Design and information gathering for field survey			SUZUKI Koji	
7	Study on epigenetics and lifestyle related diseases			SUZUKI Koji	
8	Update on predictive markers of lifestyle related diseases			SUZUKI Koji	
9	Data analysis and evaluation			SUZUKI Koji	
10	Basic operations in R			SUZUKI Koji	
11	Learn for the theory and application of gene amplification and quantification technology as a diagnostic method. PCR design method using Web BLAST			IHIRA Masaru	
12	Learn for the theory and application of gene amplification and quantification technology as a diagnostic method. The principle and design method of primers for LAMP, SMAP, RCA, Iso-RAM			IHIRA Masaru	
13-15	Presentation and discussion for the principle of diagnostic methods from published data.			IHIRA Masaru	
評価法・基準 Grading	<p>Evaluation: Grade is evaluated by the participation during the class.</p> <p>Feedbacks: Assignments are rated when returned.</p>				

Policies			
教科書 Text Book	Lecture materials are provided in the class when needed.	教材・参考書 Reference Book	Not specified.
オフィス アワー Office Hour	Contact us by email if you have any questions.	連絡先 Contact	
準備学習 Preparation of study	30 min preparation on each topics are needed. For exercises using R software, please refer to the materials and download R to your laptop in advance.	履修上の注意点 Notice for Students	Doctoral students are advised to summarize each topics after the class.

Clinical Laboratory Sciences Exercise II (Molecular Pathogenesis Analysis)

専攻分野 Major Field	Clinical Laboratory Sciences	学年 Grade	1st year	期間 Semester	2nd semester
授業形態 Style	exercise, seminar	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	TAKEMATSU Hiromu (subject manager), MOURI Akihiro, NAGAO Shizuko				
科目概要 Course Aims	<p>Practice for molecular analysis of pathogenesis from biological information.</p> <p>(TAKEMASTU Hiromu) In this course, students will be trained to be able to give scientific presentation. This includes choice of original papers published in top-ranked international journals, reading of research papers, deep understanding on the issue and actual presentation. From these experiences, students will learn how to obtain cutting-edge research information needed to conduct their own research activities.</p> <p>(MOURI Akihiro) Translational research performs basic scientific research to create new therapies, medical procedures, or diagnostics. To conduct translational research, this seminar is an educational meeting in which a group of individuals discuss research articles, to keep themselves abreast of new knowledge, promoting in them the awareness of current research findings, teaching them to critique and appraise research, and encourage them to utilize research in evidence based practice of the specialty.</p> <p>(NAGAO Shizuko) Students will search for scientific papers that link the results obtained from basic research using genetic disease model animals and in vitro models to biomarkers of disease progression and clinical applications. Students will present the abstracts of these papers, answer questions, and learn how to organize structure of thesis and the theories.</p> <p>(Omnibus method / 15 times in total)</p>				
到達目標 Objectives	<p>The goals of this course are to</p> <ul style="list-style-type: none"> - be able to search and select articles related to the research theme. - be able to acquire knowledge and skills related to the research themes. - be able to present the novelty of the selected articles, its relevance to the research theme, and considerations. 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1-3	Search, Read, familiarize yourself for a research article			TAKEMATSU Hiromu	
4-5	Make presentation file, present and discuss on the research article			TAKEMATSU Hiromu	
6-7	Learning the social significance of research topics and experimental procedure from research articles			MOURI Akihiro	
8-10	Learning how to perform conference presentation and write articles about their own research results from research articles			MOURI Akihiro	
11-15	Read and present scientific papers on the latest biomarkers from medical journals			NAGAO Shizuko	
評価法・基準 Grading Policies	<p>Evaluation : Grade is evaluated by the participation during the class.</p> <p>Feed-backs : Assignments are rated when returned.</p>				
教科書 Text Book	Lecture materials are provide in the class when needed.	教材・参考書 Reference Book	Not specified		

オフィス アワー Office Hour	Contact us by email if you have any questions.	連絡先 Contact	(TAKEMATSU Hiromu) (MOURI Akihiro) (NAGAO Shizuko)
準備学習 Preparation of study	30 min preparation on each topics are needed.	履修上の注意点 Notice for Students	Doctoral students are advised to summarize each topics after the class.

Clinical Laboratory Sciences Exercise III (Bioinformatics and Physiological Sciences)

専攻分野 Major Field	Clinical Laboratory Sciences	学年 Grade	1st year	期間 Semester	2nd semester
授業形態 Style	exercise, seminar	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	ICHINO Naohiro (subject manager), NARUSE Hiroyuki				
科目概要 Course Aims	Exercises to analyze biological information in the physiological sciences and provide a basis for research. Applying the knowledge acquired in the special thesis, we will examine the method of collecting biological information and various analysis techniques required for research pursuing biological functions. In addition, an exercise to polish the thinking process from the idea of research to the application of method and technology is required. Further, students will conduct information retrieval and abstracting of papers necessary for special research projects, and practice on excellent techniques and data analysis methods. (Omnibus method / 15 times in total)				
到達目標 Objectives	<p>The goals of this course are to</p> <ul style="list-style-type: none"> - be able to develop the ability to search and sort documents related to research subjects. - be able to acquire the knowledge and skills related to each research topic. - be able to present “Neues” with own thoughts on the relevance of my research from the literature. 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1 - 8	<ol style="list-style-type: none"> 1. The newest findings on ultrasonography 1: References research and selection 2. The newest findings on ultrasonography 2: Discussion 3. The newest findings on ultrasonography 3: Presentation 			ICHINO Naohiro	
9- 15	<ol style="list-style-type: none"> 1. Topics of ischemic heart disease. 2. Topics of heart failure. 			NARUSE Hiroyuki	
評価法・基準 Grading Policies	<p>Evaluation: Grade is evaluated by the participation during the class. Feed-backs: Assignments are rated when returned.</p>				
教科書 Text Book	"Gayton Physiology" Genyo Mitarai et al.: Elsevier Japan Distribute materials every time from faculty member.	教材・参考書 Reference Book	"Ganong Physiology", translated by Yasunobu Okada et al.: Maruzen Advanced Concepts in Arrhythmias. Marriott Conover Professional and academic journals in each field.		
オフィス アワー Office Hour	Contact us by email if you have any questions. Every after class Day and time: Appointment required Field: ICHINO Naohiro; University Building No. 3, 3F-320 NARUSE Hiroyuki; University Building No. 3, 2F-206	連絡先 Contact	(ICHINO Naohiro) (NARUSE Hiroyuki)		
準備学習 Preparation of study	30 min preparation on each topic are needed. Read and summarize the dissertation distributed by each faculty member (preparation study). ・ Read and summarize the basic knowledge about biological information distributed by teacher.	履修上の注意点 Notice for Students	Doctoral students are advised to summarize each topic after the class.		

Graduate Thesis of Clinical Laboratory Sciences

専攻分野 Major Field	Clinical Laboratory Sciences	学年 Grade	1st ・ 2nd ・ 3rd year	期 間 Semester	full year
授業形態 Style	exercise, research	単位 Credits	6	時間数 Hours	180
授業方法 Class Methods	face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	SAITO Kuniaki, ICHINO Naohiro, TAKEMASTU Hiromu, NARUSE Hiroyuki, SUZUKI Koji, IHIRA Masaru, MOURI Akihiro, NAGAO Shizuko				
科目概要 Course Aims	<p>Highly specialized knowledge can be acquired by conducting research activities on research themes. You will develop the ability to promote a series of research activities, such as setting research themes, drafting research plans, analyzing experiments, and writing dissertations.</p> <p>(SAITO Kuniaki) To understand the mechanism of biological responses from body in both healthy and various diseases condition, especially focus on the preemptive medicine, with using omics analysis such as proteome and metabolome analysis. To learn the impact for a personal health record and development for new technique for the new diagnostic system for drug efficacy, side effects, and companion diagnosis. 1. Amino acid metabolism and immunity 2. Preemptive medicine for blood new biomarker 3. Scientific evaluation of functional foods</p> <p>(ICHINO Naohiro) Current ultrasonography has made it possible to measure tissue stiffness. We will provide research for the early detection and diagnosis of diseases by applying this technology. Specifically, research guidance will be provided on the following topics. 1. A novel scoring system for non-invasive and differential diagnosis of NAFLD/NASH. 2. Development of biomarkers for pre-arteriosclerosis diagnosis to preemptive medicine.</p> <p>(TAKEMATSU Hiromu) How to conduct research activity in the laboratory will be the starting point for development of researchers. Therefore, candidate students will be trained to acquire research skills. Following are projected studies students would be involved, aiming to understand still elusive functions of cellular glycans and lipids 1. Glycan-mediated signal modification downstream of B cell antigen receptor to produce antibody 2. CRISPR gene-editing screening for genetic understanding of cellular factors required for giant cell formation through endomitosis 3. Glycan/Lipid functional analyses utilizing genetically modified model organisms/cells</p> <p>(NARUSE Hiroyuki) Comprehensively analyze clinical data of various cardiovascular diseases and clarify the pathophysiology of the diseases. 1. Identification of high-risk plaques in patients with coronary artery disease 2. Efficacy of the COVID-19 vaccine in patients with cardiovascular disease</p> <p>(SUZUKI Koji) Through molecular epidemiological study using high-performance liquid chromatography and molecular biology techniques, we will contribute to elucidating the mechanism of lifestyle related diseases and aim to establish disease prevention from a new perspective. 1. Molecular epidemiological study on prevention of lifestyle-related diseases 2. Large-scale cohort study of cancer risk factors</p>				

<p>科目概要 Course Aims</p>	<p>(IHIRA Masaru) Through clinical virological research, we will provide research for elucidate the pathogenesis of herpesvirus infection, such as HHV-6 and VZV, and reactivated infection following transplantation. 1. Elucidation of pathogenesis of immunosuppressed patients who infected HHV-6, such as organ transplantation. 2. Development of rapid diagnostic method for new biomarkers using isothermal amplification method</p> <p>(MOURI Akihiro) Neuropsychiatric disorders such as Alzheimer's disease, Parkinson's disease, depression, schizophrenia, and autism are the targets of research and investigated using patients' blood and other clinical samples. We translate epidemiological and genetic findings in humans to mice and create mouse models of neuropsychiatric disorders to explore pathophysiology and pathogenesis using behavioral, pharmacological and neurochemical techniques. Based on the these studies, we try to develop new therapeutics, functional foods, and diagnostic biomarkers and conduct translational research to contribute healthy society and development of medicine. 1. Elucidating the pathophysiology of neuropsychiatric disorders using clinical samples and animal models 2. Developing pharmaceuticals and functional foods by basic research using animal models of neuropsychiatric diseases 3. Searching for biomarkers and developing diagnostic drugs for neuropsychiatric diseases</p> <p>(NAGAO Shizuko) To aim to elucidate cell signaling pathways in the diseases including genetic disorders and lifestyle-related disorders obtained from genome editing animals, transgenic animals, spontaneous disease models, primary cells, cell lines or iPS cells. Also, to aim to apply clinical medicines by activating or suppressing the obtained abnormal cell signaling pathways. 1. Drug development targeting signal transduction 2. Drug development using comprehensive omics analysis of in vitro and/ or in vivo disease model</p>	
<p>到達目標 Objectives</p>	<p>The goals of this exercise are to</p> <ul style="list-style-type: none"> - able to explain major methods and theories. - able to evaluate major studies in terms of their methods and results. - able to acquire the ability to write a dissertation in English. 	
<p>回数 Chapters</p>	<p>授業計画(各回のテーマ) Course Schedule (topic for each time)</p>	<p>担当教員 Instructor</p>
<p>1-10 (1st year)</p>	<p>1. Understanding of the background of research 2. Planning of research 3. Preparation for examination application 1) Clinical Research Ethics Review Committee 2) Recombinant DNA Experiment Safety Committee 3) Animal Experiment Committee</p>	<p>SAITO Kuniaki ICHINO Naohiro TAKEMASTU Hiromu NARUSE Hiroyuki SUZUKI Koji IHIRA Masaru MOURI Akihiro NAGAO Shizuko</p>
<p>11-15 (1st year)</p>	<p>After reviewing the research plan and approval of each committee, promote research activities.</p>	
<p>16-60 (2nd year)</p>	<p>1. Analyze of experimental data. 2. Discuss the literature using the experiment data. 3. Create an academic paper and submit it to an academic journal.</p>	
<p>61-90 (3rd year)</p>	<p>1. Continue research activities and develop your research. 2. Summarize the results and create a dissertation</p>	
<p>長期履修 授業計画 Lecture plan for Long-term</p>	<p>Students who wish to study for a long time will consult with their research advisor according to the duration of the course and make a class plan.</p>	

study			
評価法・基準 Grading Policies	<p>Evaluation: Comprehensive evaluation based on presentations at academic conferences, academic papers and doctoral dissertations. Participation in a three-field joint research seminar is mandatory.</p> <p>Feedbacks: Assignments are rated when returned.</p>		
教科書 Text Book	Lecture materials are provided in the class when needed.	教材・参考書 Reference Book	Not specified.
オフィス アワー Office Hour	Contact us by email if you have any questions.	連絡先 Contact	(SAITO Kuniaki) (ICHINO Naohiro) (TAKEMASTU Hiromu) (NARUSE Hiroyuki) (SUZUKI Koji) (HIRA Masaru) (MOURI Akihiro) (NAGAO Shizuko)
準備学習 Preparation of study	Efforts to create a doctoral dissertation are important. Respect for personal information and ethics.	履修上の注意点 Notice for Students	Doctoral students are advised to summarize each topic after the class.

3. Radiation Sciences

Radiological Sciences, Advanced

専攻分野 Major Field	Quantum and Radiological Science	学年 Grade	1st year	期間 Semester	1st semester
授業形態 Style	Lecture, Seminar	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	remote class	使用言語 Language	Japanese		
担当教員名 Instructor	KOBAYASHI Shigeki, ASADA Yasuki, TAKATSU Yasuo				
科目概要 Course Aims	Current course deals radiation technology, theory and methods concerning image information processing applied in the field of radiology. We will discuss the latest basic technologies and clinical applications in a wide range of fields, including X-ray diagnostic equipment, CT, MRI, flat panel detectors, contrast agents, nuclear medicine diagnostic devices (SPECT, PET), PACS, etc.				
到達目標 Objectives	<ol style="list-style-type: none"> 1. To understand the theory of medical image information processing. 2. To understand the latest imaging technology for each modality in the field of radiology. 3. To understand the clinical application of clinical image information processing for each modality. 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1	Latest Imaging Technology: CT			KOBAYASHI Shigeki	
2	Clinical Application of Clinical Image Information Processing: CT-1			KOBAYASHI Shigeki	
3	Clinical Application of Clinical Image Information Processing: CT-2			KOBAYASHI Shigeki	
4	Latest Imaging Technology: Nuclear Medicine			KOBAYASHI Shigeki	
5	Clinical Application of Clinical Image Information Processing: Nuclear Medicine			KOBAYASHI Shigeki	
6	State-of-the-art imaging technology: General Radiography			ASADA Yasuki	
7	Clinical Application of Clinical Image Information Processing: General Radiography			ASADA Yasuki	
8	State-of-the-art imaging technology: Mammography			ASADA Yasuki	
9	Clinical Application of Clinical Image Information Processing: Mamography-1			ASADA Yasuki	
10	Clinical Application of Clinical Image Information Processing: Mamography-2			ASADA Yasuki	
11	Latest Imaging Technology: MRI			TAKATSU Yasuo	
12	Clinical Application of Clinical Image Information Processing: MRI-1			TAKATSU Yasuo	
13	Clinical Application of Clinical Image Information Processing: MRI-2			TAKATSU Yasuo	
14	Clinical Application of Clinical Image Information Processing: MRI-3			TAKATSU Yasuo	
15	Clinical Application of Clinical Image Information Processing: MRI-4			TAKATSU Yasuo	
評価法・基準 Grading Policies	Presentations on issues (70%) and discussion content (30%) will be comprehensively evaluated.				
教科書 Text Book	Handout the necessary materials.	教材・参考書 Reference Book			

オフィス アワー Office Hour	Kobayashi: Perform by e-mail. ASADA: Perform by e-mail. TAKATSU: Perform by e-mail.	連絡先 Contact	KOBAYASHI : ASADA: TAKATSU:
準備学習 Preparation of study	Be interested in everything and take a positive attitude.	履修上の注意点 Notice for Students	Bring a laptop with Office installed.

Radiological Sciences Exercise

専攻分野 Major Field	Quantum and Radiological Science	学年 Grade	1st year	期間 Semester	2nd semester
授業形態 Style	Practice, Seminar	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	KOBAYASHI Shigeki, ASADA Yasuki, TAKATSU Yasuo				
科目概要 Course Aims	<p>We will read original papers and explanatory papers related to radiology, medical radiology, medical imaging informatics, etc., and discuss the contents of the paper and the description method. Students will be able to read English papers quickly, understand outlines quickly, find important matters, and understand them correctly. The purpose of this practice is to learn how to conduct research and experiments, and to build papers, and to make use of them in their own research.</p> <p>(Omnibus system / 15 classes in total)</p>				
到達目標 Objectives	<ol style="list-style-type: none"> 1. Can understand and briefly explain key English terminology in radiology, medical radiology, radiology management, and medical imaging informatics. 2. Can read abstracts of English papers in about 10 minutes and understand the outline. 3. In the text of an English paper, can read a page in less than 30 minutes and understand the outline. 4. Can understand and explain the diagrams and tables of English papers. 5. It is possible to verify and comment on the method, result, and closing of the English paper that I have subscribed to. 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1-2	Reading the latest English paper on photon counting technology			KOBAYASHI Shigeki	
3-5	Subscribe to the latest English paper on PET diagnosis			KOBAYASHI Shigeki	
6	Reading the latest English paper on general radiography			ASADA Yasuki	
7	Reading the latest English paper on mammography			ASADA Yasuki	
8	Reading the latest English paper on angiographic techniques			ASADA Yasuki	
9	Reading the latest English paper on CT			ASADA Yasuki	
10	Reading the latest English paper on radiation health management			ASADA Yasuki	
11	Reading the English papers on MRI (brain)			TAKATSU Yasuo	
12	Reading the English papers on MRI (upper body)			TAKATSU Yasuo	
13	Reading the English papers on MRI (pelvis)			TAKATSU Yasuo	
14	Reading the English papers on MRI (extremities)			TAKATSU Yasuo	
15	Reading an English paper on MRI (diffusion-weighted imaging method)			TAKATSU Yasuo	
評価法・基準 Grading Policies	Issue report (70%) and discussion content (30%). The subject manager (Kobayashi) will evaluate it comprehensively.				
教科書 Text Book	Handout the necessary materials.	教材・参考書 Reference Book	Bring a laptop with Office installed.		

オフィス アワー Office Hour	Kobayashi: Perform by e-mail. ASADA: Perform by e-mail. TAKATSU: Perform by e-mail.	連絡先 Contact	KOBAYASHI : ASADA: TAKATSU:
準備学習 Preparation of study	Be interested in everything and take a positive attitude. Understand the outline of the English paper and briefly summarize the important matters.	履修上の注意点 Notice for Students	Bring a laptop with Office installed.

Graduate Thesis of Radiological Sciences

専攻分野 Major Field	Quantum and Radiological Science	学年 Grade	1st ・ 2nd ・ 3rd year	期 間 Semester	full year
授業形態 Style	Practice	単位 Credits	6	時間数 Hours	180
授業方法 Class Methods	face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	KOBAYASHI Shigeki, ASADA Yasuki, TAKATSU Yasuo				
科目概要 Course Aims	<p>In this course, we conduct extensive research essential for the development of researchers and educators with knowledge of cutting-edge radiological science and technology.</p> <p>We analyze and understand the functions and structure of the human body using biometric information obtained from medical images, and practice and provide guidance on cutting-edge radiation medicine application research with a focus on research themes related to diagnostic imaging based on morphology and functional information. We provide paper guidance that can transmit information to society by presenting them in academic societies and academic journals in radiological sciences.</p> <p>(KOBAYASHI Shigeki)</p> <p>To understand the principles of photon-counting X-ray measurement and how to utilize energy information. We conduct a basic study on the imaging image and material identification function using a photon counting type X-ray detector and conduct research on the development of next-generation mammography for clinical use. For imaging modalities such as CT, MRI, and RI, we also conduct research on clinically useful software development using artificial intelligence (A.I.).</p> <p>(ASADA Yasuki)</p> <p>The aim is to study on radiation exposure of the diagnostic X-ray which the medical staff included, to write a doctoral thesis. In that, to learn the choice of the study theme, the review of previous studies, planning of the study plan, experiment, and discussion in a series of process of writing paper. In addition, through the writing of the doctoral thesis, to learn the conscience of the scientist, the attitude toward study, an original idea, the way of the study. The theme is gathered to following three.</p> <ol style="list-style-type: none"> 1. Study on evaluation of the patient doses for diagnostic X-ray examinations 2. Study on measurement of the patient doses for diagnostic X-ray examinations 3. Study on occupational radiation exposure of the medical staff <p>(TAKATSU Yasuo)</p> <ol style="list-style-type: none"> 1. Pathological analysis using MR images 2. Quantitative evaluation of physical phenomena in MRI 				
到達目標 Objectives	<ol style="list-style-type: none"> 1. Can decide on research topics and research related literature. 2. Can decide on the framework of research promotion, gain research methods, and conduct research. 3. The interpretation and consideration of the research results can be logically established. 4. To write a doctoral dissertation 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1-10 (1st year)	To examine and organize the previous research and understand the research trends in Japan and overseas. To set up research topics and develop research plans, and to prepare applications for examination of the Ethics Review Committee on Epidemiology and Clinical Research and the Animal Experiment Committee.			Each supervisor	
11-15 (1st year)	Review the research plan and ethics review committee for epidemiology and clinical research, and the Animal Experiment Committee. To prepare for research and develop research activities.				

16-60 (2nd year)	Data collection, investigation, and experimentation in line with research plans, data analysis, discussion of research results, interpretation and evaluation of data, and consideration using relevant literature are carried out. To create an academic paper and submit it to a specialized academic journal.		
61-90 (3rd year)	Continue research activities, develop research content, and compile the results to produce a dissertation.		
長期履修 授業計画 Long-term study Class plan	Long-term students should consult with their research supervisor simply according to the duration of the course and make a lesson plan.		
評価法・基準 Grading Policies	Participation in three fields joint research seminars in the field is mandatory. Evaluations are comprehensively based on academic presentations, academic papers, and doctoral dissertations.		
教科書 Text Book		教材・参考書 Reference Book	
オフィス アワー Office Hour	Kobayashi: Perform by e-mail. ASADA: Perform by e-mail. TAKATSU: Perform by e-mail.	連絡先 Contact	KOBAYASHI : ASADA: TAKATSU:
準備学習 Preparation of study	Actively explore themes with autonomy.	履修上の注意点 Notice for Students	

4. Rehabilitation Sciences

Rehabilitation Therapy Science, Advanced I (Rehabilitation Educational Sciences)

専攻分野 Major Field	Rehabilitation Science	学年 Grade	1st year	期間 Semester	1st semester
授業形態 Style	lecture	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	remote class	使用言語 Language	Japanese		
担当教員名 Instructor	KANADA Yoshikiyo, SAKURAI Hiroaki, INAMOTO Yoko				
科目概要 Course Aims	Education for therapists can be divided into pre-graduate education, such as classroom and clinical training, post-graduate education for novice therapists, and education for clinical training instructors. In this course, students attend lectures and discussions on 1) standardization of clinical skills in physical therapist education, 2) reliability, validity, and usefulness of Objective Structured Clinical Examination (OSCE), and 3) educational methods in clinical training for students, training for novice therapists, and training for clinical training instructors.				
到達目標 Objectives	<ol style="list-style-type: none"> 1. Explain the present state and problems of physical therapist education in Japan. 2. Explain the techniques for clinical skill standardization and the reliability, validity, and effectiveness of OSCE. 3. Explain student clinical training, training of novice physical therapists, and training of clinical training instructors. 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1	Current knowledge of physical therapist student education in Japan			KANADA Yoshikiyo INAMOTO Yoko	
2	Current knowledge of physical therapists' clinical training in Japan			KANADA Yoshikiyo INAMOTO Yoko	
3	Current knowledge of physical therapy postgraduate education in Japan			KANADA Yoshikiyo INAMOTO Yoko	
4	Current knowledge of the OSCE in physical therapist education			KANADA Yoshikiyo INAMOTO Yoko	
5	Reliability and validity study of OSCE in physical therapist education			SAKURAI Hiroaki INAMOTO Yoko	
6	Current knowledge of clinical skill standardization using OSCE			SAKURAI Hiroaki INAMOTO Yoko	
7	Clinical Skills Assessment using OSCE (Level 1: Communication and nursing care techniques)			SAKURAI Hiroaki INAMOTO Yoko	
8	Clinical Skills Assessment using OSCE (Level 2: Assessment and measurement techniques)			SAKURAI Hiroaki INAMOTO Yoko	
9	Clinical Skills Assessment using OSCE (Level 3: Motion analysis)			SAKURAI Hiroaki INAMOTO Yoko	
10	Clinical Skills Assessment using OSCE (Level 3: Therapeutic techniques)			SAKURAI Hiroaki INAMOTO Yoko	
11	Effects of clinical training in physical therapist education			SAKURAI Hiroaki INAMOTO Yoko	
12	Effects of clinical technical education in physical therapist education			SAKURAI Hiroaki INAMOTO Yoko	
13	Relationship between advanced clinical technical education using OSCE and clinical training			SAKURAI Hiroaki INAMOTO Yoko	
14	Education methods for clinical training			SAKURAI Hiroaki INAMOTO Yoko	
15	Education methods for novice therapists			SAKURAI Hiroaki INAMOTO Yoko	
評価法・基準 Grading Policies	Grading will be considered comprehensively based on discussions held during the lecture (30%), and reports (70%) by course instructor. The points which do not reach the goal are fed back in the lecture.				

<p>教科書 Text Book</p>	<p>Distribute materials each lecture.</p>	<p>教材・参考書 Reference Book</p>	<p>Saitoh E, general ed., Kanada Y, et al., eds. OSCE for PT/OT Practical text for developing clinical skills. Kanehara Shuppan.</p>
<p>オフィス アワー Office Hour</p>	<p>KANADA Yoshikiyo Building 8-1F-106 Monday 12:00-13:00 SAKURAI Hiroaki Building 8-1F-106 Monday 12:00-13:00 INAMOTO Yoko Building 8-7F-703 ONOGI Keiko Building 8-7F-708</p> <p>E-mail us if you have any questions.</p>	<p>連絡先 Contact</p>	<p>KANADA Yoshihiro SAKURAI Hiroaki INAMOTO Yoko</p>
<p>準備学習 Preparation of study</p>	<p>Prepare each theme for 30 minutes and gather the opinions. After the lecture, review for about 60 minutes using handouts and compile in a notebook.</p>	<p>履修上の注意点 Notice for Students</p>	

Rehabilitation Therapy Science, Advanced II (Motor Control Instrumentation Sciences)

専攻分野 Major Field	Rehabilitation Science	学年 Grade	1st year	期間 Semester	1st semester
授業形態 Style	lecture	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	remote class	使用言語 Language	Japanese		
担当教員名 Instructor	YAMADA Kouji, TERANISHI Toshio, TANABE Shigeo, TAKEDA Kotaro				
科目概要 Course Aims	In this lecture, students will learn practical methods to summarize related studies for motor control and functional recovery in rehabilitation, and deepen their understanding by discussing critically the latest knowledge with clinical, anatomical, and physiological principles. In order to understand related studies and to promote the students' thesis, they will also learn about measurement instruments, biomedical measurements, signal processing, and statistical methods.				
到達目標 Objectives	By the end of this course, a successful learner will be able to 1. Explain the latest researches and trends in motion control and functional recovery. 2. Interpret and explain the data and methods of biological measurement. 3. Select optimal statistical processing methods and interpret the data appropriately.				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1	Writing and submission processes for original research papers			TAKEDA Kotaro	
2	Survey of previous findings			TAKEDA Kotaro	
3	Investigation of research trends			TAKEDA Kotaro	
4	Perception of manuscript structure, and reading comprehension from a critical perspective			TAKEDA Kotaro	
5	Measurement and evaluation from an anatomical point of view			YAMADA Kouji	
6	Measurement and evaluation from a physiological point of view			YAMADA Kouji	
7	Measurement and evaluation from a biochemical perspective			YAMADA Kouji	
8	Measurement and evaluation from a molecular biology perspective			YAMADA Kouji	
9	Concept and implementation of virtual instrumentation in rehabilitation engineering			TANABE Shigeo	
10	Data acquisition and signal processing from various biometric instruments			TANABE Shigeo	
11	Statistical analysis method used for research on motion control			TANABE Shigeo	
12	Methodology of Muscle Strengthening Exercises			TERANISHI Toshio	
13	Postural Balance assessment and Exercises			TERANISHI Toshio	
14	Gait Analysis and Exercises 1			TERANISHI Toshio	
15	Gait Analysis and Exercises 2			TERANISHI Toshio	
評価法・基準 Grading Policies	Grading will be comprehensively based on assigned reports (70%) and contributions to discussions including oral examinations (30%) in each lecture.				
教科書 Text Book	Distribute materials each lecture.		教材・参考書 Reference Book		

<p>オフィス アワー Office Hour</p>	<p>YAMADA Kouji Building 8-7F-707 Monday, Wednesday 19:00-20:00 TERANISHI Toshio Building 8-7F-704 TANABE Shigeo Building 8-1F-112 Monday 12:10-13:00 TAKEDA Kotaro Nanakuri Memorial Hospital In the day of lecture</p>	<p>連絡先 Contact</p>	<p>YAMADA Kouji TERANISHI Toshio TANABE Shigeo TAKEDA Kotaro</p>
<p>準備学習 Preparation of study</p>	<p>Students prepare each theme for 30 minutes and gather the opinions. After the lecture, review for about 60 minutes using handouts and compile in their notebook.</p>	<p>履修上の注意点 Notice for Students</p>	

Rehabilitation Therapy Sciences Exercise I (Rehabilitation Educational Sciences)

専攻分野 Major Field	Rehabilitation Science	学年 Grade	1st year	期間 Semester	2nd semester
授業形態 Style	seminar	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	KANADA Yoshikiyo, SAKURAI Hiroaki, INAMOTO Yoko				
科目概要 Course Aims	<p>For the training of therapists who can respond to advanced medical care and diversified needs of patients, this practicum provides a place to discuss more effective teaching methods for pre-graduate education, including classroom and clinical training; post-graduate education for novice therapists; and instructor education for clinical training instructors. Specifically, the discussion proceeds through the topic of clinical skills education using Objective Structured Clinical Examination (OSCE). The discussions also include topics on the content of training for instructors to ensure effective clinical training. In addition, the discussions include topics on a new education system in which university teachers and clinical training instructors work together. Students practice statistical processing using statistical software. By practicing the process from data analysis to presentation, students learn basic research methods.</p>				
到達目標 Objectives	<ol style="list-style-type: none"> 1. Explain the problem of physical therapist education in Japan and the solution. 2. Explain the clinical technical competence assessment of physical therapists using OSCE. 3. Select appropriate statistical processing methods, implement and interpret. 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1	Problems and Solutions for Physical Therapist Education in Japan 1			KANADA Yoshikiyo INAMOTO Yoko	
2	Problems and Solutions for Physical Therapist Education in Japan 2			KANADA Yoshikiyo INAMOTO Yoko	
3	Problems and Solutions for Physical Therapist Education in Japan 3			KANADA Yoshikiyo INAMOTO Yoko	
4	Problems and Solutions for Physical Therapist Education in Japan 4			KANADA Yoshikiyo INAMOTO Yoko	
5	Exercises using data from OSCE to assess clinical technical competence (Level 1)			SAKURAI Hiroaki INAMOTO Yoko	
6	Exercises using data from OSCE to assess clinical technical competence (Level 2)			SAKURAI Hiroaki INAMOTO Yoko	
7-8	Exercises using data from OSCE to assess clinical technical competence (Level 3)			SAKURAI Hiroaki INAMOTO Yoko	
9	Examination of the adequacy of clinical technical education and clinical training using OSCE			SAKURAI Hiroaki INAMOTO Yoko	
10	Examination of the training contents in the training of clinical training instructors			SAKURAI Hiroaki INAMOTO Yoko	
11	Examination of a new education system for university teachers and training instructors			SAKURAI Hiroaki INAMOTO Yoko	
12	Statistical Analysis (1) Learning statistical concepts			SAKURAI Hiroaki INAMOTO Yoko	
13	Statistical analysis (2) Learning basic statistical methods			SAKURAI Hiroaki INAMOTO Yoko	
14	Statistical analysis (3) Learning statistical analysis methods using clinical data 1			SAKURAI Hiroaki INAMOTO Yoko	
15	Statistical analysis (4) Learning statistical analysis methods using clinical data 2			SAKURAI Hiroaki INAMOTO Yoko	
評価法・基準 Grading Policies	Grading will be considered comprehensively based on students' attitude, performance, and discussions during the lecture (30%), and reports (70%) by course instructor.				

<p>教科書 Text Book</p>	<p>Distribute materials each lecture.</p>	<p>教材・参考書 Reference Book</p>	<p>Saitoh E, general ed., Kanada Y, et al., eds. OSCE for PT/OT Practical text for developing clinical skills. Kanehara Shuppan. Takehara T. SPSS Recommendations. Kitaoji Shobo Publishing.</p>
<p>オフィス アワー Office Hour</p>	<p>KANADA Yoshikiyo Building 8-1F-106 Monday 12:00-13:00 SAKURAI Hiroaki Building 8-1F-106 Monday 12:00-13:00 INAMOTO Yoko Building 8-7F-703 ONOGI Keiko Building 8-7F-708 E-mail us if you have any questions.</p>	<p>連絡先 Contact</p>	<p>KANADA Yoshihiro SAKURAI Hiroaki INAMOTO Yoko</p>
<p>準備学習 Preparation of study</p>	<p>Prepare each theme for 30 minutes and gather the opinions. After the lecture, review for about 60 minutes using handouts and compile in a notebook.</p>	<p>履修上の注意点 Notice for Students</p>	

Rehabilitation Therapy Sciences Exercise II (Motor Control Instrumentation Sciences)

専攻分野 Major Field	Rehabilitation Science	学年 Grade	1st year	期間 Semester	2nd semester
授業形態 Style	seminar	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	YAMADA Kouji, TERANISHI Toshio, TANABE Shigeo, TAKEDA Kotaro				
科目概要 Course Aims	<p>In this exercise, students read original papers and reviews related to motor control, functional recovery, biomedical measurements, and rehabilitation engineering, and discuss the contents of the papers and how to describe them. In the discussion, the students deeply understand the physiological meaning of motor control, signal processing of biomedical signals, and statistical methods, and utilized them for their own research. The students also learn the techniques necessary to present research results, such as how to create figures and tables, through the preparation of materials for discussion.</p>				
到達目標 Objectives	<ol style="list-style-type: none"> 1. Explain research trends and latest knowledge on motor control, functional recovery, biomedical measurements, and rehabilitation engineering. 2. Verify and state opinions on the methods, results, and discussions of the paper. 3. Deliver relevant presentations using appropriate figures / tables. 4. Select appropriate statistical processing methods and implement them. 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1-5	Reading and discussion of latest English papers on motor control and functional recovery			YAMADA Kouji TERANISHI Toshio TANABE Shigeo TAKEDA Kotaro	
6-10	Reading and discussion of latest English papers on biomedical measurements			YAMADA Kouji TERANISHI Toshio TANABE Shigeo TAKEDA Kotaro	
11-15	Reading and discussion of latest English papers on rehabilitation engineering			YAMADA Kouji TERANISHI Toshio TANABE Shigeo TAKEDA Kotaro	
評価法・基準 Grading Policies	Grading will be comprehensively based on assigned reports (70%) and contributions to discussions including oral examinations (30%) in each lecture.				
教科書 Text Book	Distribute materials each lecture.		教材・参考書 Reference Book		
オフィス アワー Office Hour	YAMADA Kouji Building 8-7F-707 Monday, Wednesday 19:00-20:00 TERANISHI Toshio Building 8-7F-704 TANABE Shigeo Building 8-1F-112 Monday 12:10-13:00 TAKEDA Kotaro Building 8-1F-112 In the day of lecture		連絡先 Contact	YAMADA Kouji TERANISHI Toshio TANABE Shigeo TAKEDA Kotaro	

<p>準備学習 Preparation of study</p>	<p>Students spend more than 60 minutes preparing English papers related to each topic and understand the outline before participating in the seminar. After the seminar, students review them for about 30 minutes and write down important points in their notebook.</p>	<p>履修上の注意点 Notice for Students</p>	
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Graduate Thesis of Rehabilitation Therapy Science

専攻分野 Major Field	Rehabilitation Science	学年 Grade	1st ・ 2nd ・ 3rd year	期間 Semester	full year
授業形態 Style	seminar	単位 Credits	6	時間数 Hours	180
授業方法 Class Methods	face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	KANADA Yoshikiyo, SAKURAI Hiroaki, TERANISHI Toshio, YAMADA Kouji, INAMOTO Yoko, ONOGI Keiko, TANABE Shigeo, TAKEDA Kotaro				
科目概要 Course Aims	<p>In this seminar, students will conduct research related to rehabilitation, the science of helping recover the activities. In research on physical therapist education, we will examine educational methods for training medical staff who can contribute to team medical care and have high teaching ability. This study also includes topics on the adequacy of clinical education and clinical training using Objective Structured Clinical Examination (OSCE) in physical therapists. This study also includes the topic of practical training in training instructors. Also, a new educational system that strengthens cooperation between university teachers and practical training instructors will be explained. Specifically, to standardize clinical skills, clinical skills will be practiced through simulated patients with stroke and osteoarticular systems. In research on motor systems, we will research motor control, motor learning, and rehabilitation engineering. Specifically, we will conduct basic research in simulated patients and clinical research in patients on postural control during movement, therapeutic learning, rehabilitation robots, etc. Through advice for the thesis, the students will have the skills to present their findings at academic conferences and academic journals in their specialized fields and disseminate information to society.</p> <p>(KANADA Yoshikiyo)</p> <p>We will try to explain all topics related to physical therapist education from a scientific perspective and the perspective of Evidence-Based Medicine (EBM). Specifically, the following points: 1. What is a physical therapist with high quality? 2. The evaluation scale of the skills of physical therapists. The following are specific themes.</p> <ol style="list-style-type: none"> 1. Studies on the outcomes of physical therapist education 2. Studies on the standardization of treatment techniques for physical therapists 3. Studies on the clinical training guide for physical therapists 4. Studies on the student, novice physical therapist, and patient education <p>(SAKURAI Hiroaki)</p> <p>We will try to explain how to train highly skilled medical staff who can contribute to team medical care.</p> <ol style="list-style-type: none"> 1. Studies on the clinical technical education and clinical training using Objective Structured Clinical Examination (OSCE) 2. Studies on the efficiency improvement of clinical training by training of practical training instructors 3. Studies on the new educational guidance system for physical therapists 4. Studies on the standardization of treatment techniques for physical therapists 5. Studies on the usefulness of Objective Structured Clinical Examination (OSCE), Problem Based Learning (PBL), and Team-Based Learning (TBL) 6. Studies on the development of clinical competence assessment methods 7. Studies on the postgraduate education of novice physical therapists 8. Studies on the patient guidance methods 				

(TERANISHI Toshio)

With the advancement of medical specialization and differentiation, problems that cannot be solved without the cooperation of professionals are occurring. In this special research, a doctoral thesis will be created using keywords such as activity, intervention, and behavior change. In the course, students will learn a series of a doctoral thesis writing processes, such as selecting a research theme, reviewing previous research, drafting a research plan, experimenting, and considering. In addition, through writing a doctoral thesis, students will learn how to conduct research, including the conscience of scientists, attitudes toward research, and creative ideas. Themes are summarized in the following four.

1. Research on posture and movement of patients and healthcare workers.
2. Research on quantitative measurement of spasticity
3. Research on fall prevention, fall risk evaluation and patient management.
4. Research on time study and consequences of rehabilitation intervention.

(YAMADA Kouji)

Based on gross and histological knowledge and theory of skeletal muscle, bone, ligaments, tendons, and joints, based on morphological and structural observations regarding problems that occur in the rehabilitation treatment process in clinical practice, judgment of prognosis, etc. Research on the functional analysis that does not stay in range, and create a doctoral dissertation. Further, the present invention is similarly carried out in the biological control field of neural control and humoral control. In this process, students learn the attitude toward research as a scientist through a series of doctoral dissertation creation processes, such as devising research themes, clarifying the progress of prior research, drafting research plans, conducting experiments, and studying.

1. Research from a preventive medical point of view applied to humans from basic research using disease model animals.
2. Structural analysis methods such as bone morphometry and biochemical analysis of humoral factors.
3. Research on biological control mechanism by humoral factors represented by myokines.

(INAMOTO Yoko)

This course will conduct a research related to swallowing and dysphagia rehabilitation. Research goal is to elucidate the physiology of swallowing, to characterize the factors underlying dysphagia, and to elaborate the swallowing exercise using kinematic and/or kinetic analysis, such as videofluoroscopy, swallowing CT, and high resolution manometry. Specific research interests include the mechanism of airway protection during swallowing, mechanism of UES opening/relaxation, kinetic effect of swallowing maneuvers, tongue and pharyngeal strengthening exercise, and intensive dysphagia treatment.

Focused areas:

1. Studies on the physiology of swallowing
2. Studies of the pathophysiology of dysphagia
3. Studies on the swallowing exercise and maneuvers

(ONOGI Keiko)

It is important to understand the changes and characteristics associated with aging in implementing rehabilitation for the elderly. In this course, with the keyword of dealing with the elderly, students will learn a series of thesis writing processes such as selection of research theme, review of previous research, planning of research plan, experiment, and discussion. In addition, through writing a doctoral dissertation, students will learn about the conscience of scientists, their attitude toward research, original ideas, and how research should be conducted. The theme is summarized in the following three.

1. Research on motor function in the elderly
2. Research on cognitive function in the elderly
3. Research on QOL of the elderly

<p>科目概要 Course Aims</p>	<p>(TANABE Shigeo) We will conduct research related to rehabilitation therapy science, especially rehabilitation engineering. Rehabilitation engineering is research field to develop practical devices and methods based on clinical problems and requests. The following are specific themes. 1. Studies on the rehabilitation robots 2. Studies on the development of motion analysis and treatment methods</p> <p>(TAKEDA Kotaro) Based on instrumentation engineering, rehabilitation engineering, neuroscience, and cognitive science, the following studies on biomedical measurement, clinical evaluation, and intervention will be conducted. 1. Studies on the scalp electroencephalogram and surface electromyogram 2. Studies on the clinical evaluation and database 3. Studies on motion analysis 4. Studies on motor imagery</p>		
<p>到達目標 Objectives</p>	<p>1. Choose a research topic and search for relevant literature. 2. Determine the framework for promoting research, learn the research methods, and conduct. 3. Interpretant and consider the research results logically. 4. Write a doctoral thesis.</p>		
<p>回数 Chapters</p>	<p>授業計画(各回のテーマ) Course Schedule (topic for each time)</p>	<p>担当教員 Instructor</p>	
<p>1-4 (1st year)</p>	<p>Search for previous studies and related literature</p>	<p>Each instructor</p>	
<p>5-10 (1st year)</p>	<p>Review of related literature</p>		
<p>11-15 (1st year)</p>	<p>Research planning</p>		
<p>16-18 (2nd year)</p>	<p>Pre-experiment</p>		
<p>19-20 (2nd year)</p>	<p>Preparation of documents to the epidemiology and clinical research ethics review board</p>		
<p>21-24 (2nd year)</p>	<p>Data measurement</p>		
<p>25-28 (2nd year)</p>	<p>Data review</p>		
<p>29-60 (2nd year)</p>	<p>Data measurement, write an academic paper and submit to a journal</p>		
<p>61-75 (3rd year)</p>	<p>Flow creation of the thesis</p>		
<p>76-90 (3rd year)</p>	<p>Preparation of a thesis</p>		
<p>長期履修 授業計画 Long-term study Class plan</p>	<p>Long-term students should discuss with their research advisors and plan research schedule according to the period of study.</p>		
<p>評価法・基準 Grading Policies</p>	<p>Grading will be considered comprehensively based on the contents of academic conferences, academic papers (40%), and doctoral thesis (60%). However, participation in 4-field joint research seminars is mandatory.</p>		
<p>教科書 Text Book</p>		<p>教材・参考書 Reference Book</p>	

<p>オフィス アワー Office Hour</p>	<p>KANADA Yoshikiyo Building 8-1F-106 Monday 12:00-13:00 SAKURAI Hiroaki Building 8-1F-106 Monday 12:00-13:00 TERANISHI Toshio Building 8-7F-704 YAMADA Kouji Building 8-7F-707 Monday, Wednesday 19:00-20:00 INAMOTO Yoko Building 8-7F-703 Monday, Wednesday, Friday 8:00-9:00 TANABE Shigeo Building 8-1F-112 Monday 12:10-13:00 TAKEDA Kotaro Nanakuri Memorial Hospital, Building 8-1F-112 In the day of lecture</p> <p>E-mail us if you have any questions.</p>	<p>連絡先 Contact</p>	<p>KANADA Yoshikiyo SAKURAI Hiroaki TERANISHI Toshio YAMADA Kouji INAMOTO Yoko TANABE Shigeo TAKEDA Kotaro</p>
<p>準備学習 Preparation of study</p>	<p>Students should actively pursue their own themes.</p>	<p>履修上の注意点 Notice for Students</p>	

5. Nursing Medical Sciences

Nursing Integrated Sciences, Advanced I

専攻分野 Major Field	Nursing Integrated Sciences	学年 Grade	1st year	期間 Semester	1st semester
授業形態 Style	lecture	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	remote class	使用言語 Language	Japanese		
担当教員名 Instructor	SUGAMA Junko, MURAYAMA Ryoko, NAKAMURA Sayuri, TAKEHARA Kimie				
科目概要 Course Aims	The course considers the maintenance and promotion of health and health restoration for people living in the community through theories about people's health, the surrounding environment, and physical, mental, psychological, and social influences. The course also outlines the basics of implementation science, using various theories, research designs, and methods to implement and disseminate evidence-based practices in medical and health activities.				
到達目標 Objectives	<p>In this class, students will learn to:</p> <ol style="list-style-type: none"> 1. Explain people's health, the environment, and its physical, mental, psychological, and social effects. 2. Explain solutions to the above problems through theory 3. Explain the basics of implementation science to implement and disseminate evidence-based practices in medical and health activities. 4. Explain the basics of implementation science that implements and disseminates evidence-based practices in medical and health care activities. 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1	What is Implementation Science?			SUGAMA Junko	
2	Methods of Implementation Science from the Literature and			SUGAMA Junko	
3	Theory and Frameworks for Implementation Science			SUGAMA Junko	
4	Strategies for Implementation Science			SUGAMA Junko	
5	Translational research based on nursing science and engineering methods			MURAYAMA Ryoko	
6	Innovations in Medicine and Nursing			MURAYAMA Ryoko	
7	Innovation and Design Thinking			MURAYAMA Ryoko	
8	Innovation and Nudge Theory			MURAYAMA Ryoko	
9	Evidence-Based Practice and Nursing			TAKEHARA Kimie	
10	Integration of Nursing Research and Clinical Practice			TAKEHARA Kimie	
11	Nursing Research and Social Conditions			TAKEHARA Kimie	
12	Nursing Research and the Paradigm Shift in Nursing			TAKEHARA Kimie	
13	Nursing Theory for Patient Understanding			NAKAMURA Sayuri	
14	Application of Theory to Nursing Practice			NAKAMURA Sayuri	
15	Theory and Nursing Research			NAKAMURA Sayuri	
評価法・基準 Grading Policies	Evaluation will be based on reports, seminar materials, and examinations (70%) and class attitude (30%). In order to measure the level of understanding of the objectives, a report on each of them, assignments such as preparation of materials, or examinations will be assigned, and explanations will be given after the assignments are made.				

教科書 Text Book	None	教材・参考書 Reference Book	None
オフィス アワー Office Hour	All faculty available online for 30 minutes after class	連絡先 Contact	SUGAMA Junko: MURAYAMA Ryoko: NAKAMURA Sayuri: TAKEHARA Kimie:
準備学習 Preparation of study	Students should prepare about one hour in advance on the designated topic. Also, review about 1 hour after the exercises. Be interested in everything and have a positive attitude.	履修上の注意点 Notice for Students	Materials to be used in class should be uploaded to Teams in advance

Nursing Integrated Sciences, Advanced II

専攻分野 Major Field	Nursing Integrated Sciences	学年 Grade	1st year	期間 Semester	1st semester
授業形態 Style	Seminar	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	SEKO Rumi				
科目概要 Course Aims	<p>Learn the philosophy of community health nursing, history of development, various theories and legal systems that form the basis of activities, and activities for each target, and explore strategies for solving health problems of the target (individual, family, group, organization, community). We will consider the maintenance and promotion of health and health recovery of people living in the community through theories about people's health, the surrounding environment, physical, mental, psychological and social influences.</p>				
到達目標 Objectives	<p>1. Explain the characteristics of activities based on the philosophy of community nursing and the history of its development. 2. Based on theory, we can understand the subject from multiple angles, effectively utilize the legal system and social resources, and propose strategies for solving health issues. 3. Consider the significance of research in community nursing and the application of research results to practice</p>				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1	What is Community Health Nursing?			SEKO Rumi	
2	Concepts underlying Community Health Nursing			SEKO Rumi	
3	Subjects of Community Health Nursing			SEKO Rumi	
4	Maintaining and promoting the health of people living in the community			SEKO Rumi	
5	Places for people living in the community (1) Administrative agencies			SEKO Rumi	
6	Places for people living in the community (2) Workplaces			SEKO Rumi	
7	Places for people living in the community (3) School			SEKO Rumi	
8	Places for people living in the community (4) Medical facilities			SEKO Rumi	
9	Place for people living in the community (5) International			SEKO Rumi	
10	Changes in population and disease structure			SEKO Rumi	
11	Changes in social structure and cultural background			SEKO Rumi	
12	Changes in social conditions, political, economic, and industrial structures			SEKO Rumi	
13	Environmental changes and health issues			SEKO Rumi	
14	Policymaking and commercialization in health care and welfare			SEKO Rumi	
15	Health emergency management			SEKO Rumi	
評価法・基準 Grading Policies	Evaluation will be based on reports, seminar materials, and examinations (70%) and class attitude (30%). In order to measure the level of understanding of the objectives, a report on each of them, assignments such as preparation of materials, or examinations will be assigned, and explanations will be given after the assignments are made.				

教科書 Text Book	None	教材・参考書 Reference Book	None
オフィス アワー Office Hour	All faculty available online for 30 minutes after class	連絡先 Contact	SEKO Rumi:
準備学習 Preparation of study	Students should prepare about one hour in advance on the designated topic. Also, review about 1 hour after the exercises. Be interested in everything and have a positive attitude.	履修上の注意点 Notice for Students	Materials used in lectures will be presented in Microsoft Teams

Nursing Integrated Sciences, Exercise I

専攻分野 Major Field	Nursing Integrated Sciences	学年 Grade	1st year	期間 Semester	2nd semester
授業形態 Style	lecture	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	remote class	使用言語 Language	Japanese		
担当教員名 Instructor	SUGAMA Junko, MURAYAMA Ryoko, NAKAMURA Sayuri, TAKEHARA Kimie				
科目概要 Course Aims	Discussions will be held on the theories learned in the Advanced Course and recent research trends, as well as the underlying ideas, theories, and methods of each. In addition, students will learn how to reflect on clinical questions and research questions, and the process from research planning to publication of research results, through practical examples.				
到達目標 Objectives	In this class, students will learn to: 1. Discuss and critically examine the underlying ideas, theories, and methods from theories and recent research trends 2. Describe the evidence and logical skills necessary for conducting one's own research.				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1-15	Preparation of literature review Clarification of research objectives based on literature review Research methods based on research objectives Research Methods Based on Research Objectives Ethics in Nursing Research Data collection and analysis Writing and Publication			SUGAMA Junko MURAYAMA Ryoko NAKAMURA Sayuri TAKEHARA Kimie	
評価法・基準 Grading Policies	Evaluation will be based on reports, seminar materials, and examinations (70%) and class attitude (30%). In order to measure the level of understanding of the objectives, a report on each of them, assignments such as preparation of materials, or examinations will be assigned, and explanations will be given after the assignments are made.				
教科書 Text Book	None	教材・参考書 Reference Book	None		
オフィス アワー Office Hour	Each research supervisor available online or via email for 30 minutes after class	連絡先 Contact	SUGAMA Junko: MURAYAMA Ryoko: NAKAMURA Sayuri: TAKEHARA Kimie:		
準備学習 Preparation of study	Students should prepare about one hour in advance on the designated topic. Also, review about 1 hour after the exercises. Be interested in everything and have a positive attitude.	履修上の注意点 Notice for Students	Materials to be used in class should be uploaded to Teams in advance		

Nursing Integrated Sciences, Exercise II

専攻分野 Major Field	Nursing Integrated Sciences	学年 Grade	1st year	期 間 Semester	2nd semester
授業形態 Style	Seminar	単位 Credits	2	時間数 Hours	30
授業方法 Class Methods	face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	SEKO Rumi				
科目概要 Course Aims	Discussions will be held on the theories learned in the Advanced Course and recent research trends, as well as the underlying ideas, theories, and methods of each. In addition, students will learn how to reflect on clinical questions and research questions, and the process from research planning to publication of research results, through practical examples.				
到達目標 Objectives	In this class, students will learn to: 1. Discuss and critically examine the underlying ideas, theories, and methods from theories and recent research trends 2. Describe the evidence and logical skills necessary for conducting one's own research.				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)			担当教員 Instructor	
1	Preparation of literature review Clarification of research objectives based on literature review Research methods based on research objectives Research Methods Based on Research Objectives Ethics in Nursing Research Data collection and analysis Writing and Publication			SEKO Rumi	
評価法・基準 Grading Policies	Evaluation will be based on reports, seminar materials, and examinations (70%) and class attitude (30%). In order to measure the level of understanding of the objectives, a report on each of them, assignments such as preparation of materials, or examinations will be assigned, and explanations will be given after the assignments are made.				
教科書 Text Book	None		教材・参考書 Reference Book	Edited by Lynne E. Young, Virginia Hayes Supervised translation by Junko Takano and Akio Kitayama "Changes in Health Promotion Practice" Japanese Nursing Association 978-4-8180-1375-9	
オフィス アワー Office Hour	All faculty available online for 30 minutes after class		連絡先 Contact	SEKO Rumi:	
準備学習 Preparation of study	Students should prepare about one hour in advance on the designated topic. Also, review about 1 hour after the exercises. Be interested in everything and have a positive attitude.		履修上の注意点 Notice for Students	Materials used in lectures will be presented in Microsoft Teams	

Graduate Thesis of Nursing Integrated Sciences

専攻分野 Major Field	Nursing Integrated Sciences	学年 Grade	1st・2nd・3rd year	期間 Semester	full year
授業形態 Style	Seminar	単位 Credits	6	時間数 Hours	180
授業方法 Class Methods	Remote or face-to-face class	使用言語 Language	Japanese		
担当教員名 Instructor	SUGAMA Junko, MURAYAMA Ryoko, TAKEHARA Kimie				
科目概要 Course Aims	<p>In the special research, students conduct research on the construction of evidence in nursing and its social implementation and prepare a doctoral dissertation. In the process, students learn a series of dissertation writing processes, including selection of a research theme, review of previous research, planning of a research plan, experimentation and investigation, and discussion. In addition, students learn the conscience and ethics as scientists, their attitude toward research, original ideas, and the nature of research through the preparation of their doctoral dissertations. The major research topics are as follows:</p> <p>(SUGAMA Junko)</p> <ol style="list-style-type: none"> 1. Development of evidence and its implementation for prevention and management of chronic wound and vulnerable skin tissue 2. Development of evidence and its implementation for nursing interventions and clinical skills 3. Evaluation of nursing role and function in the interdisciplinary approach to the health care <p>(MURAYAMA Ryoko)</p> <ol style="list-style-type: none"> 1. Research on the creation of evidence-based nursing technology and the construction of systems for social implementation 2. Research on the development of educational programs including the development of teaching materials and human resource development for the dissemination of nursing technology and its social implementation <p>(TAKEHARA Kimie)</p> <ol style="list-style-type: none"> 1. Research on the development and social implementation of diabetic foot ulcer preventive care and assessment technology using nursing science and engineering methods 2. Research on a series or part of the process to create of advanced new nursing care by the clinical seeds and its social implementation (i.e., its widespread return to clinical field) 3. Research on the working environment and education of nurses, and patient education 				
到達目標 Objectives	<p>The goals of this course are to be able to</p> <ul style="list-style-type: none"> - decide the research subject and investigate the related literature. - determine the framework for promoting research, learn the research methods, and conduct research. - interpret and discuss your research results logically. - write a doctoral thesis. 				
回数 Chapters	授業計画(各回のテーマ) Course Schedule (topic for each time)				担当教員 Instructor
1-10 (1st year)	Continue research activities and summarize the results to create a thesis. Creating a research plan and making research planning document. Applying for a document to the relevant ethics committee.				Each research supervisor
11-15 (1st year)	With the approval of the relevant ethics committee, proceeding with research preparations and starting research activities.				
16-60 (2nd year)	Data collection / survey / experiment, data analysis, discussion of research results, interpretation and evaluation of data, and consideration using relevant literature according to the research plan.				
61-90 (3rd year)	Continuing research activities. Compilation the results and creating a thesis.				

長期履修 授業計画 Long-term study Class plan	Long-term students will consult with their research supervisor according to the duration of the course and make a course plan.		
評価法・基準 Grading Policies	Grading will be described based on students' attitude (30%), Reports, seminar materials and oral examinations (70%). In order to measure the level of comprehension of the goals, assign tasks such as reports, material creation, etc., oral examinations for each.		
教科書 Text Book	None	教材・参考書 Reference Book	None
オフィス アワー Office Hour	Each research supervisor available online or via email for 30 minutes after class	連絡先 Contact	SUGAMA Junko: MURAYAMA Ryoko: TAKEHARA Kimie:
準備学習 Preparation of study	Students should prepare about one hour in advance on the designated topic. Also, review about 1 hour after the exercises. Be interested in everything and have a positive attitude.	履修上の注意点 Notice for Students	Materials to be used in class should be uploaded to Teams in advance