List of Major Subjects and Academic Advisors for 2022 Academic Year

*The major subjects and academic advisors may change as needed.

1）Field of Clinical Laboratory Medicine

Department of Morphology and Cell Function

Course Title	Course Aims and Research Subject
Graduate Thesis of Morphology and Cell Function ABE Masato SHIOGAMA Kazuya	Clarify the research theme and create a master's thesis by applying various techniques learned in the exercises. Also, research and develop useful morphological methods used in hospital laboratories. In addition, we discuss the problems of cytopathological diagnosis of cancer. ***ABE Masato*** 1. Study on immunohistochemical expression using antibodies against various cells of the nervous system. 2. Study on analysis of genetic alteration in malignant brain tumor ***SHIOGAMA Kazuya*** 1. Immunohistochemical analysis of neutrophil extracellular traps (NETs) 2. Immunohistochemical analysis of various cell deaths 3. Improvement and technical development of various pathological techniques 4. Analysis of bacterial vaginosis in cytology specimens

Department of Clinical Physiology and Functional Imaging

Course Title	Course Aims and Research Subject
Graduate Thesis of Clinical Physiology and Functional Imaging ICHINO Naohiro NARUSE Hiroyuki OSAKABE Keisuke	In the special research on clinical physiology and functional imaging, in order to obtain information necessary for diagnosis and treatment of all diseases, the theory and technology supported by EBM are used to scientifically analyze the association with the pathologic state from the laboratory medical test. In addition, learn the homeostasis of physiological functions in healthy individuals using an experimental and physiological assessment method. Understand biological responses caused by pathological conditions from clinical physiology and functional imaging, and we provide the advanced induction centered on research with the following items. ***ICHINO Naohiro*** 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. ***NARUSE Hiroyuki*** 1. To elucidate the pathophysiology of cardiovascular disease using biomarkers. 2. To elucidate the pathophysiology of acute kidney injury using biomarkers. ***OSAKABE Keisuke*** 1. Non-invasive evaluation of liver fibrosis in chronic hepatitis B 2. Study on evaluation of liver fibrosis in follow-up of chronic liver disease 3. Study on evaluation method of liver fibrosis and steatosis in nonalcoholic fatty liver disease

Department of Basic Pathobiological Analysis

Course Title	Course Aims and Research Subject
Graduate Thesis of Basic Pathobiological Analysis OHASHI Koji ISHIKAWA Hiroaki HOSHI Masato	The aim of this class is to write a graduation thesis. This course deal with clear the pathobiological mechanism of diseases. ***OHASHI Koji, ISHIKAWA Hiroaki*** We aim to elucidate the pathogenic mechanism of metabolic syndrome from the perspective of epigenetics and apply it to clinical examinations. We will also study the effects of functional foods on biometabolic function. 1. Epigenetic influences of fructose overdose on the next generation. 2. Analysis DNA methylation in metabolic syndrome. 3. Analysis of HDL miRNA in various disease. ***HOSHI Masato*** We aim to elucidate the role of tryptophan and glucose metabolism in immune cells, and establish novel immunotherapies for inflammatory diseases, mainly tumors, with a view to clinical application. We also aim to establish biomarkers for the early diagnosis and prognosis of chronic kidney disease, a national disease. 1. The role of tryptophan and glucose metabolism in immune cells 2. Establishment of novel biomarkers in chronic kidney disease 3. The effects of rare sugars in various inflammatory diseases

Department of Disease Control and Prevention

Course Title	Course Aims and Research Subject
Graduate Thesis of Disease Control and Prevention SAITO Kuniaki YAMAMOTO Yasuko FUJIGAKI Hidetsugu	The purpose of this course is to conduct research related to the development of novel medical science and technology. This course will be taught by the instructors associated with this field such as preemptive medicine, personalized medicine, disease onset prediction, drug effect/side effect/prognosis prediction, companion diagnosis, disease state information analysis, Personal Health Record, and cohort analysis. ***SAITO Kuniaki*** 1. Amino acid metabolism and immune system 2. Analysis of various diseases based on metabolic changes 3. Personalized medicine - drug effect/side effect/prognosis prediction ***YAMAMOTO Yasuko*** 1. Analysis of biofunctional molecules by molecular biological techniques 2. Proteomic analysis in several diseases related to metabolic changes 3. Behavioral analysis using animal models – focus on metabolic changes of tryptophan metabolism ***FUJIGAKI Hidetsugu*** 1. Development of therapeutic drugs and functional foods targeting enzymes in tryptophan metabolism 2. Development of biomarkers and diagnostic drugs by metabolomic analysis using mass spectrometry 3. Analysis of biofunctional molecules related to cellular senescence using molecular biological and biochemical techniques.

Department of Molecular Cell Biology

Course Title	Course Aims and Research Subject
Graduate Thesis of Molecular Laboratory Medicine AKIYAMA Hidehiko TAKEMATSU Hiromu MATSUSHITA Fumio	Department of molecular laboratory medicine consists of hematology, immunology, and molecular biology laboratories. Therefore, students will conduct actual research projects in enrolled laboratory as thesis studies. On-going research projects for each accepting professors is as follows; ***AKIYAMA Hidehiko*** 1. Development and assessment of novel anti-leukemic agents 2. Mechanisms of apoptosis ***TAKEMATSU Hiromu*** 1. B cell antigen receptor signaling to control antibody production 2. Endomitosis, a specific cell cycle event to produce giant cells, controlled by glycolipid 3. Development of human-specific condition with xeno-auto-antigen mediated autoimmunity in mice ***MATSUSHITA Fumio*** 1. Regulators of neural differentiation and neural network formation 2. Direct reprogramming into specific neural cells by those neural regulators

Department of Preventive Medical Sciences

Course Title	Course Aims and Research Subject
Graduate Thesis of Preventive Medical Sciences SUZUKI Koji SUGIMOTO Keiko	This course deals with data analysis of epidemiological studies or analysis of medical image and clinical laboratory data. Students will conduct research that contributes to elucidating the mechanisms of lifestyle-related diseases and establishing preventive measures for the diseases. They learn the research methodology via writing a master's thesis. ***SUZUKI Koji*** 1. Molecular Epidemiological study on prevention of lifestyle-related diseases 2. Large-scale cohort study for evaluation of cancer risk ***SUGIMOTO Keiko*** 1. Search of cardiac function index for predicting prognosis by echocardiography 2. Analysis of electromechanical changes of heart due to emotional and physical stress using ECG

Department of Science for Animal Models

Course Title	Course Aims and Research Subject
Graduate Thesis of Laboratory Animal Science NAGAO Shizuko	Based on the knowledge and skills gained from the "Graduate Seminar of Science for Animal Models ", students develop the ability to formulate research that elucidate the pathogenesis of human diseases and treat them. Students develop the ability to select the below items and perform them logically. ***NAGAO Shizuko*** 1. Study on establishment of ES cells, iPS cells or primary cells 2. Study on cell signaling pathways related to diseases using cultured cells 3. Study on genome editing animals, transgenic animals and/or animal models of spontaneous disease 4. Study on cell signaling pathways related to diseases using model animals 5. Research on the development of new therapeutic agents linked to treatment of diseases using clinical laboratory, molecular genetics, pharmacological analysis and omics comprehensive analysis Students also develop the ability to read and apply English-language dissertations in these fields.

Department of Genetic Counseling

Course Title	Course Aims and Research Subject
Graduate Thesis of Genetics OHYE Tamae	Create a master's thesis by researching specific themes related to genetic counseling, and reviewing the literature or gaining deep insight into the problems associated with the cases in which you were present. Through master's research, cultivate the qualifications involved in a certified genetic counselor with thinking and insight. ***OHYE Tamae*** 1. Study on support for patients with hereditary diseases and their families 2. Study on coping with secondary findings found by accident by comprehensive inspection method

Department of Regulatory Science for Evaluation and Development of Pharmaceuticals and Devices

Course Title	Course Aims and Research Subject
Graduate Thesis of Regulatory Science MOURI Akihiro YAMADA Shigeki	In this course, 1) the students clarify each research topic and performs the basic research to develop diagnostic drugs, pharmaceuticals, and functional foods or 2) the students prepare the case reports during the practice of clinical research coordinate. The students summarize them to prepare the manuscript for master's thesis. ***MOURI Akihiro*** 1. Developing pharmaceuticals and functional foods by basic research using model animals 2. Searching for biomarkers and developing diagnostic drugs ***YAMADA Shigeki*** 1. Evaluating efficacy and safety of pharmaceuticals in clinical practice 2. Building proper use of pharmaceuticals based on pharmacokinetics

Department of Regenerative medicine

Course Title	Course Aims and Research Subject
Graduate Thesis of Cell and Gene Therapy	Although knowledge about the effectiveness of cell and gene therapy products is often considered, but the development of new methods such as quality control is still under development. Acquire specialized knowledge by conducting research activities to develop new quality control methods, and promote a series of research activities such as setting research subjects, drafting research plans, performing experiments, surveys, analyzes, and writing dissertations.

Department of Assisted reproductive medicine

Course Title	Course Aims and Research Subject
Graduate Thesis of Assisted Reproductive Medicine NISHIO Eiji	Our training course instructs assisted reproductive technology with murine gamete, fertilized egg and embryo using required culture media in incubating instruments. As the next step, clinical training will be performed using human gamete, fertilized egg and embryo, at clinical practice facilities of in-vitro fertilization and embryo transfer registered by the Japan Society of Obstetrics and Gynecology (Training mainly in Fujita Health University Hospital and/or other collaborating fertility clinics). Further, attendees will get higher ethical standards and dignity for assisted reproductive technology in experiencing the duties of clinical embryologist, with intense interest in this field. ***NISHIO Eiji*** 1. Research on the improvement of assisted reproductive technology through a basic approach. 2. Acquisition of essential knowledge and skills for assisted reproductive technology. 3. Obtain eligibility requirements for clinical embryologist qualifying examination. 4. Present case reports in a treatise format.

2）Field of Nursing

Department of Nursing Education

Course Title	Course Aims and Research Subject
Graduate Thesis of Nursing Education MIYOSHI Yumiko MINAGAWA Atsuko SUGAMA Junko DAI Misako	Students independently promote research on nursing education and implementation nursing science and create a master thesis. In the process, Students empower basic abilities that contribute to the development of nursing education and implementation nursing science. ***MIYOSHI Yumiko*** 1. Study on learning strategies 2. Study on self-regulated learning ***MINAGAWA Atsuko*** 1. Study on educational method to promote understanding of technical terms 2. Study on educational method involve with simulated patients ***SUGAMA Junko*** 1. Research for implementation nursing science on advanced skincare area ***DAI Misako*** 1. Research on self-care management for lymphedema/chronic edema patients. 2. Development of new assessment methods, approaches, and educational programs for patients with edema.

Department of Adult and Gerontological Nursing

Course Title	Course Aims and Research Subject
Graduate Thesis of Self-Care Nursing NAKAMURA Sayuri	Graduate students write a master's thesis on nursing care for adults, elderly patients, and families with chronic health problems by integrating with nursing practice. They will explore various problems related to health promotion and self-care of chronic disabilities by utilizing the theories and nursing models learned in the seminar and exercises. And they clarify their research topics related to nursing care for adults and the elderly, conduct nursing research, and prepare a master's thesis. ***NAKAMURA Sayuri*** 1. Study on support for diabetic patients in adulthood 2. Study on prevention of lifestyle-related diseases 3. Study on the development of communication skills 4. Study on interprofessional collaboration in health care

Department of Acute phase and Perioperative Period

Course Title	Course Aims and Research Subject
Graduate Thesis of Acute and Perioperative Period HAYASHI Mutsuharu UENISHI Norimichi, ITOU Masahiro FUNABIKI Tomohiro	From the perspective of a team approach in medical care, we study the problems regarding perioperative care, emergency care, disaster medical care, highly advanced medical treatment (robot surgery, transplant medical care, minimally invasive surgery, auxiliary artificial heart treatment, etc.), medical care security, medical care economy, training, and, based on knowledge, the technique that each obtained in seminar, practice, training, and making announcements. In addition, we learn about how diagnoses (including the symptom), treatment, nursing, and other factors affect a study widely. By about late 1, we learn pharmacodynamics, the clinicopathology associated with the study, and a class associated with the clinical diagnosis. Through group work and group discussion, develop the ability to find solutions to problems.

Department of Community Health Nursing

Course Title	Course Aims and Research Subject
Graduate Thesis of Community Health Nursing SEKO Rumi KITAMURA Mayumi MIYAMOTO Miho	Utilize nursing assistance models and theories related to community health activities and home care to train at public health centers, health centers, occupational health fields, core community care centers and visiting nursing stations. Construct a comprehensive community care system, conduct research on community health care and welfare activities, conduct research on health behavior and support methods for individuals, families, and groups, and prepare a master's thesis. ***SEKO Rumi*** 1. Annual changes in healthy life expectancy and evaluation of regional distribution 2. Forecast of average independence period based on long-term care insurance 3. Smoking status of women and their families based on anonymous data from the Basic Survey on National Life ***KITAMURA Mayumi*** 1. Study on the prevention of housebound and health support for the elderly in the community 2. Study on life adaptation of retirees 3. Study on community home care by multi-professional collaboration ***MIYAMOTO Miho*** 1. Study on support to the elderly and family members in the community 2. Study on care prevention for the elderly in the community 3. Study on public health nurses working at community general support centers

Department of Nursing Management

Course Title	Course Aims and Research Subject
Graduate Thesis of Nursing Management MIZUNO Nobuko	The purpose of this course is to enable students to clarify research topics related to nursing management that will lead to the provision of high-quality organizational nursing services, to scientifically explore those research topics, and to prepare master's theses. This process helps students acquire the basic ability to conduct research and gain the fundamental ability to develop concepts and theories about nursing management. ***MIZUNO Nobuko*** 1. Research on career development of nursing professionals 2. Study on management behavior and leadership of nursing middle managers 3. Study on professional autonomy

Department of Mental Health Nursing

Course Title	Course Aims and Research Subject
Graduate Thesis of Mental Health Nursing SHIMIZU Jun	Based on the theories and knowledge learned in special topics and exercises, the theoretical framework of one's own research in the field of mental health nursing is clarified. On top of that, the subject of the research is clarified, and the master's thesis is prepared systematically based on the selection of the research method suitable for the subject. In addition, we will actively utilize information both in Japan and overseas so that interdisciplinary perspectives can be spread through research activities. ***SHIMIZU Jun*** 1. Research on mathematical analysis of language in psychiatric disorders 2. Research on psychiatric emergency and acute care nursing 3. Research on stress among nurses

Department of Pediatric Nursing

Course Title	Course Aims and Research Subject
Graduate Thesis of Child Health Nursing TASAKI Ayumi	Based on the theories and knowledge learned in Child Health Nursing and Child Health Nursing Seminar, students will analyze and evaluate nursing practice in the field of child health care nursing for children and their families, clarify research issues related to nursing support systems, etc., and develop basic research skills to write a master's thesis. ***TASAKI Ayumi*** 1. Research on supporting children with chronic diseases to acquire self-care 2. Research on nursing for children and families with all diseases 3. Research on nursing support and coordination for children and families who need renal replacement therapy in childhood 4. Research on supporting the transition of children with chronic diseases

Department of Maternal Nursing

Course Title	Course Aims and Research Subject
Graduate Thesis of Maternal Nursing FUJIWARA Iku	Based on the theories and knowledge learned in maternal nursing seminars and exercises, clarify research issues related to women's health support throughout their lives, and prepare master's theses while verifying the support of nursing practice. ***FUJIWARA Iku*** 1. Study on parental readiness and childcare in adolescence 2. Study on menstruation in adolescence 3. Research on recovery of body shape after childbirth

Department of Transplant Coordination

Course Title	Course Aims and Research Subject
Graduate Thesis of Recipient Coordination ASAI Tomoko	This course deals with clarification of research issues related to transplant coordination and paper writing from a clinically based perspective. Students will achieve basic skills and ability as a transplant coordinator to develop concepts and theories through this process and clinical training. ***ASAI Tomoko*** 1. Research on decision-making support for patient and family choosing organ transplant 2. Research on coordination at every stage of organ transplant 3. Research on nursing interventions for self-care, adherence, patient education, and more 4. Research on nursing interventions for living-donor transplant recipient 5. Research on organ transplant such as allocation system or perception of medical professionals
Graduate Thesis of Donor Coordination ASAI Tomoko	This course deals with clarification of research issues related to transplant coordination and paper writing from a clinically based perspective. Students will achieve basic skills and ability as a transplant coordinator to develop concepts and theories through this process and clinical training. ***ASAI Tomoko*** 1. Research on coordination of deceased organ/tissue donation 2. Research on deceased donor family care 3. Research on donation and allocation system 4. Research on in-hospital organ/tissue donation system 5. Research on organ transplant such as perception of medical professionals

3）Field of Medical Radiation Sciences

Department of Neuroimaging and Brain Science

Course Title	Course Aims and Research Subject
Graduate Thesis of Neuroimaging and Brain Science UMEZAWA Eizou SHIRAKAWA Seiji SHIIBA Takuro	This course aims the development of imaging technologies for the central nervous system of humans and experimental animals, research of the image analysis using various medical images, the functional image analysis using artificial intelligence, etc. ***UMEZAWA Eizou*** 1. Study on q-space diffusion MRI 2. Study on new MRI using diffusion property of water molecules in vivo 3. Study on mathematical and physical foundations of MRI ***SHIRAKAWA Seiji*** 1. Attenuation and scatter correction by Monte Carlo simulation 2. Study on image processing using deep learning ***SHIIBA Takuro*** 1. Analysis of medical imaging for neurodegenerative diseases 2. Study on dose evaluation using Monte Carlo simulation for nuclear medicine therapy

Department of Medical Image Information Sciences

Course Title	Course Aims and Research Subject
Graduate Thesis of Medical Imaging TERAMOTO Atsushi KOBAYASHI Masanao	This course deals with the medical image analysis, functional image analysis, and imaging and educational support technologies in the field of X-ray diagnosis. Students will learn the research methodology via writing a master's thesis. ***TERAMOTO Atsushi*** 1. Study on automated detection, quantitative analysis, classification, and prediction of lesions in various medical data using artificial intelligence and deep learning 2. Study on image quality improvement and correction of medical images using artificial intelligence and deep learning 3. Study on imaging technology using X-ray and optical micro-CT system ***KOBAYASHI Masanao*** 1. Study on improvement of dosimetry and evaluation method in X-ray diagnosis 2. Study on development of dose evaluation method using Monte Carlo simulation 3. Research on international trends and evaluation of medical radiation systems 4. Study on development of digital teaching materials using virtual reality

Department of Radiation Safety Management

Course Title	Course Aims and Research Subject
Graduate Thesis of Health Physics KOBAYASHI Shigeki MINAMI Kazuyuki YOKOYAMA Sumi	In this broad field, from the viewpoint of the relationship between humans and radiation, we select issues related to the effects of radiation on the human body and the protection of radiation, and clarify the research, background, and significance of pioneers. The aim of the research is to develop new methods or gain knowledge, and to acquire the ideal way of research through the preparation of master's thesis. ***KOBAYASHI Shigeki*** 1. Study on dose evaluation during mammary tissue imaging using energy-degrading photon-counting X-ray detector 2. Study on medical image analysis using MATLAB System ***MINAMI Kazuyuki*** 1. Study on radiation exposure evaluation method in nuclear medicine 2. Study on radiation protection measures in the field of nuclear medicine 3. Study on radiation exposure simulation ***YOKOYAMA Sumi*** 1. Study on radiation protection and dosimetry 2. Study on measurement methods for environmental radiation and radio-active materials 3. Analysis and research on radiation risk communication

Department of Medical Physics

Course Title	Course Aims and Research Subject
Graduate Thesis of Medical Physics ASADA Yasuki HAYASHI Naoki	Medical physics is application of physics to medicine and healthcare; using physics for patient imaging, management and treatment. In this course, students understand the significance of learning medical physics (especially, health physics and therapeutic radiological physics), and carry out individual theme study regarding development of the new technique or knowledge. Finally, students write thesis for master degree including the outcome in master course term. ***ASADA Yasuki*** 1. Analysis of patient exposure by general radiography and mammography 2. Study on measurement of X-ray quality and output 3. Development of software for estimation of patient exposure in diagnostic X-ray domain ***HAYASHI Naoki*** 1. Study on standard dosimetry for therapeutic radiation. 2. Study on safer radiotherapy procedure and its assessment with FMEA. 3. Study on improvement of accuracy and precision in radiotherapy. 4. Study on development of surface image guidance system

4）**Field of Rehabilitation**

Department of Sensory-Motor System Science

Course Title	Course Aims and Research Subject
Graduate Thesis of Sensory-Motor System Science TERANIASHI Toshio TANABE Shigeo OHTSUKA Kei TAKEDA Kotaro	Select clinically-oriented research themes related to sensory-motor system science regardless of basic research or clinical research. In other words, based on kinematics, electrophysiology, prosthetics and orthotics, and rehabilitation engineering, a neurophysiological research of the conventional treatment method is performed. Discuss and set research themes that can contribute to the development of clinical medicine over the future. Students conduct research while discussing with their supervisor as needed, publish the results at academic conferences or dissertations, and prepare master's thesis. ***TERANISHI Toshio*** 1. Study on therapeutic intervention and consequences of physical therapy. 2. Development of fall risk assessment tools and management method in hospital. 3. Development of clinical-oriented motion analysis method. 4. Study on treadmill gait analysis and motion analysis. 5. Development of walking practice method. 6. Study on orthosis treatment for paralytic disease. ***TANABE Shigeo*** 1. Studies on the development of activity assistive devices. 2. Studies on the evaluation methods in sensory-motor system. 3. Studies on the exercise methods in sensory-motor system. ***OHTSUKA Kei*** 1. Development of clinical-oriented gait analysis system. 2. Studies on the gait analysis in stroke patients with hemiparesis. 3. Development of the balance evaluation methods in stroke patients with hemiparesis. 4. Studies on the gait analysis in patients with hip osteoarthritis. 5. Quantitative analysis of knowledge of results in walking. ***TAKEDA Kotaro*** 1. Studies on the objective evaluation of spasticity. 2. Studies on brain functions. 3. Studies on the measurement and evaluation of motor function. 4. Development of the measurement and intervention devices

Department of Dysphasia Therapeutics

Course Title	Course Aims and Research Subject
Graduate Thesis of Dysphasia Therapeutics INAMOTO Yoko ONOGI Keiko	In this course, to determine the theme of thesis, current problems in dysphagia rehabilitation will be discussed based on the classes of dysphagia therapeutics and graduate seminar of dysphagia therapeutic. Theme includes a wide range of field from basic physiology (anatomy, physiology) to clinical research (exercise, outcome). Students may choose the topic according to the necessity from clinical and research views and their interests. Students will read through all the related manuscripts of their theme, make a research plan, implement a research, and then complete a thesis. Students will be encouraged to submit the manuscript to the related journals. They may use the published journal as a thesis. ***INAMOTO Yoko*** 1. Kinematic analysis of swallowing maneuvers 2. Analysis of the effect of tongue muscle strengthening on the swallowing kinematics 3. Development of exercise for strengthening pharyngeal contraction during swallowing 4. Kinematic analysis of hyolaryngeal movement during swallowing ***ONOGI Keiko*** 1. Development of severity scale for oral phase of swallowing 2. Investigation of swallowing outcome by dysphagia rehabilitation 3. Invention of severity scale for VFSS and FEES

Department of Occupational Therapy Sciences

Course Title	Course Aims and Research Subject
Graduate Thesis of Occupational Therapy Science SUZUKI Megumi	Research in the field of Occupational Therapy needs to address issues not only in the medical aspect but also in the fields of health and welfare. “Art and Science” should be kept in mind to understand and support human life. A person should be understood not only with psychological and physical factors, but also with the environmental factors surrounding the individual, and for these factors to function properly, a comprehensive approach to the person, including cognitive function is required. We clarify the scientific aspects of occupational therapy by assessing various life situations including ADL and QOL emphasizing the brain functions. ***SUZUKI Megumi*** 1. Research about subjective and objective QOL of persons with cognitive dysfunction 2. Research about the evaluation and training of persons with cognitive dysfunction or dementia patients 3. Research about social participation of persons with cognitive dysfunction

Department of Rehabilitation Functional Morphology

Course Title	Course Aims and Research Subject
Graduate Thesis of Rehabilitation Functional Morphology YAMADA Koji NISHII Kazuhiro	Explain the functional analysis not to remain in form and structure observation about problems, determination of prognosis occurring in a treatment process undergoing rehabilitation in a clinic based on bones, ligament, tendon, the articular knowledge and theory that macroscopic, are histologic including muscle. It is macroscopic as a method of analysis and wears a histological observation method and, using immunohistochemistry, biochemical and molecular analytical technique, makes clear that it is in the form of tissue, cells of the locomotor system about a function. Also, we perform it in the neurologic analysis similarly. In addition, we explain neuropsychological methods to understand motor control. We clarify a research theme of each person and give an explanation that we make the substantial master's thesis that demonstrated the supposition about the tissue of various locomotor systems, many problems about cells. ***YAMADA Koji*** 1. We wear an immunohistologic method, genetic technique, a biochemical technique, neuropsychological methods, and understand bones, a muscular physiologic mechanism and motor control, and lecture by the process of study, utilization of the literature, the evaluation method of results. 2. Of the bone morphometric enforcement and parameter calculate it, and understand a way of the histologic bone analysis, and determine it. 3. We learn knowledge and a technique to analyze the bones by the exercise test for the having many kinds and a muscular morphological change and a change of the onset of protein and deepen, and does a research theme of the self and determines it. 4. Using model mice, we will analyze the effects of exercise on the central nervous system by behavioral analysis and brain tissue image analysis, and investigate the causes that cause them. ***NISHII Kazuhiro*** 1. We explain the experimental drafting method using the animal, a basic technique. 2. We determine the distribution of the serotonin neuron in the spinal nerre using histologic technique. 3. We understand a change of the locomotorium after the spinal cord injury in the model animal and we analyze it about a mechanism of the neurotization and determine it.

Department of Rehabilitation Educational Sciences

Course Title	Course Aims and Research Subject
Graduate Thesis of Rehabilitation Educational Science KANADA Yoshikiyo SAKURAI Hiroaki	The students research the knowledge, skills, and attitudes necessary for educating therapists from the perspective of EBM (Evidence-Based Medicine) and pursue science. ***KANADA Yoshikiyo*** 1. Studies on the prediction of the outcome of therapist education. 2. Studies on the standardization of therapists' treatment techniques. 3. Studies on the guidance of clinical training for therapists. ***SAKURAI Hiroaki*** 1. Development of clinical skills and OSCE (Objective Structured Clinical Examination) for physical and occupational therapists. 2. Studies on the development of methods to evaluate clinical skills in physical and occupational therapist education for students and novice therapists. 3. Studies on the standardization of clinical techniques used by clinical practice leaders (physical and occupational therapists) to educate students and novice therapists (Development of clinical practice leadership training courses). 4. Studies on the usefulness of OSCE (objective structured clinical examination), PBL (problem-based learning), and TBL (team-based learning) in physical and occupational therapist education for students and novice therapists.

5）Field of Clinical Engineering

Department of Biomaterial structure function science

Course Title	Course Aims and Research Subject
Graduate Thesis of Life Sciences IHIRA Masaru	Analyze living organisms from the molecular level and ascertain life phenomena by associating structures with functions. In addition, cultivate qualifications for conducting research and create master's theses. ***IHIRA Masaru*** 1. The development of rapid diagnostic methods as new biomarker using miRNA for myocardial infarction. 2. Development of rapid diagnostic method for human herpesvirus infection 3. Study for natural history of herpes virus or rotavirus

Department of Medical Engineering

Course Title	Course Aims and Research Subject
Graduate Thesis of Clinical Engineering SAKUSABE Takaya	In this course, by conducting the research to develop practical information systems for clinical settings, students will gain the ability to develop advanced clinical information systems, also, develop logical thinking and problem-solving skills through the process of system development, as well as expressive and persuasive skills through the process of writing and presenting master's theses. ***SAKUSABE Takaya*** 1. Development of non-contact man-machine interface based on gesture recognition by image processing By image processing, we will develop a computer program recognizes the movement (gesture) of the operator's hand as intention and operates a machine. In particularly, we aim to develop a gesture protocol specialized for the operation of medical devices. 2. Development of a genomics processing system has web-based user interface Genome analysis is becoming essential in clinical research, but bioinformatics software is difficult to use. We aim to develop a analysis system with web-based interface that clinicians can easily use.

Department of Fundamental and Therapeutic Aspects of Artificial Organs

Course Title	Course Aims and Research Subject
Graduate Thesis of Fundamental and Therapeutic Aspects of Artificial Organs HIBIYA Makoto NAKAI Shigeru OHASHI Atsushi HOSHINO Hiroki	The students perform special research projects to contribute to medical care and treatment based on the knowledge, theories and skills which are acquired through the seminars and exercises of this field. They are required to create their master's thesis based on their research result. We expect students to develop their abilities to proceed the medical care, education and research with deep thinking and insights through this course. ***HIBIYA Makoto*** 1. Study on the effect of extracorporeal circulation on living body ***NAKAI Shigeru*** 1. Study on nutritional evaluation and renal function prognosis using 24-hour urine collection 2. Study on body fluid volume evaluation using uric acid kinetic model ***OHASHI Atsushi*** 1. Study on the effect of apheresis therapy on living body 2. Study on the effect of redox state of body fluid components on somatic cells ***HOSHINO Hiroki*** 1. Mathematical analysis and numerical simulations for phenomena related to clinical engineering : For example, we understand various phenomena related to a blood flow by studying partial differential equations describing the motion of fluid theoretically and numerically. Alternatively, we build more precise models of blood purification therapy and blood circulation when an artificial heart is attached, and aim at mathematical understanding for them. 2. Mathematical analysis of various biological functions : For example, we construct a theory for systems of differential equations describing the invasion of a malignant tumor or those related to the immune system, and we perform numerical simulations for them.

6）Field of Medical Management and Information Science

Department of Healthcare Management

Course Title	Course Aims and Research Subject
Graduate Thesis of Healthcare Management YONEMOTO Kuramoto MURAI Haruka	The field of medical management studies has two laboratories of "medical policy, business administration" and "health information management studies". In "Medical Policy and Business Administration," students pay attention to the fact that hospitals are typical human service organizations, and hospital staff can work with satisfaction based on psychological and behavioral science theories. Think about the workplace. At the same time, we will also consider medical policies that give incentives to those organizational behaviors, and conduct research on medical management from a two-way approach of macro-policy studies and micro-organization theory. In "health information management," students conduct research on improving the quality of healthcare and managing and utilizing health information that is indispensable for management decision-making. In addition to data on diseases and surgeries, such as cancer registry and DPC surveys, it is now necessary to accumulate detailed patient data that comprehends the medical practices of each profession, which is important for healthcare facilities. Also, disclosure of healthcare outcomes and quality measurement is effective in selecting healthcare institutions for patients, and the existence of professional staff members who handle health information has come to play a major role for strategic health information management. In this research, we will focus on the realm of health information management and explore the future of health information management and profession that contributes to the provision of high-quality healthcare and healthcare administration. ***YONEMOTO Kuramoto*** 1. The retention management of the medical organization 2. The work life balance policy of the medical organization 3. A medical team building 4. The carrier ladder of healthcare occupations 5. The medical security of the doctor office work adjunct 6. The evolution of the medical organization 7. The medical coaching leadership 8. DPC motivation 9. A community medicine cooperation promotion corporation organization 10. The critical incident stress management of the medical staff ***MURAI Haruka*** 1. Quality improvement, effective management in healthcare and health information management 2. An international classification of health information 3. Ways of education and the future of health information management 4. A study on history of health information management 5. Global health information management 6. Health information management as clinical study support

Department of Medical Informatics

Course Title	Course Aims and Research Subject
Graduate Thesis of Medical Informatics KAMEI Tetsuya MUTO Koichi	Students will study the interfaces, standardization, and security of medical information systems and pursue different aspects of system construction, including technology, engineering, and ethics. Students will also make research on the processing of system data using ontology and statistical approach. Furthermore, they will study how to train medical information specialists to work in hospitals and healthcare companies, as well as related teaching methods and curricula. ***KAMEI Tetsuya*** 1. medical information database construction and analysis. 2. medical data management. ***MUTO Koichi*** 1. utilization of open source software in medical information system development 2. standardization of medical information and its application 3. application of business intelligence to medical information 4. data management and processing required for medical big data 5. development of teaching methods and curricula using a medical information system to train medical information specialists.

Department of Healthcare Interpreting

Course Title	Course Aims and Research Subject
Graduate Thesis of Healthcare Interpreting	Medical interpretation is a new professional role in the world, but the process of its development varies from country to country. With the increase number of foreign residents, foreign visitors, especially technical trainees in Japan, language barriers have come to be recognized as urgent issues in the medical field, and interest in medical interpretation is socially attracting attention. In this situation, from the viewpoint of a medical interpreter, we will consider how to respond to foreign patients who have limited Japanese language skills. 1. A study on the development process of medical interpreting in the world and Japan 2. A study of language and cultural barriers in the medical field 3. A study of user training for medical interpreters for healthcare professionals 4. A study on the work and education of medical interpreters, including remote interpreting