# **Academic Year 2016**

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

# **Syllabus**

# The Graduate School of Medical Sciences Kumamoto University

URL: http://www.medphas.kumamoto-u.ac.jp/en/medgrad/index.html

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# The objective and principle of the Graduate School of Medical Sciences, Kumamoto University

The objective and principle of the Graduate School of Medical Sciences, Kumamoto University is to educate students with knowledge demanded to medical doctors who are leading medical professionals with research oriented abilities and strong problem solving abilities, and bioscientists who are capable of carrying out their own research at a international level in the area of their expertise, respectively.

# Doctoral Course Curriculum Policy for the Graduate School of Medical Sciences, Kumamoto University

Our curriculum focuses on developing knowledge and skills as described below, through research guidance that includes omnibus-style lectures, course work, and the collaboration of multiple teaching fields. We do this to produce world-class researchers and educators who will be active in medical and life science fields, clinicians with strongly driven research aspirations, and other research-focused medical professionals.

- 1. Sophisticated and interdisciplinary knowledge needed to solve multidisciplinary problems relating to advanced medical and life sciences
- 2. A solid ability to pursue advanced world-class research in medical and life science fields
- 3. Advanced medical knowledge and clinical techniques needed to promote advanced medical care and lead medical technology innovation inside and outside Japan

#### Aspects of the new curriculum

The education at graduate schools of medicine in Japan so far has aimed to foster educators and researchers through medical research. In recent years, however, the research environment has changed, and lifestyle-related diseases have become larger clinical concer in comparison with acute diseases. In addition, the post-genome research has also been shifting from basic science to disease-related research. In order to meet these changes, we set a second objective and principle for the Graduate School of Medical Sciences, Kumamoto University in order to educate "research-oriented medical professionals". In accordance with this idea, we have developed new educational programs which enable students to acquire interdisciplinary and extensive medical knowledge and cutting-edge clinical skills, while cultivating a research-oriented mindset.

At the same time, we have revised our existing curriculum significantly so that students can, through tutorials, acquire not only extensive medical knowledge but also advanced research skills. We have also restructured our four-major system into a single major system (medical major). While the former four-major system segmented basic, clinical and social medicine, the new system includes the joint supervision of research among multiple fields. These reforms to the educational system and its programs are the most ambitious ones since the Graduate School of Medical Sciences, Kumamoto University, was established in 1955. We are confident that our new programs are highly innovative in accordance with the national standards.

With these reforms, we will satisfy the needs to foster research-oriented clinical doctors as well as educators and researchers at an international level. With the enthusiastic support of young medical students from across Japan, we are committed to becoming one of the best institutions of medicine, well-suited to the needs of the new era.

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#### 1. Notandum for course registration

- 1) General Education Programs: There are compulsory and elective subjects offered in our graduate course curriculum, as described on page 3. Please note that students must obtain 30 designated credits during the four years in this graduate school. Otherwise, their academic work shall not be deemed complete, even if their research and Thesis are completed. Students are requested to contact their academic supervisors for advice in order to decide which elective subjects to take. An application form attached (page 4~10) should be submitted to the Student Affairs Section, (Kyoumu-Tanto) at this graduate school office by May 16 (Mon). However, an application form for the "Educational course for researchers on translational research for eradication of AIDS; Translational research course" and "Educational course for research frontiers on AIDS; Research frontiers course" should be submitted to the Student Affairs Section, (Kyoumu-Tanto) at this graduate school office by April 11 (Mon). Applicants who have been approved as long-term students are allowed to take courses that include lecture courses, seminars, practice, etc. These courses must be completed within the approved time frame, which should not exceed eight years. However, each lecture course must be completed within one year. Such applicants must notify the Student Affairs Section.
- 2) SOSEKI Registration: Students' academic achievement information is to be managed by SOSEKI (Kumamoto University School Affairs Information System). After submitting the above-mentioned application, students should <u>register</u> their compulsory subjects and elective subjects listed in their application via a web browser of SOSEKI by May 16 (Mon).
- 3) Special Courses or Programs: In addition to the basic curricula on page 3, the following courses are available: A course for Translational Researchers of AIDS Control, A course for Advanced Researchers of AIDS, A course for Researchers of Developmental Biology and Regenerative Medicine, and Experts of Clinical Metabolic Informatics, and HIGO course. Be sure to consult with your academic supervisors before choosing your courses. For students who are taking the AIDS course, the leading graduate education HIGO program, and the Shibasaburo program for under graduate medical students and junior resident, there are a number of supplementary materials that will guide you in this process; please ask the Student Affairs Section.
- 4) The grade when you take lecture subjects: Students are supposed to take lecture subjects in the 1<sup>st</sup> grade, but adult graduate students can take those subjects in the 2<sup>nd</sup> grade or after in the 2<sup>nd</sup> grade.
- 5) How to take "Riron" subjects: Lecture-style "Riron" classes will be held in 90-minute sessions as indicated on page 11 and attendance will be taken. Lectures of all subjects will be given from Monday, June 6, 2016 to Thursday, March 30, 2017. Lectures are held during the daytime and the nighttime and are scheduled as follows: the 1st period is 8:45~10:15, the 2nd period is 10:30~12:00, the 3rd period is 13:15~14:45, the 4th period is 15:00~16:30, the 5th period is 16:45~18:15, and the 6th period is 18:30~20:00. If there are any students who can't understand Japanese, the lectures will be given in English (or it may be a combination of English and Japanese). Different class dates and times will be arranged separately when the scheduled date falls on public holidays and soon.

For some of the lecture courses, **remote teaching such as e-learning** (page 12) will be given to students who work or live in remote locations. Please ask the course director for details.

Deadline of taking lectures by using an e-learning system will be informed by e-mail or a homepage of Graduate School of Medical Sciences. So, please be sure to check your e-mail.

In some cases, classes may be changed to a seminar or event held on and off campus. The details of these events will be announced to students who want to take the "Riron", no later than two weeks before they are to be held, through e-mail, bulletin boards, and the website for the Graduate School of Medical Sciences. Students are required to ask the Student Affairs Section, Graduate School of Medical Sciences or their professors in advance for more information, such as how to submit proof of attendance and how students will be evaluated.

- 6) Lecture Room: Lectures offered by several instructors (omnibus classes) will be given in the lecture room 2 on the 3rd floor of the Medical Education & Library Building. The location of the lecture room is shown on the campus map (p.223). Refer to it in advance or ask your academic advisor, if necessary.
- 7) Lectures Series "Medical Experiment Course": The elective subjects, "Medical Experiment Course" (page 51) requires students to attend more than 8 lectures a year for credit. Attednance will be taken in all of these courses. Please note that lectures are held from April 5 (Tue) to April 12 (Tue) (from 1st to 4th period).

- 8) D1 Medical and Life Science Seminar and D2 Learning from Experienced Doctors:
  - D1 "Medical and Life Science Seminar" (page 42) and D2 "Learning from Experienced Doctors" (page 43), require students to attend more than 15 lectures for credit before completion of their Thesis research. Write 2 essays based on 2 talks chosen from more than 15 lectures. Length of the essays should be 250-500 words. Attednance will be taken in all of these courses. Send each essay to the supervisor (inviter of the talker) of the talk within one month by E-mail (not by hard copy or any other digital media). The file of the essay should be included in the E-mail both in an attached file and in the text. A carbon copy E-mail should be also sent to the Student Affairs Section (iyg-igaku@jimu.kumamoto-u.ac.jp). D1 "Medical and Life Science Seminar" and D2 "Learning from Experienced Doctors" will be given in principle from 17:30 on Wednesdays of the month at the lecture room 2 on the 3rd floor of the Medical Education & Library Building. However, the date, time or place of these lectures may change due to the instructor's and lecturer's schedules. Please check the details beforehand with the seminar guide leaflet distributed to each Department you belong to.
- 9) D4 Translational Research (TR) Seminar: This course, offered from 2014, is the subject using the selected 5 seminars of "D2 Learning from Experienced Doctors Seminar" and the selected seminars of "HIGO Business Seminar Series."Write 1 essay based on 1 talk chosen from the seminar "D4: Translational Research Seminar". Length of the essay should be 250-500 words. "D4: Translational Research Seminar" requires students to attend more than 8 lectures for credit before completion of their Thesis research. Send the essay to Medical Faculty Educational Affairs Planning Section within one month by E-mail (not by hard copy or any other digital media). The file of the essay should be included in the E-mail both in an attached file and in the text. (iyg-igaku@jimu.kumamoto-u.ac.jp). Attendance will be taken in every talk by signing your name at the entrance of the lecture room
- **10)** Research Conducting Program "Practice (Jissen)" I, II & Clinical Research Conducting Program "Practice (Jissen)" III: Research conducting programs in compulsory and elective compulsory subjects described on page 3 should be selected with reference to the syllabus. These subjects are comprised of the Journal club, learning of experimental planning and technique, practical experiments for the PhD Thesis research including interpretation and criticism of the results obtained, acquiring skills of scientific presentation and discussion etc, as executed in the Departments, to which students are assigned. The clinical research conducting subjects are mainly conducted through clinical training.

If your Permanent Department\* and Present Department\* are different, you can choose "Practice(Jissen) I" from Permanent Department, and "Practice(Jissen) II" from Present Department.

For example if your Permanent Department is "Orthopaedic and Neuro-Musculoskeletal Surgery," and your Present Department is "Molecular Genetics", you can choose "Orthopaedic and Neuro-Musculoskeletal System "Jissen" I" and "Molecular Genetics" Jissen" II".

- \*Permanent Department: A department which is registered on school.
- \*Present Department: A department where you are temporarily in. (Some students are temporarily transferred from a department in the field of Clinical Medicine to a department in the field of Basic Medicine because of some reasons such as research and experiment.)
- 11) Assessment of Academic Grades: Each course director in charge of a particular subject of the Lecture Series "Riron" is responsible for the assessment of academic grades for the corresponding "Riron" subject. If there is a disagreement between the director and instructors of the class in regards to their information and instructions, please be aware that information provided by the chief instructor prevails over that of any other instructors. Submit all assignments (e.g., paper summaries and reports) directly to your directors/instructors, not to clerical members at the graduate school office. Assignments may be submitted via e-mail; in this case, be sure to keep a transmission record.
- **12) Grade Appeals System:** We have grade appeals system for all students. Please refer to the notification which will be posted (mid-Jan and mid-June) on the bulletin board for the detail.
- 13) E-mail address: Announcements of change of lectures, e-learning, seminar, economic support, and other information will be mainly informed by e-mail, a homepage of Graduate School of Medical Sciences and a bulletin board. Please be sure to send your e-mail address to Student Affairs Section (<a href="mailto:ivg-igaku@jimu.kumamoto-u.ac.jp">ivg-igaku@jimu.kumamoto-u.ac.jp</a>) by e-mail <a href="with your name and student number">with your name and student number</a> by April 5(Tue). If you change your e-mail address, please let us know your new e-mail address as soon as possible.

#### 2. Registration Application (See page 4)

< To be submitted to Student Affairs Section by May 16 (Mon)>

<An application form for the "AIDS" course should be submitted to the Student Affairs Section by April 11 (Mon).>

Choose the subjects you are to take from the list in section 3: "Lecture course/subject and credit", and fill out the application. Refer to the syllabus for the content of each subject. "Field Name" means the fields of education provided in Practice (Jissen) I. Be sure to consult your academic supervisor before deciding on your subjects.

#### 3. Lecture course/subject and credit

#### 1) Curriculum outline

Subjects	Credits	Subjects	Credits
Compulsory subject		Elective Subject	
1.Lecture		(Chose 8 credits from below)	
A1 Medical Informatics & Medical Ethics (p.22)	2	B1 Pathophysiology and structural biochemistry of	
		biomolecules (p.23)	2
2.Research Conducting Program		B2 Cell Biology (p.24)	2
Departmental Course "Practice (Jissen)" I	10	B3 Hematopoietic & Immune Systems (p.25)	2
(p.55~)		B4 Infection & Immune Control (p.26)	2
Elective compulsory subject I		B5 Human Brain Functional Science (p.27)	2
(Choose one from below)		B6 Neuroscience (p.28)	2
Course work		B7 Developmental & Regenerative Medicine (p.29)	2
1. Medical experiment course (p.51)	2	B8 Environmental & Sociomedical Sciences (p.30)	2
1. Medical experiment course (p.51)		C1 Current Theory of Medical Diagnosis (p.31)	2
2. Practicum on multidisciplinary cancer	2	C2 Advanced Therapeutics (p.32)	2
therapeutics, palliative care *Note		C3 Metabolic & Circulatory Regulations (p.33)	2
therapeuties, pariative care 7x1 total		C4 Reproductive & Developmental Medicine (p.35)	2
TO 4: A T		C5 Advances in Oncologic Medicine I (p.36)	2
Elective compulsory subject II		C6 The Forefront of Clinical Oncology (p.37)	2
(Choose one from below)		C7 Restorative Medicine (p.38)	2
Research Conducting subject		C8 Cancer Therapeutics (p.39)	2
1.Departmental Course "Practice (Jissen)" I	8	C9 Paliative Care (p.40)	2
(p.55~)		C10 The Theory of Clinical Research (p.41)	2
Clinical conducting subject		D1 Medical and Life Science Seminar (p.42)	2
2. Departmental Course "Practice (Jissen)" III	8	D2 Learning from Experienced Doctors Seminar (p.43)	2
(p.199~)		D3 Medicine and Life Science Training (p.45)	2
		D4 Translational Research Seminar (p.48)	1

<sup>\*\*</sup>D3"Medicine and Life Science Training": A student's oral or poster presentation as a lead presenter at an academic conference is admitted as the credits. Please check page 45.

#### 2) Requirements

Compulsory subject	12 credits	
Elective compulsory subject I	2 credits	
Elective compulsory subject II	8 credits	
Elective subject	8 credits	or more
Total	30 credits	or more

Note: A maximum of 12 credits can be transferred from a master's degree at the Graduate School of Medical Sciences at Kumamoto University. Regarding the students who would like to transfer the credits, please offer to the Student Affairs Section by April 8 (Fri).

Fill out the application on the next page and submit it to the Student Affairs Section. It should be also input to SOSEKI (Kumamoto University School Affairs Information System) by May 16 (Mon). (The students who take the "AIDS" course must input to SOSEKI by April 11 (Mon).)

<sup>\*</sup>Classes may be changed to a seminar or event held on and off campus. If you take these classes, please submit the certificate of attendance which you write your information when you attend the seminar.

The certificate of attendance will be given by Student Affairs Section or academic supervisor who organizes the seminar.

<sup>\*</sup>Those who can take the "Practicum on multidisciplinary cancer therapeutics, palliative care" are limited to students who have the licenses of Doctor, Dentist, Nurse, Radiation technologist, Clinical laboratory technologist and Clinical engineering technologists.

<sup>\*</sup> It is possible to take the courses of "Graduate General Education Courses." You can include 2 credits as upper limit in the completion requirement (elective) "Graduate General Education Courses" please look at the syllabus on Moodle (e-Learning System) system.

# 4. How to make a registration application

	(Doctoral course)	Registration A	Application	
Dean, The Gradu	ate School of Medical Sciences		(	) year/month/day
•		Year entered:		
		Name:		
		Student nur	nber:	
		E-mail addı	ess:	
Here, I would like	e to register for the following sub	jects.		
Department		Supervisor		stamp
Course		Supervisor		,
[Compulsory su	bjects			

[Elective Compulsory subject I ] Course work subject

"Jissen" I

Credit

10

2

12

LEicetive Compansory subject i	Course III	oric bacycet		
Subjects	Credit	Opening	Instructor	Other
-	2	1st-4th grade		
Total	2			

Opening

1st-4th grade

1st-4th grade

Instructor

Other

[Elective Compulsory subjects II ] Instructive subject

Subjects	Credit	Opening	Instructor	Other
	8	1st-4th grade		
Total	8			

[Elective subjects] More than 8 unit

Subjects

Total

Medical Informatics and

Medical Ethics

	Later to the first					
Subjects	Credit	Opening	Instructor	Other		
	2	1st-4th grade				
	2	1st-4th grade				
	2	1st-4th grade				
	2	1st-4th grade				
Total						

Need to take 30 or more credits from the subjects opened in your school years.

### [A model of taking classes in medical basic science]

	(	)	year/month/day
Dean, The Graduate School of Medical Sciences			
Year	entered:		
	Name:		
	Student number:		
	E-mail address:		
Here, I would like to register for the following subjects.			

Department	Immunogenetics	Cumomicon	Yasuharu Nishimura	
Course	None	Supervisor	Yasunaru Mishimura	stamp

[Compulsory subjects]

Subjects	Credit	Opening	Instructor	Other
Immunogenetics "Jissen" I	10	1-4 grade	Yasuharu Nishimura	Choose from their own field
Medical Informatics and Medical Ethics	2	1-4 grade*	Koichiro Usuku	
Total	12			

[Elective Compulsory subject I ] Course work subject

Subjects	Credit	Opening	Instructor	Other
Medical Experiment Course	2	1-4 grade*		
Total	2			

[Elective Compulsory subjects II ] Instructive subjects

Theodive Compulsory subjects if I instructive subjects					
Subjects	Credit	Opening	Instructor	Other	
Immunogenetics "Jissen II"	8	1-4 grade	Yasuharu Nishimura	Choose from their own field	
Total	8				

[Elective subjects] More than 8 unit

[Elective subjects] Whole than 8						
Subjects	Credit	Opening	Instructor	Other		
B2: Cell Biology	2	1-4 grade*	Kazuhito Tomizawa	Choose from elective subjects		
B4: Infection and Immune Control	2	1-4 grade*	Syuzo Matsushita	Choose from elective subjects		
D1: Medicine and Life Science Seminar	2	1-4 grade*		Choose from elective subjects		
D3 Medicine and Life Science Training	2	1-4 grade*		Choose from elective subjects		
Total	8					

Need to take 30 or more credits from the subjects opened in your school years.

<sup>\*</sup>Taking these courses in the first year is recommended. However, students can take these in their second, third, or forth academic year. Students are required to write down their academic year in which they plan to take them.

## [A model of taking classes in clinical medicine]

A model of taking el	asses in chinear medicine	
	(	) year/month/day
Dean, The Graduate School of Medical Sciences		
	Year entered:	
	Name:	
	Student number:	
	F-mail address :	

Here, I would like to register for the following subjects.

Department	Orthopaedic	Supervisor	Hiroshi Mizuta	
Course	None	Supervisor	THIOSHI WIIZuta	stamp

[Compulsory subjects]

Subjects	Credit	Opening	Instructor	Other
Orthopaedic "Jissen" I	10	1-4 grade	Hiroshi Mizuta	Choose from their own field
Medical Informatics and Medical Ethics	2	1-4 grade*	Koichiro Usuku	
Total	12			

[Elective Compulsory subject I ] Course work subject

Subjects	Credit	Opening	Instructor	Other
Medical Experiment Course	2	1-4 grade*		
Total	2			

[Elective Compulsory subjects II ] Mentoring Subject

- 1 2 3		0 3		
Subjects	Credit	Opening	Instructor	Other
Orthopaedic "Jissen" II Note:2)	8	1-4 grade	Hiroshi Mizuta	Choose from their own field Note:2)
Total	8			

[Elective subjects] More than 8 credit

Subjects	Credit	Opening	Instructor	Other
C7: Restorative Medicine	2	1-4 grade*	Hironobu IHN	Choose from elective subjects
C8: Cancer therapeutics	2	1-4 grade*	Hideo Baba	Choose from elective subjects
C10 The Theory of Clinical Research	2	1-4 grade*	Hiroaki Iwase	Choose from elective subjects
D2 Learning from Experienced Doctors	2	1-4 grade*		Choose from elective subjects
Total	8			'

#### Notes

- 1) Need to take 30 or more credits from the subjects available during your school years.
- \* Taking these courses in the first year is recommended. However, students can take these in their second, third, or forth academic year. Students are required to write down their academic year in which they plan to take them.
- 2) If your Permanent Department and Present Department are different, you can choose "Practice(Jissen) I" from Permanent Department, and "Practice(Jissen) II" from Present Department.

# [A model of taking classes in The Program for Experts of Metabolism, Circulation and Related Informatics]

Dean, The Graduate School of Medical Sciences	(	) year/month/day
Beari, The Graduate School of Medical Sciences	Year entered:	
	Name :	
	Student number:	
	E-mail address:	
	•	

Here, I would like to register for the following subjects.

11010, 1 110010 1111	to register for the folio wing sucj	•••		
Department	Endocrinology and Metabolism	- Supervisor	Eiichi Araki	stamp
Course	Endocrinology and Metabolism Course	Supervisor	Lifetii Alaki	stamp

#### [Compulsory subjects]

Subjects	Credit	Opening	Instructor	Other
Endocrinology and Metabolism "Jissen" I	10	1-4 grade	Eiichi Araki	Choose from their own field
Medical Informatics and Medical Ethics	2	1-4 grade*	Koichiro Usuku	
Total	12			

#### [Elective Compulsory subject I ] Course work subject

Subjects	Credit	Opening	Instructor	Other
Medical Experiment Course	2	1-4 grade*		
Total	2			

#### [Elective Compulsory subjects II ] Instructive subjects

_ 1 5 5		J		
Subjects	Credit	Opening	Instructor	Other
Clinical metabolic informatics "Jissen" III Note:2)	8	1-4 grade	Eiichi Araki	Choose from their own field Note:2)
Total	8			

#### [Elective subjects] More than 8 credit

Subjects	Credit	Opening	Instructor	Other
B1: Pathophysiology and structural biochemistry of biomolecules	2	1-4 grade*	Shokei Kim-Mitsuyama	Be sure to select B1 or C3 in this course
C3: Metabolic and Circulatory Regulations	2	1-4 grade*	Eiichi Araki	Be sure to select B1 or C3 in this course
D2: Learning from Experienced Doctors	2	1-4 grade*		Choose from elective subjects
D3: Medicine and Life Science Training	2	1-4 grade*		Choose from elective subjects
Total	8			

#### Notes

- 1) Need to take 30 or more credits from the subjects available during your school years.
- \* Taking these courses in the first year is recommended. However, students can take these in their second, third, or forth academic year. Students are required to write down their academic year in which they plan to take them.
- 2) Choose one from Metabolomics Jissen II, Metabolic information epidemiology "Jissen" II, and Clinical metabolic informatics Jissen III

#### [How to take credits in The Course of Developmental Biology and Regenerative Medicine]

1. Special lectues and practice opened for "The Course of Developmental Biology and Regenerative Medicine" Table 1: The Course of Developmental Biology and Regenerative Medicine (All lectures are given in English)

Table 1. The Course of Bevelopmental Biolog			y and regenerative intedictive (An feetines are given in English)			
Subjects	Credit	Openin g	Contents			
Special lectures "Tokuron" on						
Developmental Biology and Regenerative Medicine I	2	1	Lectures on fundamental sciences underlying basis of regenerative medicine such as developmental biology and stem cell biology			
Developmental Biology and Regenerative Medicine II	2	1-3	Lectures on applied biomedical sciences such as transplantation reconstructive surgery			
Transplantation Immunology	2	1	Lectures on basic and clinical immunology for medical transplantation			
Bioethics	2	1-3	Lectures on bioethics, medical ethics and research ethics			
Practices "Enshuu" on						
Developmental Biology and Regenerative Medicine I	2	2-3	Project-based learning aimed at enhancement of the ability on approaching solution of problems in regenerative medicine			
Developmental Biology and Regenerative Medicine II	2	1-4	Lectures from researchers committed to cutting-edge research in the field of developmental and regenerative medicine			
Developmental Biology and Regenerative Medicine III	2	1-4	Presentation of students' own research achievements in domestic and/or international conferences			
Practical Training "Jisshuu" on Developmental Biology and Regenerative Medicine	2	1	Training of practical procedures for important experimental methods related to developmental and regenerative medicine			

#### 2. Planning of taking classes.

Table 1: The Course of Developmental Biology and Regenerative Medicine.

(Use a form in Page 9 for registration.)

			(Ose a form in rage 7 for registration.)	
Category		Subjects	Credit	
		Special Lecture "Tokuron" on Developmental	2	
		Biology and Regenerative Medicine I		
		Special Lecture "Tokuron" on Developmental	2	
Compulace	Lecture	Biology and Regenerative Medicine II		
Compulsory		Special Lecture "Tokuron" on Transplantation	2	
		Immunology		
		Special Lecture "Tokuron" on Bioethics	2	
	Research	Jissen I(*1)	10	
	Lecture	Lecture courses and subjects in page 4		
		D1 Medicine and Life Science Seminar		
		Practice "Enshuu" on Developmental Biology and		
		Regenerative MedicineI		
	Practice	Practice "Enshuu" on Developmental Biology and	Need to take 12 or more credits (*2)	
Elective		Regenerative MedicineII		
		Practice "Enshuu" on Developmental Biology and		
		Regenerative MedicineIII		
	Laboratory	Practical Training "Jisshuu" on Developmental		
	practice	Biology and Regenerative Medicine		
	Research Jissen II (*1)		8	
Need to take 30	or more cree	dits.	_	

<sup>\*</sup>I In the Course of Developmental Biology and Regenerative Medicine, there are no Practice (Jissen) I and II specific to the course as research conducting programs to assist in a student's Thesis research. Thus, the students are allowed to take the course in any area, and they can take any 'Practice (Jissen) II' to enrich a graduate student's research path. However, this subject 'Practice (Jissen) II' should not be counted in the 30 credits required for graduation.

<sup>\*2</sup> Select more than 6 subjects (12 credits) in total, from Practice "Enshuu" on Developmental Biology and Regenerative Medicine II and III, Practical Training "Jisshuu" on Developmental Biology and Regenerative Medicine, lecture courses of 'Riron' which are open to all the students, and Medicine and Life Science Seminar.

## [The Course of Developmental Biology and Regenerative Medicine]

Dean. The Gradu	nate School of Medical Sciences		(	) year/month/day
		Year entered : Name : Student nu E-mail add ects.		
Department		Supervisor		stamp
Course	The Course of Developmental Biology and Regenerative Medicine	Supervisor		Starty

[Compulsory subjects]

Subjects	Credit	Opening	Instructor	Other
Special Lecture "Tokuron" on Developmental Biology and Regenerative Medicine I	2	1 grade	Minetaro Ogawa	
Special Lecture "Tokuron" on Developmental Biology and Regenerative Medicine II	2	1-3 grade	Hitoshi Niwa	
Special Lecture "Tokuron" on Transplantation Immunology	2	1 grade	Yasuharu Nishimura	
Special Lecture "Tokuron" on Bioethics	2	1-3 grade	Yasuhiro Kadooka	
"Jissen" I	10	1-4 grade		
Total	18			

[Elective Compulsory subjects] (12 credits or more)

Subjects	Credit	Opening	Instructor	Other
	2			
	2			
	2			
	2			
	2			
	2			
Total				

[Elective subjects] Mentoring Subject

Subjects	Credit	Opening	Instructor	Other
"Jissen" II	8	1-4 grade		
Total	8			

#### Note:

1) Need to take 30 or more credits from the subjects opened in your school years. Credit of JissenII will not be included in the above credits.

# [A Model of taking classes in The Course of Developmental Biology and Regenerative Medicine] ( ) year/month/day

Dean, The Graduate School of Medical Sciences

Year entered:

Name:

Student number: E-mail address:

Here, I would like to register for the following subjects.

Department	Cell Differentiation			
Course	The Course of Developmental Biology and Regenerative Medicine	Supervisor	Minetaro Ogawa	stamp

[Compulsory subjects]

Subjects	Credit	Opening	Instructor	Other
	Credit			Oulei
Special Lecture "Tokuron" on		1 grade	Minetaro Ogawa	
Developmental Biology and	2			
Regenerative Medicine I				
Special Lecture "Tokuron" on		1-3 grade *1	Hitoshi Niwa	
Developmental Biology and	2			
Regenerative Medicine II				
Special Lecture "Tokuron" on Transpl	2	1 grade	Yasuharu	
antation Immunology	2		Nishimura	
Special Lecture "Tokuron" on		1-3 grade *1	Yasuhiro Kadooka	
Bioethics	2			
Call Differentiation "Times" I	10	1-4 grade	Minetaro Ogawa	Choose from your own
Cell Differentiation "Jissen" I	10		_	field
Total	18			

[Elective Compulsory subjects] (12 credits or more)

Emiliary company and the ( the			_		
Subjects	Credit	Opening	Instructor	Other	•
Practice "Enshuu" on Developmental	2	2-3 grade * 2	Minetaro Ogawa	Choose from	elective
Biology and Regenerative Medicine I	2	_		subjects	
Practice "Enshuu" on Developmental	_	1-4 grade * 2	Minetaro Ogawa	Choose from	elective
Biology and Regenerative Medicine II	2			subjects	
Practice "Enshuu" on Developmental	2	1-4 grade * 2	Minetaro Ogawa	Choose from	elective
Biology and Regenerative Medicine III				subjects	
Practical Training "Jisshuu" on		1 grade	Minetaro Ogawa	Choose from	elective
Developmental Biology and	2			subjects	
Regenerative Medicine					
B7: Developmental and Regenerative	2	1-4 grade * 2	Ryuichi	Choose from	elective
Medicine			Nishinakamura	subjects	
D1: Medicine and Life Science	2	1-4 grade * 2		Choose from	elective
Seminar	2			subjects	
Total	12				

[Elective subjects] Mentoring Subject

Entert to badjects Intelligent Stadject				
Subjects	Credit	Opening	Instructor	Other
Cell Differentiation "Jissen" II	8	1-4 grade	Minetaro Ogawa	*3
Total	8		·	

Note: Need to take 30 or more credits from the subjects opened in your school years. Credit of JissenII will not be included in the above credits.

\*1 These subjects require more than one year to be completed, thus cannot be completed in one year. Students taking these subjects must register carefully. The registration process is different from the items on \*2.

\*2 Taking these subjects in the early academic years is recommended. However, students can take them at any time during their academic path. (Students are allowed to take 'Practice (Enshuu)' or 'Seminar' subjects for more than one year in order to earn credits by attending a certain number of lectures.) Students are required to write down the academic year in which they plan to take them. (Note: As for the subjects of 'Practice (Enshuu)' and 'Seminar', please write '1~4' in each "Academic year" column.)

\*3 For students who have completed the master's course at the Graduate School of Medical Sciences at Kumamoto University, the total 8 credits for Medical Science Training and Medical Science Practicum will be transferred.

# Lecture course timetable 5. Doctoral course

4/11

4/4

7

4/15

8/4

Medical Experiment Course

1 2 3

Mon.

- 2 6 4

Tue.

	43	3/27	~	3/31	E2 (1,2)	85		sis											
	42	3/20	~	3/24	Λī	sbiloH	*	C1 Current Theory of Medical Diagnosis	s,						ics				
	41	3/13	~	3/17	logy			cal D	C2 Advanced therapeutics				j	Sgc	C8 Cancer therapeutics		edical	tics	
	40	3/6	~	3/10	Developmental Bio and Regenerative licine II(1st grade	utics		Medi	herap			3	Seminar nour	Biolc ative rd )	thera		of Me	apeu	
Ш	39	2/27	~	3/3	opmer Regen	ərape		ory of	ced t					enera enera e II (3	ancer		t Theory o Diagnosis	d the	
	38 (	2/20 2	~	2/24	E2 Developmental Biology and Regenerative Medicine II(1st grade and	er th		Тһөс	۱dvan					evelopmental Biol and Regenerative Medicine II (3rd)	08 C		nt Th Diag	ance	
Ш	37 3	2/13 2/	~	2/17	ğ ğ	C8 Cancer therapeutics		ırrent	C2 /					E2Developmental Biology and Regenerative Medicine II(3rd )			G1 Current Theory of Medical Diagnosis	C2 Advanced therapeutics	8
Ш	36 3	2/6 2/	~	2/10 2/	tion	85		31 G									2	Ö	0
Ш	35 3	1/30 2,		2/3	olantar Iology Irade)		0	п	±		dicine		_	Biolog ive 'ade)	and dicine			_	-
Ш	34 3	1/23 1/	~		Transplantation immunology (1st grade)	C10	C10	es in dicine	ront o		Restorative Medicine		seminar nour	Developmental Bio and Regenerative edicine I (1st grads	C4 Reproductive and evelopmental Medicin			sulator	
ster	33 3	/1 91/1	~	1/27	E3	ō		C5 Advances in	Foref		storat	-		Rege Ine I	eprod pmen			nd Circ itions	
ame		_	~	1/20	C-		.,	C5 Advances in Oncologic Medicine	C6 The Forefront of Clinical Oncology II		C7 Re	٥	n	E1 Developmental Biology and Regenerative Medicine I (1st. grade)	C4 Reproductive and Developmental Medicine			C3 Metabolic and Circulatory Regulations	
g se	32	2 1/9	~	1/13	.16	sbiloH)	*	Õ	50		U			<u> </u>				3 Meta	
con	31	2/1 97	~	30 1/6														ö	
Se	30	12/26	~	12/23 12/30											I _				
2016 Second semester	3 29	12/19	~	6 12/2		_					tive		in a	and rade)	nenta		٨	sbiloH≫	Ķ
7	28	5 12/12	~	9 12/16	ogy	search					G7 Restorative Medicine	-	seminar nour	logy a 1st gr	/elopr				
Ш	27	3 12/5	~	12/9	Joune	al Res		ine I	logy I		7 Re Me		Selling Sellin	I Bio	d Dev			tions	
	26	11/28	~	5 12/2	E3 Transplantation immunology (1st grade)	C10 The Theory of Clinical Research		C5 Advances in Oncologic Medicine I	C6 The Forefront of Clinical Oncology ${ m II}$					E1 Developmental Biology and Regenerative Medicine I(1st grade)	C4 Reproductive and Developmental Medicine			C3 Metabolic and Circulatory Regulations	
	25	11/21	~	11/18 11/25	lantation in (1st grade)	y of (		ologic	Jinica		íž.	sbiloH\$	*	velop stive I	ducti			tory F	
	24	11/14	~		nsplai (1	Theor		ι Onc	ıt of C		<u>.</u>			E1 De generz	Repro			irculat	
	23	11/7	~	11/4 11/11	3 Tra	The .		ICes ir	refron		edicir		<u> </u>	Reg	C4			and Gi	
	22	10/31	~	11/4	Ш	C10		Advan	he Fo		ive M	<u> </u>	seminar nour	γs	olloH¾			olic a	
	21	10/24	~	10/21 10/28				C5.	C6 Ti		storati			iental hd ive grade)	ctive nental			Metab	
	20	10/17	~		L						C7 Restorative Medicine	٬	0	E1 Developmental Biology and Regenerative Medicine I (1st grade)	C4 Reproductive and Developmental Medicine			03	
	19	10/10	~	10/14	Λt	sbiloH	*							E1 De Bi- Reg Medicin	C4 R and D				
П	18	10/3	~	10/7	_	4								2	7				
	17	9/56	~	9/30	P.	B4		- J-	a					B2	B7		nne		
	16	9/19	~	9/23	Λ	sbiloH	*	gy and stry c	ction		90		_	γk	oiloH※		Imm I	and	
	15	9/12	~	9/16	70	р. <sub>0</sub>		B1 Pathophysiology and structural biochemistry of hiomolecules	B5 Human brain functional Science		B6 Neuroscience		seminar nour	23	and		Hematopoietic and Immune Systems	B8 Environmental and Sociomedical Sciences	
	14	9/2	~	6/6	A1 Medical Informatics and Medical Ethics	B4 Infection and Immune Control		athophysiolog ural biochemi hiomolecules	an brain fi Science		Neuro			B2 Cell Biology	B7 Developmental and Regenerative Medicine		opoietic a Systems	vironn nedica	
	13	8/29	~	6/2	A1 Medica formatics a ledical Ethi	Infect June (		T Pati uctura hiv	Humi		B6 I	٥	ñ	Cell t	velopr		ematc	38 En	
is l	12	8/22 8	~	8/26	Infe Me	B4 I		stn stn	B5					B2	B7 De Regeni		В3 Не	шŌ	
ıest	11	8/15	~	8/19															
2016 First semester	10	8/8	~	8/12	and ics	no er								γs	olloHii.				
irst	6	8/1	~	8/2	A1 Medical Informatics and Medical Ethics	B4 Infection and Immune Control		<u>6</u>	00						ive			ca	
6 F	- 00	1/25	~	1/29	A1 I Inform Medic	B4 Ir and I		ructur sules	Scien						nerat		mune	omedi	
201	7	7/18	~	7/22		sbiloH3	*	B1 Pathophysiology and structural biochemistry of biomolecules	B5 Human brain functional Science					ogy	B7 Developmental and Regenerative Medicine		B3 Hematopoietic and Immune Systems	B8 Environmental and Sociomedical Sciences	
	9	7/11 7	~	7/15 7		Ι		logy a of bio	functi		nce		5	B2 Gell Biology	ental and Medicine		poietic ar Systems	ental and Sciences	
	5	7/4	~	7/8	A1 Medical Informatics and Medical Ethics	B4 Infection and Immune Control		hysio	brain		B6 Neuroscience	-	seminar nour	32 Cel	ment: Mec		topoi	nenta Scie	
	4	7 72/9	~	7/1	A1 Medical Informatics and Medical Ethics	rfection Ine G		athop chem	ıman		) Neui	,	Selling Selling		velop		Нета	viron	
	3	9/50 6/	~	6/24 7	Infor Mec	B4 Ir Imm		B1 P <sub>2</sub>	35 Hu		B6		-		37 De		B3	38 En	
	2 ;	6/13 6/		6/17 6/											Е			ш	$\blacksquare$
	-	/9 9/9		/9 01/9		A1	B4		B1	B5					B2	B7		B3	B8
Н	Week 1	9		Priod 6/	4	2	9	4	2	9	4	2	9	4	2	9	4	2	9
٢	×			Æ	H	Mon.	_		Tue.		,	Wed.			Thu.	_		Fri.	
					<u> </u>	Z		<u> </u>	П		<u> </u>	Ħ			⊢		<u> </u>	ļ.,	
	- 2																		

A1 : Compulsory subjects B1 ~ B8, C1 ~ C10 : Elective subjects E1 ~ E4 : The Course of Developmental Biology and Regenerative Medicine

8.45~10:15 10:30~12:00 13:15~14:45 15:00~16:30 16:45~18:15 18:30~20:00

1st priod 2nd priod 3rd priod 4th priod 5th priod 6th priod

- 2 E 4

Fri.

Lecture Room: Lectures offered by several instructors (omnibus classes) will be given in the lecture room 2 on the 3rd floor of the Medical Education & Library Building.

※For students who are taking the AIDS course, there are a number of supplementary materials that will guide you in this process; please ask the Student Affairs Section, Graduate School of Medical Sciences for further information.

Medical Experiment Course

- c e 4

Wed.

Health examination

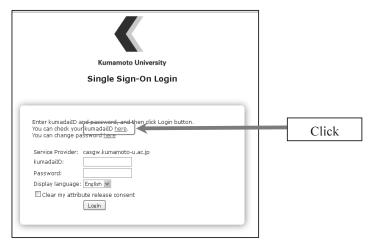
1 2 2 4

Thu.

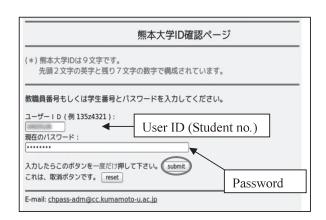
# 6. How to participate in lectures through e-learning

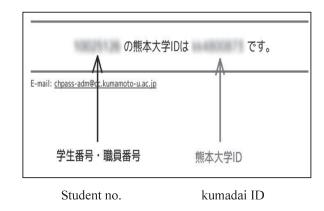
#### 1) How to access the e-learning system (Moodle)

1.Access Kumamoto University's Portal website (http://uportal.kumamoto-u.ac.jp/), and log on to Kumamoto University Portal's Site by entering your Kumadai ID and password. Your Student number and password are written on the back of your Student ID.



2. You can check your "kumadai UD" entering your Student number and password, and then click the "submit".





Your User ID and password are written on the back of your Student ID.

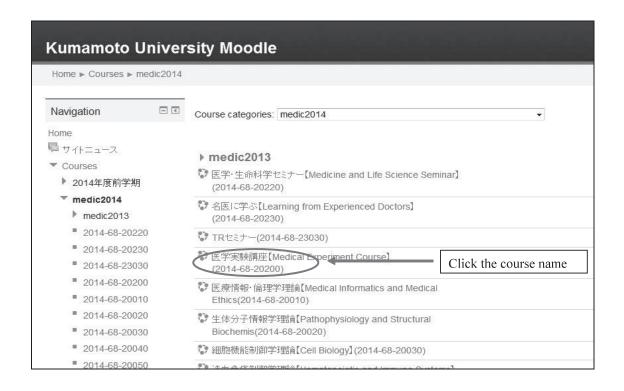
3. Check student number, and then click the "LOGIN". Your Student number is written on the back of your Student



4. If you successfully log in the system, please click the "全学 LMS(e-Learning System)Moodle".



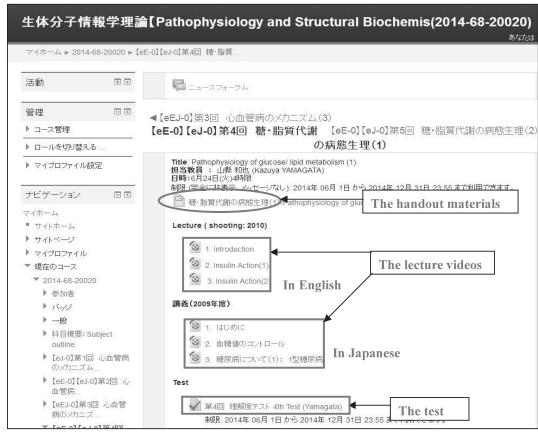
5. Home shows the list of courses you have registered for through SOSEKI. By clicking the course name, you may access to the top page, which displays the list of lectures held in the course. When you click on the "How to change your language", you can change the language into English.



6. From each lecture page, you are able to learn the contents through the lecture videos and handout materials; and then, take tests to determine your understanding. If you pass the tests, your lecture participation would be completed. After taking tests, you may confirm and study again the part of insufficient understanding and take test up to a ceiling of twice.







\*Notice) Regarding the students who would like to take "D1 Medicine and Life science Seminar" and "D2 Learning from Experienced Doctors" by using the e-learning system, please check the procedure for taking these subjects in the e-learning contents of "D1 Medicine and Life science Seminar" and "D2 Learning from Experienced Doctors".

#### 2) Classification of e-learning

Please note that the lectures by e-learning are classified into 6 types: eE-O, eE-L, eJ-O, eJ-L, eEJ-O and eEJ-L. These marks are written in the pages of the lecture schedule of each subject.

- 1. Classified according to the language used in the lecture.
  - eE: e-learning content in English
  - eJ: e-learning content in Japanese
  - eEJ: e-learning content in both Japanese and English
- 2. Classification according to the use of e-learning for the lecture.
  - -O: Lecture only by e-learning; no face-to-face class will be conducted.
  - -L: In principle, a face-to-face lecture; if unable to attend the lecture, a student may participate in the lecture through e-learning as supplementary lecture.
- 3. Regarding a lecture with e-learning content prepared only in Japanese (eJ-O or eJ-L), if an international student, who cannot understand Japanese, has registered for such lecture, the face-to-face lecture will be conducted in English (+ Japanese). This lecture may be recorded to be used for an e-learning content as eE or eEJ in future.
- 4. Example of e-learning classification:
  - eJ-L means "students are requested to attend the face-to-face lecture in principle, but if unable to do so, they can participate in the e-learning lecture prepared in Japanese language as supplementary lecture". If an international student, who cannot understand Japanese, has registered for the course, a face-to-face lecture will be conducted in English (+Japanese).

\* We are modifying the criterion of a thesis and early completion system for academic year of 2016. We will notify the final decision as soon as possible.

# 7. Screening criterion of a thesis and assessment criterion for the final examination

#### [Doctoral Course]

The application for academic degree entails thesis submission and at least one relevant paper as described below,. For an applicant who has obtained designated school credits and has submitted a thesis, a thesis screening and final examination will be given.

#### Screening criterion of a thesis

- 1) The thesis should sufficiently dissert the research background, including the documented facts, which serve as a background of the research. The objectives and fundamental strategy of the research, detailed experimental methodology, result of experiments and its interpretation, should also be included. In addition, an in-depth discussion including bibliographic consideration, and the colligation concerning the significance of the research should be included as well. A copy or translation of a previous paper will not be accepted.
- 2) The thesis should be prepared in accordance with the required documentation methodology.

#### Criterion for approving relevant papers

- 1) Relevant papers should be written in a English and appear in one of the "Journals written in English for academic degree application" designated by the Graduate School of Medical Sciences.
- 2) Relevant papers should be related to the thesis research.
- 3) The applicant for an academic degree must be the first author of the relevant paper. When the paper is a joint work between the applicant and another researcher on an equal contribution basis, it must be clearly stated that both of them are regarded as the first co-authors (with equal contribution). However, except in the case of the next section, only one first co-author can use the paper for academic degree credit.
- 4) The relevant paper includes the paper in format of 'Short communication'.
- 5) The relevant papers should state 'Kumamoto University' as the degree applicants' home university.
- 6) Co-authors of the relevant papers, including researchers from the Graduate School of Medical Sciences, should be included in the acknowledgement.
- 7) The degree applicants who choose a thesis such as short communication must submit a pre-publication paper in advance to Student Affairs Section, Graduate School of Medical Sciences. The contents of the paper should be preliminary reviewed and approved by the Graduate School's Education Board.

#### Criterion for registration of "Journals written in English for academic degree application"

- 1) For foreign academic journals written in English, they should have a peer-review system and release the names of the editorial board members.
- 2) For domestic journals written in English, they should stipulate submission written in English, have a peer-review system and release the names of the editorial board members.
- 3) Online-format journals are acceptable so long as the conditions mentioned above are satisfied.

#### Assessment criterion for the final examination

The final exam is an oral examination (public presentation) and an assessment is made by the following criterion:

- 1) The examinee fully comprehends the content of his/her research and is able to explain it in detail.
- 2) The examinee is able to logically analyze the issues raised in his/her research.
- 3) The examinee is able to dissert the future prospect of his/her research.
- 4) The examinee has advanced knowledge in the field of his/her research.
- 5) The examinee has basic knowledge about fields related to his/her research

#### **Early Completion System**

Students who have completed all of their credit requirements and finished their Thesis ahead of time can obtain their doctoral degree if they are approved at the "Doctoral Degree Committee in the Early Completion System".

The period that students can complete the Graduate School of Medical Sciences by Early Completion System is as follows.

- 1) March of the 3rd grade (In the case of the students enrolled in October, September of the 3rd grade)
- 2) June of the 4th grade (In the case of the students enrolled in October, December of the 4th grade)
- 3) September of the 4th grade (In the case of the students enrolled in October, March of the 4th grade)
- 4) December of the 4th grade (In the case of the students enrolled in October, June of the 4th grade)

The requirements for the aforementioned relevant papers are as follows: 1) They should be written in English and published in one of the "Journals written in English for academic degree application" designated by the faculty of Medical Sciences. 2) They must be written based on published papers which meet either requirement ① or ② listed below. Even if the papers are just on the passing line of IF, they can pass based on the synthetic judgment of the applicant's presentations and the answers to the questions.

①At least one of your papers should have been published as a first author in an academic journal whose IF is 5.0 or higher, or in an academic journal whose IF places in the top 10% of its particular field of research. (As for the details of IF and search strategies concerning these academic journals, please refer the Medical Faculty Educational Affairs Planning Section or the Website for the Graducate School of Medical Sciences, which is listed below as a link). However, any papers that have more than one first author will be evaluated with the IF number divided by the number of co-first-authors. Some co-first-authors are given the possibility to apply for doctoral degrees when they write a Thesis using the aforementioned paper as a relavant paper from a different view point. In the case of short communication, the decision for acceptance as a relevant paper is made after its content is reviewed.

②Two or more papers should have been published as a first author in an academic journal whose IF is 2.5 or higher, or in an academic journal whose IF places in the top 40% of its particular field of research. Alternatively, the sum of IF from two or more of these papers published as a first author should be 5.0 or higher. Candidates must have at least one paper published as a single first author, and the only one co-first-author paper is accepted. Any papers that have more than one first author will be evaluated with the IF number divided by the number of co-first-authors. In addition, some co-first-authors are given the possibility to apply for doctoral degrees when they write a Thesis using the aforementioned paper as a relavant paper from a different view point. In the case of short communication, the decision for acceptance as a relevant paper is made after its content is reviewed.

Guidelines for the degree review and details on how to apply for early graduation can be viewed in the department newsletter on the Website for the Graducate School of Medical Sciences (http://www.medphas.kumamoto-u.ac.jp/medgrad/keijiban/gakuitansyuku.html).

The website also provides detailed information on the IF of each scholarly journal, as well as the IF percentile analysis data.

# 8. Compulsory subjects and Elective subjects

<b>A</b> 1	Medical Informatics and Medical Ethics • • • • • • • • • • • • • • • • • • •	
B1	Pathophysiology and structural biochemistry of biomolecules • • • 23	
B2	Cell Biology • • • • • • • • • • • • • • • • • • •	
	-	
B3	Hematopoietic and Immune Systems • • • • • • • • • • • • 25	
B4	Infection and Immune Control • • • • • • • • • • • • • • • • • • •	
B5	Human brain functional science • • • • • • • • • • • • • 27	
B6	Neuroscience · · · · · · · · · · · · · · · · · · ·	
В7	Developmental and Regenerative Medicine • • • • • • • • 29	
B8	Environmental and Sociomedical Sciences • • • • • • • • • • • • • • 30	
C1	Current Theory of Medical Diagnosis • • • • • • • • • • • • • • • 31	
C2	Advanced therapeutics • • • • • • • • • • • • • • • • • 32	
C3	Metabolic and Circulatory Regulations • • • • • • • • • • • • • • • 33	
C4	Reproductive and Developmental Medicine • • • • • • • • • • • • • • 35	
C5	Advances in Oncologic Medicine • • • • • • • • • • • • • • • • • • •	
C6	The Forefront of Clinical Oncology • • • • • • • • • • • • • • • • • • •	
C7	Restorative Medicine • • • • • • • • • • • • • • • • 38	
C8	Cancer therapeutics • • • • • • • • • • • • • • • • • • •	
C9	Paliative Care • • • • • • • • • • • • • • • • • • •	
C10	The Theory of Clinical Research • • • • • • • • • • • • • • • • • • •	
D1	Medical and Life science Seminar • • • • • • • • • • • 42	
D2	Learning from Experienced Doctors Seminar • • • • • • • 43	
D3	Medicine and Life Science Training • • • • • • • • • • • • • • 45	
D4	Translational Research Seminar • • • • • • • • • • • • 48	

Class r	numbering code	Ser	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period			
	0	2016w	hole year	Graduate School of Medical Sciences(20010)	1,	1, 2, 3, 4 2		other			
			Course	e name(Theme)		Instructor					
Ме	edical Inform	atics and	Medical Eth	nics(Medical Informatics and Medical Ethics)		U	ISUKU Koichiro Kadooka	, Kasaoka Shunji, Yasuhiro			
				Goals with their ratio							
Under	construction	n · · · · 100									
Т	eaching Style	е	講義								
(	Class method	ł	The course	is provided by lecture and discussion or e-Lo	earnin	g using the	moodle or CIT	I Japan.			
Cl	lass objective		arose from I health reco countries, e informed co	Medical Informatics and Medical Ethics aims at proper management of health information and ethical problems arose from medical practice. In this course, you learn basic concepts used in this filed, including electronic health records, protection of computer-processed personal data, health care system in Japan and other countries, evaluation of medical care and DPC, problems of abortion, euthanasia and death with dignity, informed consent, principle of ethics. This course serves as introductory for all students as you obtain essential knowledge on medical informatics and medical ethics, and emergency medicine.							
	Goals		To be able t	to handle or manage health information and	l ethica	al problems	s arose from me	edical practice.			
(	Class outline		are manage (1) electron ethical issue principle of disaster me Participants Collaboratis	explain basic principles of medical information.  d. Basic concepts are introduced. More specic health records; (2) protection of compute sea at the beginning of life; (5) ethical issues ethics, (7) research, high technology medicidicine; (9) primary care and general medicines are requested to learn medical ethics througe Institutional Training Initiative (CITI) Japan o provide positive feed back to the next sess	cifically r-proce at the e ine and ne. gh e-le	y, you are e essed perse end of life; d ELSIs, (8) earning sys	expected to und onal data; (3) ir (6) informed co emergency me tem offered by	derstand the followings: nformation literacy; (4) nnsent, privacy and dical service system and the project of			
				Each Summary							
No.	Date	;		Theme			Summa	ry			
1	06/0	6	5th period l	Koichiro Usuku 【eE-0】【eJ-0】	Intro	duction and	d orientation of	this course			
2	06/1	3	5th period (	Japan [eEJ-0] Responsible attitude of res			tude of researc	h, etc.			
3	06/2	0	4th period (	CITI Japan 【eEJ-0】	Misappropriation, Conflict of Interes			terest, etc			
4	06/2	7	4th period (	CITI Japan 【eEJ-0】	Plagia	Plagiarism, Peer Review, etc.					
5	07/0	4	4th period (	CITI Japan 【eEJ-0】	Handling of Public Funds, etc			, etc.			
6	07/1	1	4th period (	CITI Japan 【eEJ-0】	Personal Information, Informed Co			ed Consent, etc.			
7	07/2	5	4th period l	Koichiro Usuku【eE-0】【eJ-0】	Healt	h care syst	em in Japan an	d in the world			
8	08/0	1	4th period l	Koichiro Usuku【eE-0】【eJ-0】	Clinic	cal research	n using patients	records, etc.			
9	08/0	8	4th period l	Koichiro Usuku 【eE-0】【eJ-0】	Futur	e prospect	s of Electronic	medical records			
10	08/2	2	4th period l	Koichiro Usuku 【eE-0】【eJ-0】	Clinic	cal research	n and data ware	e hous			
11	08/2	9	4th period 9	Shunji Kasaoka 【eEJ-L】	Emer Syndi		ical Service Sys	stem, Post-Cardiac Arrest			
12	09/0	5	4th period 9	Shunji Kasaoka 【eJ-L】	Disas	ter Medicir	ne, Triage				
13	09/1	2	4th period \	Yasuhiro Kadooka	Step	up Lecture	for Research E	thics (1)			
14	09/2	6	4th period \	Yasuhiro Kadooka	Step	up Lecture	for Research E	thics (2)			
15	10/0	3	4th period `	Yasuhiro Kadooka	Step	up Lecture	for Research E	thics (3)			
Req	uired Textbo	oks	Textbooks a	are not specified, and handouts will be distri	buted	by the mod	odle system.	<u> </u>			
	Reading list		Provided in	the lectures.							
Inform	nation conce enrollment	erning	No prerequ	isite.							
	ssessment methods and criteria/ratios		Grading will be based on active class participation, paper summaries, and the final report. Grading will be base on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and questions related to the topics dealt with in class to be scored from grade 1 to 5. Final grades will be based on the average score of the papers and quizzes as well as participation in class discussion					ng will be evaluated on om grade 1 to 5. Final			
Langu	uage of instru	ıction	else (detail	in Activity)							

Class num		Semester	Course belonging/Course code	Ye	ear/Grade	Credit	Day,Period		
		2016whole year	Graduate School of Medical Sciences(20020)	1	1, 2, 3, 4	2	other		
		Course	e name(Theme)			Instr	uctor		
		Pathophysiology a	and Structural Biochemis()		Tetsum	ii, NOMIYAMA I	AMAGATA Kazuya, IRIE Hisayuki, OGURA Teru, rinaka Houichi, TAMAOKI Ihiko		
			Goals with their ration	)					
Under co									
	ching Style								
Clas	ss method		will be used in the lectures, and active preserved in the lectures, and active preserved in the pathophysiology of hypertensing the pathophysiology of hypertensing the preserved in the lectures.	•					
Class	s objective	therapeutic (2)To unde metabolic s (3) Molecul diseases wi (4) The spe to understa proteins. (5) You will	herapeutic strategy of these cardiovascular diseases. 2)To understand the basic knowledge of glucose/lipid metabolism and its dysregulation in diabetes mellitus, metabolic syndrome, and lipid metabolism disorder. 3) Molecular basis, various cellular functions, and roles of ATPases, especially AAA family proteins, in human diseases will be learnt. 4) The specific properties of a protein arise from its particular conformational structure. The aim of this course is o understand the mechanisms of functional expression on the basis of the three-dimensional structures of proteins. 5) You will be able to understand the molecular interaction of functional carbohydrates with lipids and proteins, and to apply them to the field of life sciences.						
	Goals		and the structure, function, physiological e, and to be able to explain them.	role, role	e in various o	diseases, and cl	inical application of		
Cla	ass outline	learn funda are biopoly are related from the po family prote animals cau chemokine	(1) You will learn the mechanism for the regulation of oxidative stress and its signaling cascades. (2) You will learn fundamental metabolic pathways under normal conditions and its relationship to pathology. (3) Proteins are biopolymers containing functional motifs and domains. Molecular chaperones and ATP-dependent proteases are related to life of proteins and consist of several different types of ATPases. Their functions will be discussed from the point of view of ATPases. In particular, common molecular basis and various cellular functions of AAA family proteins will be discussed. In addition, human genetic diseases and developmental disorders of model animals caused by mutations in AAA family proteins will be described. (4) The structures and functions of chemokine involved in biological defense or process of organic formation are discussed. (5) The usefulness of carbohydrates in the fields of therapeutics and laboratory medicine will be discussed:						
		<u>.</u>	Each Summary						
No.	Date		Theme Summary						
1	06/07	5th period	Mitsuyama Shiyoukei 【eEJ-0】	Path	nophysiology	of cardiovascu	ılar diseases (1)		
2	06/14	5th period	Yorinaka Houichi 【eEJ-0】	Path	nophysiology	of cardiovascu	ılar diseases (2)		
3	06/2	4th period	Mitsuyama Shiyoukei 【eEJ-0】	Path	nophysiology	of cardiovascu	ılar diseases (3)		
4	06/28	4th period	YAMAGATA Kazuya [eEJ-0]	Path	nophysiology	of glucose/lipi	id metabolism (1)		
5	07/05		YAMAGATA Kazuya 【eEJ-0】	Path	nophysiology	of glucose/lipi	d metabolism (2)		
6	07/12	<del></del>	YAMAGATA Kazuya 【eEJ-0】				id metabolism (3)		
7	07/19	<del>-   '</del>	OGURA Teru 【eEJ-0】			to life of protei			
8	07/26	4th period	YAMANAKA Kunitoshi 【eEJ-0】	Vari	ous functior	s of AAA protei	ns		
9	08/02	2 4th period	OGURA Teru 【eEJ-0】			caused by AAA	<u> </u>		
10	08/23	4th period	TAMAOKI Haruhiko	β-C	Oxidation	·	ets of Flavoenzymes in		
11	08/30	4th period	NOMIYAMA Hisayuki	of cl	hemokine fa	mily (1)	al function and evolution al function and evolution		
12	09/06	<del>-   '</del>	NOMIYAMA Hisayuki	of cl	hemokine fa	mily (2) inctional carbo			
13	09/13	<del>-   '</del>	IRIE Tetsumi	fiel	d of life scie	nces			
1.4	14 09/20 4th period IRIE Tetsumi		IDIC Takanani	Specific cells and biomole the wound healing			ecules that are responsible for		
14	09/20	4th period	IRIE Tetsumi	the	wound heali	rig	·		
15	09/27	4th period	IRIE Tetsumi	Failu	ure of lipid m	netabolism and	the laboratory medicine		
15 Require		4th period  Textbooks  "Harper's Companies	IRIE Tetsumi are not specified, and handouts will be d Illustrated Biochemistry" by Robert K. M	Failu istributed lurray, Da	ure of lipid n d in some cla aryl K. Grann	netabolism and asses. aer, Victor W. Ro			
15 Require Rea	09/27 red Textbo	4th period oks Textbooks "Harper's Companies "Handboo	IRIE Tetsumi are not specified, and handouts will be d Illustrated Biochemistry" by Robert K. N , 2006	Failu istributed lurray, Da	ure of lipid n d in some cla aryl K. Grann	netabolism and asses. aer, Victor W. Ro			
Require Rea Informati en	09/27 red Textbo	4th period oks Textbooks "Harper's Companies "Handboo	IRIE Tetsumi are not specified, and handouts will be d Illustrated Biochemistry" by Robert K. N , 2006	Failuistributed	ure of lipid n d in some cla aryl K. Grann ACC Press, 2	netabolism and asses. ner, Victor W. Ro 2000	odwell, The McGraw-Hill		

	numbering code	Sem	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
		2016wl	hole year	Graduate School of Medical Sciences(20030)	1,	2, 3, 4	2	other	
			Course	name(Theme)			Instr	uctor	
			Cel	l Biology()		TOMIZAWA Kazuhito, NAKAO Mitsuyoshi, NAKANISHI Hiroyuki, IWAMOTO Kazuya, TATEISHI Satoshi, SAITOH Noriko, ESAKI Masatoshi, WEI Fan-Yan			
				Goals with their ratio					
	construction								
	eaching Styl		講義						
(	Class method	_		lecture & E-learning lecture					
Cl	lass objective	es	Cell Biology aims at understanding the following topics:(1) Intracellular signaling pathway such as protein phosphorylation in the pathogenesis of disease; (2) Chemical modifications of RNA; (3) Regularory mechanisms of cytoskeletons, subcellular organelle, nucleus and membranes in cell functions such as cell motility; (4) The molecular basis of epigenetic cell regulation in development and human diseases; and (5) Cell cycle, Mitosis and Meiosis, and DNA repair and recombination.						
	Goals	S   I	The goal of this course is that the students understand and elucidate the following topics: (1) Intracellular signaling pathway such as protein phosphorylation in the pathogenesis of disease; (2) Chemical modifications of RNA; (3) Regularory mechanisms of cytoskeletons, subcellular organelle, nucleus and membranes in cell functions such as cell motility; (4) The molecular basis of epigenetic cell regulation in development and human diseases; and (5) Cell cycle. Mitosis and Meiosis, and DNA repair and recombination.						
	Class outline	: :	the following modification shape chang epigenetic r technologie is a cell divis haploid gam	usic concepts and techiniques in the filed of gs: (1) Cell homeostasis; (2) Molecular regulars; (3) Cytoskeletons and organelle play esse, adhesion, and polarization; (4) Medical egulation, involvement in human diseases so for medical diagnosis and therapy; and (5) sion in which the genomic DNA is replicated etes are produced with hereditary diversity, at factor, overall genomic structures and sections.	latory ( ential ( scienc uch as ( Cell c I and d . Gene	mechanism roles in vari e-oriented psychiatric cycle is regu listributed i s are consta	of cellularfunc ons cell functio epigenetics, es disorders and lated to mainta nto the daught antly damaged	tions by RNA  such as cell motility, pecially mechanism of cancer, and new ain genomic DNA. Mitosis er cells. During meiosis, by endogenous or	
				Each Summary					
No.	Date	,		Theme			Summa	ry	
1	06/0	9 !	5th period,	FOMIZAWA Kazuhito 【eE-0, eJ-0】	Regu	lation in ph	ysiology and pa	athophysiology	
2	06/1	6 !	5th period,	FOMIZAWA Kazuhito 【eE-0, eJ-0】	Regu	lation by pr	otein phospho	rylation	
3	06/2	3 4	4th period, \	WEI Fan-Yan 【eE-L】	Chen	nical modifi	cations of RNA		
4	06/3	0 4	4th period, S	SAITOH Noriko 【eE-0, eJ-0】	Struc	ture and fu	nctions of the r	nucleus	
5	07/0	7 4	4th period, I	ESAKI Masatoshi 【eE-0】	Orga	nelle biogei	nesis and funct	ions	
6	07/1	4 4	4th period, I	NAKANISHI Hiroyuki 【eE-0,eJ-0】	<u> </u>		nanism of cytos		
7	07/2		4th period, I	NAKANISHI Hiroyuki 【eJ-0】			nanism of cytos		
8	07/2			NAKANISHI Hiroyuki 【eE-0,eJ-0】	<u> </u>			nd membranes	
9	08/0	4	4th period, I	NAKAO Mitsuyoshi [eJ-L*] *This lecture is h 'eE' in the lecture "Tokuron" #14 and Course of Developmental Biology and	<u> </u>		,		
10	08/2	5	provided wit	NAKAO Mitsuyoshi [eJ-L*] *This lecture is th 'eE' in the lecture "Tokuron" #14 and Course of Developmental Biology and e Medicine.	Medi	cal epigene	tics		
11	09/0	1 4	4th period, I	WAMOTO Kazuya 【EJ-L】	Abou	t Neuroepi	genetics I		
12	09/0	8 4	4th period, I	WAMOTO Kazuya 【EJ-L】	Abou	t Neuroepi	genetics II		
13	09/1	5 4	4th period, <sup>-</sup>	「ATEISHI Satoshi 【eEJ-0】	Cell g	growth and	cell cycle		
14	09/2	9 4	4th period,	「ATEISHI Satoshi 【eEJ-0】	Abou	t Mitosis ar	nd Meiosis		
15	10/0	6	4th period,	「ATEISHI Satoshi 【eEJ-0】	DNA	repair and	recombination		
Req	uired Textbo	ooks	Textbooks a	re not specified, and handouts will be distri	buted.				
	Reading list		FPathophysiology of Disease: An Introduction to Clinical Medicine, 6th Edition Jedited by Stephan J. Mc and William F. Ganong, The McGraw-Hill Companies (2009)  [Developmental Biology, 10th Edition Jedited by Scott F Bilbert. Sinauer Associates Inc. (2013)  [Essential Cell Biology, 4th edition Jedited by Bruce Alberts et al. Garland Science, (2013)  [EPIGENETICS Jedited by David Allis et al. Cold Spring Harbor Laboratory Press (2007)				c. (2013) 013)		
Inforn	nation conce enrollment	erning	Should have	the basic knowledge of cell biology.					
	ment method	ds and	will be evalu	be based on the student's understanding o ated on the basis of papers and quizzes rela I grades will be based on the average score	ated to	the topics	dealt with in cl	lass to be scored from 0	
	uage of instru	iction	ecture in Er	nglish + English textbook					

Cours	e Coding	Year an	d Semester	Faculty Offering Course	St	Eligible udent Year	Credits	Weekday and Period			
		2016v	vhole year	Graduate School of Medical Sciences(20040)	_	1, 2, 3, 4	2	others			
			Course	e Title(Theme)			Instru	ctor(s)			
	Hematopoie	tic and Ir		ms(Hematopoietic and Immune Systems )		OKADA Seiji, Sashida Goro, NISHIMURA Yasuharu, Sato Yorifumi, OGAWA Minetaro, Senjiyuu Satoru, MAEDA Kazuhiko, SUZU Shinya, Takizawa Hitoshi					
				Goals with their ratio							
Under	constructio	n · · · · 10	0%								
7	Гуре of Clas	S	Lecture								
Te	aching Meth	nod	Omnibus lecures. E-learning contents are available in some lectures in both English and Japanese.								
(	Course Goal	s	The goal of these syster	The goal of this lecture series is to understand the basis of hematopoietic and immune systems, and disruption of these systems (malignancy, immunodeficiency, and immune disorders).							
Cou	rse Achiever Targets	ment	Understand diseases.	the basis of hematopoietic and immune s	ystems	s, their develo	opment, function	on, disruption, and related			
	Outline		(1) The med (2) The orig (3) The anin (4) Aging an (5) Cell-cell	he aims of this lecture series are to understand the followings:  1) The mechanisms how the homeostasis of hematopoietic system is maintained as a stem cell system,  2) The origin of hematopoietic system and the mechanisms of development of hematopoietic stem cells,  3) The animal model bearing human hematopoietic system and applications of this animal model,  4) Aging and tumorigenesis of hematopoietic system,  5) Cell-cell interaction in the immune system,  5) The mechanism of antigen-recognition and the immune response							
				Details for Individual Class	ses						
No.	Date	е		Theme of Course			Brief Outline o	of Course			
1	06/1	0	5th period N	Minetaro Ogawa	Ont	ogeny of her	matopoietic sys	tem-1			
2	06/1	7	5th period 9	Seiji Okada 【eJ-L,eE-L】	Diff	erentiation o	ntiation of immune cells				
3	06/2	24	4th period N	Minetaro Ogawa	Ont	ogeny of her	natopoietic sys	tem-2			
4	07/0	)1	4th period (	Goro Sashida	Мо	lecular mech	anism of myelo	oid malignancies			
5	07/0	)8	4th period N	Minetaro Ogawa	Ont	ogeny of her	tem-3				
6	07/1	5	4th period 9	Seiji Okada 【eJ-L,eE-L】	App	olication of H	umanized mice	?			
7	07/2	22	4th period l	Hitoshi Takizawa	Rol	e of inflamma	atopoiesis				
8	07/2	29	4th period	orifumi Sato	T-c	ell and retrov	riral infection				
9	08/0	)5	4th period 9	Shinya Suzu	Diff	erentiation o	of immune cells				
10	08/2	26	4th period l	Hiroyuki Oshiumi	Вс	ell developm	ent and functio	on			
11	09/0	)2	4th period I	Hiroyuki Oshiumi	Rol	e of innate in	nmune cells du	ring viral infection			
12	09/0	)9	4th period l	Hiroyuki Oshiumi	Dev	elopment ar	nd function of i	nnate lymphoid cells			
13	09/1	6	4th period	asuharu Nishimura 【eJ-0,eE-0,eEJ-0】	Ant	igen present	ation to T cells				
14	09/2	23	4th period	asuharu Nishimura 【eJ-0,eE-0】	T ce	ell-mediated	anti-tumor imn	nunity			
15	09/3	80	4th period S	Satoru Senju 【eE-L】	iPS	cell-based ir	nmune cell the	rapy			
Text	books/Mate	erials	Textbooks a	are not specified, and handouts will be dist	ribute	d.					
	Reading List	t	· "Janeway	une System" by Peter Parham. Garland Pul 's Immunobiology Seventh Edition" by Ke I Science, Taylor & Francis Group LLC. Nev	enneth	Murphy, Pau	ul Travers, Marl	n, 2007 k Walport.			
Enrolli	ment Prereq	uisites									
Assess	ment Metho Criteria	ods and	Achievement of the Objectives will be evaluated by active class participation and the reports, of which the the will be specified after the lectures. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of the reports and brief examinations. Fina grades will be based on the average of the best 10 scores of the reports and brief examinations as well as the participation in class discussions.					g of the course subject ief examinations. Final			
Langu	lage of Instru	uction	Instruction	n English + English Textbook							

Cours	se Coding	Year and Semester	Faculty Offering Course	Eligible Student Year	Credits	Weekday and Period		
		2016whole year	Graduate School of Medical Sciences(20050)	1, 2, 3, 4	2	others		
		Cours	e Title(Theme)		Instru	ctor(s)		
	Infect	ion and Immune Con	trol(Infection and Immune Control)	Ariumi Y. Tatsuya, S	MATSUSHITA Shuzo, TAKIGUCHI Masafumi, Ariumi Yasuo, NAKATA Hirotomo, KAWAGUCHI Tatsuya, SAWA Tomohiro, Maeda Yousuke, UENO Takamasa, MIYAKAWA Toshikazu			
			Goals with their ratio					
Under	constructio	n ····100%						
	Type of Clas							
Te	aching Meth	od Extra classe	and/or OHP will be used in the lectures, an s or video lectures are considered for those course students will be informed of the ind	who are regularly	absent for una	avoidable reasons. (Before		
(	Course Goal	and clinical pathogenes nosocomial	this lecture series "Infection and Immune C research of infectious diseases. (1) interacti is of viral infection, (3) immune control and /opportunistic infection, (5) diagnosis and t nt of antiviral therapy based on the research ection.	ion between patho vaccine developm reatment of emerg	ogen and host nent, (4) manag ging/re-emergi	response,(2) molecular gement of ng infectious diseases, (6)		
Cou	rse Achiever Targets	ment between pa vaccine dev emerging/re	Il learn following topics important for basic at thogen and host response, (2) molecular patelopment, (4) management of nosocomial/pe-emerging infectious diseases, (6) developer-(-1, (7) Pathogenesis and treatment of HIV-1	chogenesis of viral opportunistic infect ment of antiviral th	infection, (3) i ction, (5) diagn	mmune control and osis and treatment of		
	Outline	infectious d longevity of developmer virus infecti accomplish elucidation presented f developmer	t be an overstatement if we say the history of iseases. Researches on infectious diseases the life in developed nations at present. Defined to the antibiotics for bacterial infections at on which had been difficult to manage have ments have been based on accumulation of of specific life cycle of them. The up-to-date ocusing on the following topics, the pathogent of the effective anti-virus agents, and the inthe immune response.	nave been contribevelopment of the nd development of given a big impacbasic knowledge research results enesis and the hos	uted enormous vaccine for the of the anti-viral of the anti-viral of the our societ about pathoge including the later response, life	sly to the health and e e various infections, agents against chronic y. These inic agents and ecturers' own will be ectycle of the virus and		
			Details for Individual Classe	S				
No.	Date	е	Theme of Course		Brief Outline	of Course		
1	06/0	6th period	Tomohiro Sawa 【eJ-0】	Infection and ho	st response 1			
2	06/1	3 6th period	*Tomohiro Sawa 【eJ-0】	Infection and pa	thogenic organ	nisms		
3	06/2	20 5th period	Гоmohiro Sawa 【eE-0】	Infection and ho	st response 2			
4	06/2	27 5th period	Yosuke Maeda	Molecular patho	genesis of vira	l infection l		
5	07/0	5th period	*Yosuke Maeda 【eE-L】	Molecular patho	genesis of vira	l infection II		
6	07/1	1 5th period *	Yosuke Maeda 【eE-L】	Molecular patho	genesis of vira	l infection III		
7	07/2	'	Masafumi Takiguchi 【eE-0】	Infection and ho	st immune res	oonse		
8	08/0	5th period	*Takamasa Ueno	Cellular immune	response agai	nst HIV-1		
9	08/0	5th period	Гаkamasa Ueno	Vaccine develop	ment against i	nfectious diseases		
10	08/2	22 5th period *	Tatsuya Kawaguchi	Nosocomial/opp	ortunistic infe	ction		
11	08/2	9 5th period	Гoshikazu Miyakawa	Emerging/re-em	erging infectio	us diseases		
12	09/0	5th period I	Hirotomo Nakata	Antiviral therapy	against HIV-1	infection/AIDS		
13	09/1	2 5th period `	Yasuo Ariumi	Host factors in H	IV infection			
14	09/2	.6 5th period *	'Shuzo Matsushita	Pathogenesis an	d treatment of	HIV-1 infection		
15	10/0	5th period 5	Shuzo Matsushita 【eE-L,eJ-0】	Humoral immun	e response aga	inst HIV-1		
Text	tbooks/Mate	erials Textbooks a	are not specified, and handouts will be distri	buted.				
	Reading List	"Atlas of A "Infectious	IDS" edited by Gerald L. Mandell and Donr Diseases and Medical Microbiology" 2nd	na Mildvan. Currer Edition, Abraham	nt Medicine, In I. Braude et al	c. Philadelphia, 2001. , W.B. Saunders Company		
Enroll	ment Prereq	uisites						
	ment Metho Criteria	This class collectures list examination have to take	This class consisted of a series of omnibus lectures by five groups of lecturers responsible for three successive lectures listed in the schedule. Evaluation will be done by each group based on active class participation, examination test and/or report for subjects prepared by the chief of the group. In order to get credits students have to take more than 2/3 lectures to get scores at least from 3 groups in 5. Grading will be based on averagin three higher scores among ones obtained by the student. The chief of individual lecture group are indicated wit * mark in the following table.					
			r scores among ones obtained by the studer	nt. The chief of inc	lividual lecture	group are indicated with		

Course	e Coding	Year an	d Semester	Faculty Offering Course	Stu	Eligible dent Year	Credits	Weekday and Period			
		2016v	vhole year	Graduate School of Medical Sciences(20060)		, 2, 3, 4	2	others			
			Course	e Title(Theme)			Instru	ctor(s)			
	I I	Danie F		•		TAMAMA	KI Nobuaki. Si	HIMAMURA Kenii, SONG			
	Human	Srain Fun	ctional Scien	uce(B5 Human brain function science)		Wen-	Jle, IKEDA Mar	nabu, FUJISE Noboru			
				Goals with their ratio							
	constructio										
T	ype of Clas	S	Lecture								
Tea	aching Meth	od	PowerPoint and/or OHP will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons.								
С	Course Goal	s	environmen memory, con neurons. In appears from neuronal cir	nplex structure, human brain is developed tal information and uses the information d gnition, spirit and identity in its structure b this lecture series, 'Human brain functior m 'gene expression', neuron electrical a cuit. We will inspect hypotheses proposed te the intrinsic brain mechanisms by using	irectly for y increan al Scier ctivity, i on the	or its body rasing number nce', we winformation mechanism	response. Hum er of neurons a ill try to show y convergence a s to produce b	an brain achieved nd number of subtypes of you how mental activity and divergence in the			
Cour	rse Achiever Targets	ment	regionalizati You will lear	v you and discuss with you on the molecul ion. Molecular mechanisms of differentiation in how environmental information is conve and cognition. You will also learn neuronal	on and pyed to h	process of r numan brair	norphogenesis region and us	will be shown into detail.			
	Outline		We will show and discuss on the points: molecular mechanisms of induction of neural plate and regionalization. Molecular mechanisms of differentiation and process of morphogenesis will be shown into detail. You will learn how environmental information is conveyed to human brain region and used for information processing and cognition. You will also learn neuronal basis for mental activity.								
				Details for Individual Class	es						
No.	Date	е	Theme of Course Brief Outline of Course								
1	06/0	)7	6th period S	SHIMAMURA [eE-0,eJ-0]	Neur	al induction	1				
2	06/1	4	6th period S	SHIMAMURA [eE-0,eJ-0]	Regio	onalization o	of brain				
3	06/2	21	5th period S	SHIMAMURA [eE-0,eJ-0]	Morp	hogenesis i	n individual re	gion			
4	06/2	28	5th period 7	AMAMAKI [eE-0,eJ-0]	Structure of neurons						
5	07/0	)5	5th period S	SONG [eE-0,eJ-0]	Actio	n potential					
6	07/1	2	5th period S	GONG [eE-0,eJ-0]	Syna	pse and syn	aptic transmis	sion			
7	07/1	9	5th period S	SONG [eE-0,eJ-0]	Neur	otransmitte	r				
8	07/2	26	5th period S	SONG [eE-0,eJ-0]	Syna	ptic plastici	ty				
9	08/0	)2	5th period 7	AMAMAKI [eE-0,eJ-0]	Modu	ulation of ne	eural activity by	y amine			
10	08/2	23	5th period 7	AMAMAKI [eE-0,eJ-0]	Neur	onal netwo	rk in the neoco	rtex			
11	08/3	80	5th period T	AMAMAKI [eE-0,eJ-0]	Ment	al activity ra	aised from circ	uit mechanisms			
12	09/0	)6	5th period I	KEDA [eJ-0]	Multi	ple approac	ches to mental	disorder			
13	09/1	3	5th period F	UJISE [eE-0,eJ-0]	Neur	otransmitte	r and mental sy	ymptom			
13		20	5th period I	KEDA [eJ-0]	Neur	al basis of n	nental disorder				
14	09/2		1		+	Neural basis of dementia					
	09/2		5th period I	KEDA [eJ-0]	Neur	al basis of c	lementia				
14 15		27	5th period I Not specifie		Neur	al basis of c	lementia				
14 15 Textk	09/2	?7 erials	· ·	d.	Neur	al basis of c	lementia				
14 15 Textb	09/2 books/Mate Reading List	27 erials	Not specifie	d.	Neur	al basis of c	lementia				
14 15 Textb	09/2 books/Mate	erials uisites	Not specifie	d.							

Cours	e Coding	Year an	d Semester	Faculty Offering Course	Stu	Eligible dent Year	Credits	Weekday and Period				
20	0070	2016v	vhole year	Graduate School of Medical Sciences(20070)		, 2, 3, 4	2	others				
			Course	e Title(Theme)			Instru	ctor(s)				
				roscience()		FUKUDA Takaichi, ERA Takumi, OOTA Kunimasa, INDOU Yasuhiro, MAKINO Keishi, ITOU Yasuhiro, INOUE Toshihiro, MINODA Riyousei, YAMASHITA Satoshi						
				Goals with their ratio								
Under	constructio	n · · · · 10	0%									
٦	Type of Class	5	Lecture	Lecture								
Tea	aching Meth	od	PowerPoint	will be used in the lectures.								
(	Course Goals	5	due to the a sensory syst	In this course, you learn molecular basis of the development of the nervous system, malformation of the brain due to the abnormalities in development, structure and function of diverse synapses, pathophysiology in the sensory systems, and neurodegenerative disorders. Recent advances in the therapeutic approaches including regenerative medicine are discussed.								
Cou	rse Achiever Targets	nent	transmission	n explain the development of nervous syste n, new therapeutic approaches to the neura ology in the somatosensory, visual, and audi	l disor	ders using s	stem cells and g	gene targeting,				
	Outline		division dur cell; (5) Mor pluripotenc insensitivity of retinal dis	1) Formation of neural tube, regionalization along the dorsoventral and rostrocaudal axes; (2) Asymmetrical division during mitosis, stem cells, cell lineage (3) Axonal guidance; (4) Morphogenesis of eyes and neural stem cell; (5) Morphology and function of diverse synapses including gap junctions; (6) Neural crest cells and pluripotency; (7) Nerve growth factor and apoptosis; (8) Gene abnormality and the resultant congenital nesensitivity to pain; (9) Deformity of central nervous system and treatment; (10) Pathophysiology and treatment; from the properties of retinal diseases; (11) Glaucoma pathophysiology and treatment; (12) Hearing impairment and treatment; (13) Regenerative medicine for neurodegenerative diseases; (14) State-of-the-art therapies for Parkinson's diseases								
				Details for Individual Classe	:S							
No.	Date	<u> </u>		Theme of Course			Brief Outline o	of Course				
1	06/0		4th period, OOTA Kunimasa [eE-0] Axon guidance and the neur									
2	06/1	5		OOTA Kunimasa [eE-0]								
3	06/2	2		OOTA Kunimasa [eE-0]	Eye formation and neural stem cell							
4	06/2	9	4th period,	OOTA Kunimasa [eE-0]	Finding signaling molecule Tsukushi			kushi				
5	07/0	6	4th period,	FUKUDA Takaichi [eJ-0,eE-0]	Structure and diversity of chemical and synapses			ical and electrical				
6	07/1	3	4th period,	ERA Takumi [eJ-0,eE-0]		lopment an potency	d differentiatio	on of neural crest cell,				
7	07/2	0	4th period,	ERA Takumi [eJ-0,eE-0]		medical ap m using ste		eases of the nervous				
8	07/2	7	4th period,	INDO Yasuhiro [eJ-0,eE-0]	Nerv	e growth fac	ctor and apopt	osis				
9	08/0	3	4th period,	INDO Yasuhiro [eJ-0,eE-0]			the gene respo ain with anhidr	onsible for congenital cosis (CIPA)				
10	08/2			MAKINO Keishi [eJ-0]	Defo	rmity of cen	itral nervous sy	stem and treatment				
11	08/3	1	4th period,	TOU Yasuhiro [eE-L]	Path	ology and tr	eatment of reti	nal diseases				
12	09/0	7	4th period,	INOUE Toshihiro [eE-0]	Glau	coma patho	physiology and	d therapy				
13	09/1	4	4th period,	MINODA Riyousei [eE-0]	Hear	ing impairm	ent and the tre	eatment				
14	09/2	1	4th period,	YAMASHITA Satoshi	Rege	nerative me	edicine for neu	rodegenerative diseases				
15	09/2	8	4th period,	YAMASHITA Satoshi	State	of-the-art t	therapies for Pa	arkinson's diseases				
Text	books/Mate	rials										
	Reading List											
Enrollr	ment Prereq	uisites										
Assess	ment Metho Criteria	ds and	The student be scored fr	s' understanding will be evaluated on the b om 0 to 100. Final grades will be based on	asis of the ave	quizzes rela erage of the	ated to the topi 10 highest sco	ics dealt with in class to ores out of 15 quizzes.				
Langu	age of Instru	uction	Instruction i	n Japanese + Japanese Textbook								

Class n	numbering	0 .		V 10 1	0 111	5 5 1		
	ode	Semester	Course belonging/Course code	Year/Grade	Credit	Day,Period		
		2016whole year	Graduate School of Medical Sciences(20080)	1, 2, 3, 4	2	other		
		Cours	e name(Theme)		Instru	uctor		
		Developmental ar	nd Regenerative Medicine()	Takur NAKAGA	NISHINAKAMURA Ryuichi, KAWAI Katsushi, Era Takumi, Fukuda Takaichi, ARAKI Masatake, NAKAGATA Naomi, Hitoshi Niwa, Masaki Okano, Atsuhiro Taguchi, Akira Nakamura			
			Goals with their ratio					
Under	construction	า ····100%						
Te	eaching Styl	e 講義						
С	Class method	PowerPoin encourage	t will be used in the lectures, and active parti d.	cipation in the d	iscussion is			
Cla	ass objective	developme which have Developme	ental and regenerative medicine aims at curir nt. In this course, you learn basic concepts a e now become essential for any area of reseal ental and Regenerative Researcher Program, ential knowledge on genetic engineering tech	nd techniques urch. This course s and will also be u	sed in this filed, serves as introdu	including knockout mice, ictory for those in the		
	Goals		concepts and techniques used in this filed, in any area of research.	ncluding knocko	ut mice, which h	nave now become		
C	Class outline	in vitro fert nuclear tra (4) Compre loxP techno pattering a	(1) Establishment and application of stem cells including ES and iPS cells; (2) Reproductive engineering including notive fertilization, freezing of embryos and sperms, embryo transfer, intracytoplasmic sperm injection, and nuclear transfer; (3) Methods to generate transgenic and knockout mice, as well as genome editing technolog (4) Comprehensive mutagenesis projects in mice and how to use the resources; (5) Gene modification using CoxP technology; (6) Anatomy of each organ in the aspects of ontogeny and phylogeny; (7) Axis formation and pattering at the initial stages of development; (8) Molecular mechanisms of organ development including the iver, pancreas and kidney; (9) Trials for regenerating organs.					
			Each Summary	_				
No.	Date	:	Theme		Summa	ry		
1	06/0	9 6th period	Ryuichi Nishinakamura 【eE-L】	Developmental	e medicine			
2	06/1	6 6th period	Masatake Araki 【eEJ-L】	Transgenic mou	ouse			
3	06/2	3 5th period	Masatake Araki 【eEJ-L】	Production of g	Production of genome edited mouse line			
4	06/3	0 5th period	Akira Nakamura 【eE-L】	germ cell forma	erm cell formation: preformation and epigene			
5	07/0	7 5th period	Masaki Okano 【eE-L】	Epigenetics in o	development			
6	07/1	4 5th period	Atsuhiro Taguchi 【eE-L】	Kidney develop	idney development and regeneration			
7	07/2	1 5th period	Naomi Nakagata 【eE-0】	Reproductive e	ngineering I			
8	07/2	8 5th period	Naomi Nakagata 【eE-0】	Reproductive e	ngineering II			
9	08/0	4 5th period	Hitoshi Nlwa 【eE-0】	Molecular basis	of embryonic st	em cells I		
10	08/2	5 5th period	Hitoshi Niwa【eE-0】	Molecular basis	of embryonic st	em cells II		
11	09/0	1 5th period	Takumi Era 【eE-0】	iPS cells, their a	applications for t	he medicine		
12	09/0	8 5th period	Takumi Era【eE-0】	Mesoderm indu	iction from ES ce	ells		
13	09/1	5 5th period	Takaichi Fukuda 【eE-0】	Ontogeny and	ohylogeny			
14	09/2	9 5th period	Katsushi Kawai 【eE-0】	Anatomy of dig	estive tracts and	lung		
15	10/0	6 5th period	Takaichi Fukuda 【eE-0】	Anatomy of care	diac and urogen	ital systems		
Requ	uired Textbo	oks						
Ī	Reading list	· "Essen · "Manip K., Behring · "Larser	<ul> <li>"Developmental Biology, 10th edition" by Scott Gilbert 2013.</li> <li>"Essential Developmental Biology, 3rd edition" by Slack JMW.,Blackwell Publishing 2012</li> <li>"Manipulating the Mouse Embryo: A Laboratory Manual, 4th edition" by Nagy A., Gertsenstein M., Vintersten K., Behringer R., Cold Spring Harbor Laboratory Press, 2014.</li> <li>"Larsen's Human Embryology, 5th edition" by Shoenwolf GC, Bleyl SB, Brauer PR, Francis-West PH. Churchill Livingstone, 2014.</li> </ul>					
Inform	nation conce enrollment	rning						
		The section	The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100. Final grades will be based on the average score of the papers and quizzes, a well as the final report and active participation in class discussions.					
	ment method riteria/ratios	in class to l	be scored from 0 to 100. Final grades will be	based on the av				

	numbering code	Se	mester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period		
	Loue	2016	whole year	Graduate School of Medical Sciences(20090)	1,	2, 3, 4	2	other		
			Course	e name(Theme)			Instru	ıctor		
Environ	mental and	Sociome		es(B8 Environmental and Sociomedical Scie	nces)		i Yoko, Katoh Ta	akahiko, KITANO Takao, ei Changnian, Oomori		
				Goals with their ratio						
Under	construction	n ·····10	00%							
Т	eaching Styl	е	講義							
(	Class method	k	PowerPoint and/or OHP will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons.							
Cl	lass objective	es	The purpose of this course is to develop the logic of the broad field of Social Medicine from the viewpoints of preventive and environmental medicine (hygiene), public health, health medicine, forensic medicine and neuropsychiatry.							
	Goals		medicine ar medical soc students are medical car	cine is an important field of medical science nd society in the human life cycle. The healt ial application, it is also supported by the cc e expected to understand the relationship b e service including disease prevention & he Il also comprehensively learn the role of me	h of the ompreh etweer alth pro	e humans is nensive hea n the enviro omotion, ar	s regulated in that the and welfare Inment and hea Individuals'	ne ecosystem, and, as the system. In this course, lth, the concept of total basic human rights.		
(	Class outline		structure of evaluation, Public Heali and epidem forensic me perspective Medicine, si	There will be practical lectures in the Department of preventive and environmental medicine (hygiene) on the structure of the environment, the relationship between people and the environment, environmental indices evaluation, and the setting and maintenance of environmental standards, and lectures in the Department of Public Health on the concept of health and the construction of a healthy society based on preventive medic and epidemiology. In the Department of Forensic Medicine, there will be general lectures on the purposes of forensic medicine, as well as the causes of the death and its classification from the medical, legal and social perspectives, and forensic medicine's contribution to society. In the Department of Clinical Behavioral Medicine, students will learn about the epidemiology of mental diseases and the relationship between lifeevents, social support, personality, recognition pattern, nurture experience and mental disease.						
			1	Each Summary						
No.	Date	<u> </u>		Theme			Summa	ry		
1	06/1			「akahiko Katoh 【eE-0, eJ-0】	Meaning of social medicin					
2	06/1		<del>-</del>	Keiko Minamoto 【eE-L, eJ-0】	_	Occupational skin disease (1)				
3	06/2			Hisamitsu Omori【eE-L】		c Health: M				
4	07/0		5th period l	Hirofumi Soejima【eE-L】	Gene	ral Medicir	osis			
5	07/0		5th period l	Hirofumi Soejima【eE-0, eJ-L】	_		on and Fibriolys			
6	07/1		5th period \	Yoko Nishitani 【eE-L, eJ-0】	Defin	ition and p	urpose of foren	sic medicine		
7	07/2	2	5th period l	Hirofumi Soejima【eE-0, eJ-L】	Lifest	yle and Co	ronary Artery Di	sease		
8	07/2	9	5th period \	Yoko Nishitani 【eE-L, eJ-0】	Foren	isic medicii	ne & forensic sc	ience		
9	08/0	5	5th period \	Yoko Nishitani 【eE-L, eJ-0】	Socia	l aspect of	human death (	1)		
10	08/2			Yoko Nishitani 【eE-L, eJ-0】			human death (2	2)		
11	09/0	2	5th period (	Changnian Wei 【eE-L, eJ-0】	1		man system			
12	09/0	9	5th period (	Changnian Wei【eE-L, eJ-0】	Enviro	onmental ir	ndices and eval	uation		
13	09/1	6	5th period	「akahiko Katoh 【eE-L】	_		pidemiology			
14	09/2	3	5th period h	Keiko Minamoto【eE-L, eJ-0】	Occu	pational sk	in disease (2)			
15	09/3	0	5th period 7	Гакао Kitano【eE-L】	Life st	yle and he	alth risk			
Req	uired Textbo	oks		re not specified, and handouts will be distri						
	Reading list		· "Public · "Forens	Health & Preventive Medicine" by Maxy-Ro ic Pathology" by Bernard Knight, 2nded, <i>I</i>	osenan Arnold,	Last: (14 e London, S	dit) Appleton & ydney and Auck	Lange. 1998, kland, 1996.		
Inforn	nation conce enrollment	erning								
	ment metho		Grading will be based on active class participation, paper summaries, and the final report. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100.  Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions					he topics dealt with in		
Langu	lage of instru	ıction	else (detail	in Activity)						

Current Theory of Medical Diagnosis (Current Theory of Medical Diagnosis)  Current Theory of Medical Diagnosis (Current Theory of Medical Diagnosis)  Goals with their ratio  Under construction · · · · 100%  Type of Class  Lecture  Teaching Method  Course Goals  The lecture series "Current Theory of Medical Diagnosis" afford fundamental and current gener modern medical diagnostic techniques and their application in practical medicine and medical researchers will be reached their application in practical medicine and medical researchers will be presented.  In the field of Pathology, current morphology and its application for cancer diagnosis will be introcured addition, molecular approaches for a research in cancer cell differentiation, proliferation and invast coagulation system and immune reaction (especially on macrophage) will be shown.  In the field of Pathology, current morphology and its application for cancer diagnosis will be introcured addition, molecular approaches for a research in cancer cell differentiation, proliferation and invast coagulation system and immune reaction (especially on macrophage) will be shown.  In the field of Diagnostic Radiology, detailed implication of CT and MRI images and their application in the field of Isotope Science, principles of RI tracer methods that are able to detect RI distribution assay as well as in animals including human body will be presented.  Poetalis for Individual Classes  No. Date  Theme of Course  Details for Individual Classes  No. Date  Theme of Course  Theme of Course  Pretails for Individual Classes  No. Date  Theme of Course  Theme of Course  Theme of Course  Pretails for Individual Classes  No. Date  Theme of Course  Theme of Course  Theme of Course  Rife Outline of Course  Theme of Course  Theme of Course  Theme of Course  Rife Outline of Course  No. Date  Theme of Course  Theme of Course  Rife Outline of Course  Theme of Course  Rife Outline of Course  Role Outline of Course  Theme of Course  Rife Outline of Course  Rife Outline of Course  No. Da	a, Yamashita							
Current Theory of Medical Diagnosis (Current Theory of Medical Diagnosis)  Goals with their ratio  Under construction ····100%  Type of Class Lecture  PowerPoint files will be used for giving the lectures, and active participation in the discussion is enter a classes or video lectures will be considered for those who are regularly absent for unavoidab.  Course Goals The lecture series "Current Theory of Medical Diagnosis" afford fundamental and current gener modern medical diagnosits techniques and their application in practical medicine and medical residuation. In the field of Pathology, current morphology and its application for cancer diagnosis will be introcaddition, molecular approaches for a research in cancer cell differentiation, proliferation and invast coagulation system and immune reaction (especially on macrophage) will be shown. In the field of Laboratory Medicine, a modern technique and method for the detection of gene mu shown and be discussed. In the field of Diagnostic Radiology, detailed implication of CT and MRI images and their application researchers will be presented. In the field of Isotope Science, principles of RI tracer methods that are able to detect RI distribution assay as well as in animals including human body will be presented.  1 02/07 4th period Ito T (Pathol Exp Med) [eJ-L] Tumor diagnosis with immunohistochemi and the properties of the properties of RI tracer methods that are able to detect RI distribution assay as well as in animals including human body will be presented.  1 02/10 4th period Ito T (Pathol Exp Med) [eJ-L] Molecular pathological diagnosis.  3 02/14 4th period Immuna T (Mol Pathol) [eJ-O] Protease virulence activities and diseases.  4 02/17 4th period Immuna T (Mol Pathol) [eJ-O] Protease virulence activities and diseases.  5 02/28 4th period Takeya M (Cell Pathol) [eJ-O] Protease virulence activities and diseases.  6 02/24 4th period Matsui (Laboratory Medicine) [eJ-O] Protease virulence activities and diseases.  7 02/28 4th period Matsui (Laboratory Medicine)	a, Yamashita							
Current Theory of Medical Diagnosis (Current Theory of Medical Diagnosis)  Goals with their ratio  Under construction · · · · · 100%  Type of Class  Lecture  Power Point files will be used for giving the lectures, and active participation in the discussion is en Extra classes or video lectures will be considered for those who are regularly absent for unavoidab course Goals  The lecture series "Current Theory of Medical Diagnosis" afford fundamental and current gener modern medical diagnosite techniques and their application in practical medicine and medical responsion in the discussion is en Extra classes or video lectures will be responsive to the considered for those who are regularly absent for unavoidab for the detection of course Achievement for disease diagnosis.  This course has been projected for the achievement of knowledge regarding the cutting-edge advaragets.  In the field of Pathology, current morphology and its application for cancer diagnosis will be introcaddition, molecular approaches for a research in cancer cell differentiation, proliferation and invast coagulation system and immune reaction (especially on macrophage will be shown. In the field of Laboratory Medicine, a modern technique and method for the detection of gene mu shown and be discussed. In the field of Diagnostic Radiology, detailed implication of CT and MRI images and their application researchers will be presented.  In the field of Isotope Science, principles of RI tracer methods that are able to detect RI distribution assay as well as in animals including human body will be presented.  Details for Individual Classes  No. Date  Details for Individual Classes  Theme of Course  T	a, Yamashita							
Type of Class								
Type of Class  Lecture  PowerPoint files will be used for giving the lectures, and active participation in the discussion is en Extra classes or video lectures will be considered for those who are regularly absent for unavoidab Course Goals  The lecture series "Current Theory of Medical Diagnosis" afford fundamental and current gener modern medical diagnostic techniques and their application in practical medicine and medical research and their application in practical medicine and medical research for disease diagnosis.  In the field of Pathology, current morphology and its application for cancer diagnosis will be introc addition, molecular approaches for a research in cancer cell differentiation, proliferation and invast coagulation system and immune reaction (especially on macrophage) will be shown. In the field of Laboratory Medicine, a modern technique and method for the detection of gene mu shown and be discussed. In the field of Diagnostic Radiology, detailed implication of CT and MRI images and their application researchers will be presented.  In the field of Sotope Science, principles of RI tracer methods that are able to detect RI distribution assay as well as in animals including human body will be presented.  Details for Individual Classes  No. Date Theme of Course Brief Outline of Course  1 02/07 4th period Ito T (Pathol Exp Med) [eJ-L] Tumor diagnosis with immunohistochemi 2 02/10 4th period Ito T (Pathol Exp Med) [eJ-L] Molecular pathological diagnosis.  3 02/14 4th period Mikami Y (Pathol Diagnosis) Institutional Classes (Pathological pathological pathological pathological diagnosis.  4 02/17 4th period Immuna T (Mol Pathol) [eJ-O] Cross-talk between inflammatory and immand the blood coagulation system.  5 02/21 4th period Takeya M (Cell Pathol) [eJ-O] Protease virulence activities and the medical coagulation system.  6 02/24 4th period Takeya M (Cell Pathol) [eJ-O] Protease virulence activities and the medical coagulation of the protease of the protein coagulation of the protein coagulation of t								
Teaching Method  PowerPoint files will be used for giving the lectures, and active participation in the discussion is en Extra classes or video lectures will be considered for those who are regularly absent for unavoidab  The lecture series "Current Theory of Medical Diagnosis" afford fundamental and current gener modern medical diagnostic techniques and their application in practical medicine and medical resultance and their application in practical medicine and medical resultance and their application in practical medicine and medical resultance.  This course has been projected for the achievement of knowledge regarding the cutting-edge advator disease diagnosis.  In the field of Pathology, current morphology and its application for cancer diagnosis will be introcaddition, molecular approaches for a research in cancer cell differentiation, proliferation and invatico addition, molecular approaches for a research in cancer cell differentiation, proliferation and invatico addition, molecular approaches for a research in cancer cell differentiation, proliferation and invatico addition, molecular approaches for a research in cancer cell differentiation, proliferation and invatico addition, molecular approaches for a research in cancer cell differentiation, proliferation and invatico addition, molecular approaches for a research in cancer cell differentiation, proliferation and invatico against and their application and their development. In the field of Isotopach and their application of CT and MRI images and their application of CT and MRI images and their application and their app								
Course Goals  The lecture series "Current Theory of Medical Diagnosis" afford fundamental and current general modern medical diagnostic techniques and their application in practical medicine and medical restriction in practical medicine and method for the detection addition, molecular approaches for a research in cancer cell differentiation, proliferation and invasional decidence and invasional method for the detection of gene mushown and be discussed. In the field of Liaboratory Medicine, a modern technique and method for the detection of gene mushown and be discussed. In the field of Diagnostic Radiology, detailed implication of CT and MRI images and their application researchers will be presented.  In the field of Diagnostic Radiology, detailed implication of CT and MRI images and their application researchers will be presented.  Details for Individual Classes  No. Date Them of Course Brief Outline of Course  Them of Course Brief Outline of Course  1 02/07 4th period Ito T (Pathol Exp Med) [e]-L] Tumor diagnosis with immunohistochemi assay as well as in animals including human body will be presented.  3 02/14 4th period Ito T (Pathol Exp Med) [e]-L] Molecular pathological diagnosis.  4 02/17 4th period Mikami Y (Pathol Diagnosis) Histopathologic approach to diagnosis of interpretation of morphology.  4 02/17 4th period Immuna T (Mol Pathol) [e]-0] Protease virulence activities and the medical endocretic proteins and the medical endocretic proteins and the medical endocretic proteins and prospect of clinical diagnosis of the protein and prospect of clinical	Lecture							
Course Achievement Targets  This course has been projected for the achievement of knowledge regarding the cutting-edge adv. for disease diagnosis.  In the field of Pathology, current morphology and its application for cancer diagnosis will be introc addition, molecular approaches for a research in cancer cell differentiation, proliferation and invast coagulation system and immune reaction (especially on macrophage) will be shown. In the field of Laboratory Medicine, a modern technique and method for the detection of gene mu shown and be discussed. In the field of Diagnostic Radiology, detailed implication of CT and MRI images and their application assay as well as in animals including human body will be presented. In the field of Isotope Science, principles of RI tracer methods that are able to detect RI distribution assay as well as in animals including human body will be presented.  No. Date  Theme of Course  Details for Individual Classes  No. Date  Theme of Course  Theme of Course  In 02/07 4th period Ito T (Pathol Exp Med) [eJ-L]  Value of Course  Theme of Course  Ath period Mikami Y (Pathol Diagnosis)  Histopathologic approach to diagnostic or logic for interpretation of morphology.  4 02/17 4th period Imamura T (Mol Pathol) [eJ-0]  Cross-talk between inflammatory and immand the blood coagulation system.  5 02/21 4th period Imamura T (Mol Pathol) [eJ-0]  Protease virulence activities and the medical and the properties of t	PowerPoint files will be used for giving the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures will be considered for those who are regularly absent for unavoidable reasons.							
Dutline   Outline   Outl	l views of earch.							
Addition, molecular approaches for a research in cancer cell differentiation, proliferation and invasicoagulation system and immune reaction (especially on macrophage) will be shown. In the field of Laboratory Medicine, a modern technique and method for the detection of gene mushown and be discussed. In the field of Diagnostic Radiology, detailed implication of CT and MRI images and their application researchers will be presented. In the field of Isotope Science, principles of RI tracer methods that are able to detect RI distribution assay as well as in animals including human body will be presented.  **Details for Individual Classes**  No. Date Theme of Course Brief Outline of Course 1 02/07 4th period Ito T (Pathol Exp Med) [eJ-L] Tumor diagnosis with immunohistocheming 2 02/10 4th period Ito T (Pathol Exp Med) [eJ-L] Molecular pathological diagnosis.  3 02/14 4th period Mikami Y (Pathol Diagnosis) Histopathologic approach to diagnostic ologic for interpretation of morphology.  4 02/17 4th period Immunar T (Mol Pathol) [eJ-0] Cross-talk between inflammatory and immand the blood coagulation system.  5 02/21 4th period Immunar T (Mol Pathol) [eJ-0] Protease virulence activities and the medical formula in the properties of the properti	nced method							
No.DateTheme of CourseBrief Outline of Course102/074th periodIto T (Pathol Exp Med)[eJ-L]Tumor diagnosis with immunohistochemi202/104th periodIto T (Pathol Exp Med)[eJ-L]Molecular pathological diagnosis.302/144th periodMikami Y (Pathol Diagnosis)Histopathologic approach to diagnostic ologic for interpretation of morphology.402/174th periodImamura T (Mol Pathol)[eJ-0]Cross-talk between inflammatory and immand the blood coagulation system.502/214th periodImamura T (Mol Pathol)[eJ-0]Protease virulence activities and the median mand the blood coagulation system.602/244th periodTakeya M (Cell Pathol)[eJ-0]Role of macrophages in huma diseases.702/284th periodTakeya M (Cell Pathol)[eJ-0]Methods for macrophage researches.803/034th periodMatsui (Laboratory Medicine)[eJ-0]Application of next generation sequencin diagnosis903/074th periodMatsui H (Laboratory Medicine)[eJ-0]Practice and prospect of clinical diagnost1003/104th periodJono H (Clin Pharm Sci)[eJ-0]Pathophysiological analyses with cell biol methods.	ion, blood ations will be n for							
1 02/07 4th period Ito T (Pathol Exp Med) [eJ-L] Tumor diagnosis with immunohistochemi 2 02/10 4th period Ito T (Pathol Exp Med) [eJ-L] Molecular pathological diagnosis. 3 02/14 4th period Mikami Y (Pathol Diagnosis) Histopathologic approach to diagnostic o logic for interpretation of morphology. 4 02/17 4th period Imamura T (Mol Pathol) [eJ-0] Cross-talk between inflammatory and immand the blood coagulation system. 5 02/21 4th period Imamura T (Mol Pathol) [eJ-0] Protease virulence activities and the medical diagnosis of the period Takeya M (Cell Pathol) [eJ-0] [eE-0] Role of macrophages in huma diseases. 6 02/28 4th period Takeya M (Cell Pathol) [eJ-0] [eE-0] Methods for macrophage researches. 8 03/03 4th period Matsui (Laboratory Medicine) [eJ-0] Application of next generation sequencin diagnosis 9 03/07 4th period Matsui H (Laboratory Medicine) [eJ-0] Practice and prospect of clinical diagnost Pathophysiological analyses with cell biol methods.								
2 02/10 4th period Ito T (Pathol Exp Med) [eJ-L] Molecular pathological diagnosis.  3 02/14 4th period Mikami Y (Pathol Diagnosis) Histopathologic approach to diagnostic ologic for interpretation of morphology.  4 02/17 4th period Imamura T (Mol Pathol) [eJ-0] Cross-talk between inflammatory and immand the blood coagulation system.  5 02/21 4th period Imamura T (Mol Pathol) [eJ-0] Protease virulence activities and the medical								
3 02/14 4th period Mikami Y (Pathol Diagnosis) Histopathologic approach to diagnostic or logic for interpretation of morphology.  4 02/17 4th period Imamura T (Mol Pathol) [eJ-0] Cross-talk between inflammatory and immand the blood coagulation system.  5 02/21 4th period Imamura T (Mol Pathol) [eJ-0] Protease virulence activities and the medical me	try.							
10   10   10   10   10   10   10   10								
4th period Illiamura T (Mol Pathol) [eJ-0] and the blood coagulation system.  5 02/21 4th period Imamura T (Mol Pathol) [eJ-0] Protease virulence activities and the medical formula to the period Takeya M (Cell Pathol) [eJ-0] [eE-0] Role of macrophages in huma diseases.  7 02/28 4th period Takeya M (Cell Pathol) [eJ-0] [eE-0] Methods for macrophage researches.  8 03/03 4th period Matsui (Laboratory Medicine) [eJ-0] Application of next generation sequencing diagnosis.  9 03/07 4th period Matsui H (Laboratory Medicine) [eJ-0] Practice and prospect of clinical diagnosts.  10 03/10 4th period Jono H (Clin Pharm Sci) [eJ-0] Pathophysiological analyses with cell biol methods.	ıcology: a							
6 02/24 4th period Takeya M (Cell Pathol) [eJ-0] [eE-0] Role of macrophages in huma diseases. 7 02/28 4th period Takeya M (Cell Pathol) [eJ-0] [eE-0] Methods for macrophage researches. 8 03/03 4th period Matsui (Laboratory Medicine) [eJ-0] Application of next generation sequencin diagnosis 9 03/07 4th period Matsui H (Laboratory Medicine) [eJ-0] Practice and prospect of clinical diagnost 10 03/10 4th period Jono H (Clin Pharm Sci) [eJ-0] Pathophysiological analyses with cell biol methods.	une reactions							
7 02/28 4th period Takeya M (Cell Pathol) [eJ-0] [eE-0] Methods for macrophage researches.  8 03/03 4th period Matsui (Laboratory Medicine) [eJ-0] Application of next generation sequencin diagnosis  9 03/07 4th period Matsui H (Laboratory Medicine) [eJ-0] Practice and prospect of clinical diagnost  10 03/10 4th period Jono H (Clin Pharm Sci) [eJ-0] Pathophysiological analyses with cell biol methods.	anisms.							
8 03/03 4th period Matsui (Laboratory Medicine) [eJ-0] Application of next generation sequencin diagnosis 9 03/07 4th period Matsui H (Laboratory Medicine ) [eJ-0] Practice and prospect of clinical diagnost 10 03/10 4th period Jono H (Clin Pharm Sci) [eJ-0] Pathophysiological analyses with cell biol methods.								
9 03/07 4th period Matsui H (Laboratory Medicine ) [eJ-0] diagnosis  9 03/07 4th period Matsui H (Laboratory Medicine ) [eJ-0] Practice and prospect of clinical diagnost  10 03/10 4th period Jono H (Clin Pharm Sci) [eJ-0] Pathophysiological analyses with cell biol methods.								
10 03/10 4th period Jono H (Clin Pharm Sci) [eJ-0] Pathophysiological analyses with cell biol methods.								
methods.								
	gical							
11 03/14 4th period Yamashita (Diag Radiolo) [eJ-0] Radiological images of representative disc								
12 03/17 4th period Yamashita Y (Diag Radiolo) [eJ-0] Application of radiological diagnosis for re	searches							
13 03/21 4th period Kojima A (RI Sci) [eJ-L] RI tracer methods: basics and application radioisotope measurements.	of							
14 03/24 4th period Kojima A (RI Sci) [eJ-L] RI molecular imaging								
15 03/28 4th period Matsui H (Laboratory Medicine ) Makeup class for students who did not at classes	end previous							
Textbooks/Materials								
Reading List								
Enrollment Prerequisites								
Assessment Methods and Criteria  Grading will be based on active class participation, paper summaries and the final reports. Even if in this course is very poor or none, the students can obtain credits for this course through e-learni are prepared in some classes, or a supplemental class. Grading will be based on the student's undirection the course subject matter. The students' understanding will be evaluated on the basis of papers ar related to the topics and be scored from 0 to 100.	g system that erstanding of							
Language of Instruction Instruction in Japanese + Japanese Textbook	Instruction in Japanese + Japanese Textbook							

Class numbering So		Semester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period				
C	code	2016whole year	Graduate School of Medical		2, 3, 4	2	other				
		Cou	Sciences(20110)  Course name(Theme)								
			,	Instructor SASAKI Yutaka, In Hironobu, INOMATA Yukihii							
	Advanced	Therapeutics(Adva	nced therapeutics for a variety of diseases)		YUMOTO Eiji, Etou Masatoshi, Kourogi Hirotsugu						
Goals with their ratio											
Under construction ···· 100%											
T	eaching Styl	e 講義・演	講義・演習								
C	Class method		PowerPoint will be used in the lectures, and active participation in the discussion is encouraged.								
CI	lass objectiv	the relati therapeu rationale introduce artificial	Basic concept of molecular targeting and clinical application using antibody, peptide will be reviewed. Because the relation between immune disorders and pathogenesis has been revealed, immune modulation serve as a therapeutic strategy for viral infectious diseases, auto-immune diseases, and cancer. This course provides a rationale, current evaluation and problems of immune-modulation therapy. On the other hand, this course will introduce the basic research and progress to the establishment of organ transplantation, cell transplantation and artificial organs, and also focus on the current efficacy and limitations. In addition, progress in endoscopic treatments will be reviewed. Future therapeutic strategies wil be also discussed.								
	Goals	compreh and artifi	To understand a rationale, current evaluation and problems of immune-modulation therapy. In addition, to comprehend the basic research and progress to the establishment of organ transplantation, cell transplantation and artificial organs, and also to know the current efficacy and limitations. Finally, progress in endoscopic treatments will be recognized.								
(	Class outline	diseases, carcinog has been modulati and artifi endosco	Recent advances in molecular biology and medical engineering provide a new era in the treatment of various diseases. In this regard, the molecules, which play central roles in the pathogenesis of chronic inflammation and carcinogenesis, have been identified, leading to the development of molecular targeting therapies. In addition, it has been described how immune systems of the body contribute to pathogenesis of diseases, and immune-modulation has been employed in the clinical setting. Furthermore, organ transplantation, cell transplantation and artificial organs have been introduced to complement organ failures. On the other hand, progresses in endoscopic machinery have established endoscopic treatment, and serve as less invasive treatments. This course will focus on progress in treatments and future orientation of medicine.								
	Each Summary										
No.	Date	,	Theme		Summary						
1	02/0	7 5th perio	d Yutaka Sasaki 【eJ-0】	Progr disea:	ress in endoscopic treatment of gastrointestinal						
2	02/1	0 5th perio	d Yutaka Sasaki 【eJ-0】	Mole	cular target	therapy in gas	trointestinal diseases				
3	02/1	4 5th perio	d Yutaka Sasaki 【eJ-0】	Immu	ıne disorde	rs in gastrointe	stinal & hepatic diseases				
4	02/1	7 5th perio	d Hirotsugu Kohrogi 【eJ-0】	Progr diseas	gress in diagnosis and treatment of respiratory eases						
5	02/2	1 5th perio	d Hirotsugu Kohrogi 【eJ-0】	Topic	opics of allergic respiratory diseases						
6	02/2	4 5th perio	d Hirotsugu Kohrogi 【eJ-0】	Topic	opics of diagnosis and treatment of lung canc						
7	02/2	8 5th perio	d Ryosei Minoda 【eJ-0】	Progr	ess in diag	ment of dysphagia					
8	03/0	3 5th perio	d Ryosei Minoda 【eJ-0】	Coch	lear implar	ent for deafness					
9	03/0	7 5th perio	d Ryosei Minoda 【eJ-0】	Endo	scopic trea	and neck diseases					
10	03/1	0 5th perio	d Yukihiro Inomata 【eJ-0】	Organ transplantation; the past and			t and the present				
11	03/1	4 5th perio	d Yukihiro Inomata 【eJ-0】	Liver	transplanta	ation; basis and	l clinical application				
12	03/1	7 5th perio	d Yoshiaki Kawano 【eJ-0】	Curre	ent therapeutic strategy for urogen		r urogenital cancers				
13	03/2	1 5th perio	d Yoshiaki Kawano 【eJ-0】	Endo	scopic treatments for ur		ary diseases				
14	03/2	4 5th perio	d Hironobu Ihn 【eJ-0】	Mole	cular mechanisms of autoin		mmune diseases in skin				
15	03/28 5th period Hironobu Ihn Immune disorders in skin d						ses				
Required Textbooks											
	Reading list	2) Carith	1) Molecular Cell Biology, sixth edition, by Lodish H, et al. W.H.Freeman, 2008 2) Carithers RL Jr. Liver transplantation. American Association for the Study of Liver Diseases. Liver Transpl 2000 Jan;6 (1):122-35.								
Information concerning enrollment											
Assessment methods and criteria/ratios  Grading will be based on active class participation, understanding, paper summaries, and the final repstudents' understanding will be evaluated on the basis of papers and quizzes related to the topics deal class to be scored from 0 to 100.  Final grades will be based on the average score of the papers and quizzes as well as participation in classical discussions.						the topics dealt with in					
Langu	lage of instru	iction lecture in	Japanese + Japanese textbook								

Class numbering code Se		Seme	ester	Course belonging/Cours	se code	Year/Grade		Credit	Day,Period		
		2016whc	ole year	Graduate School of Me Sciences(20120)	edical	1,	2, 3, 4	2	other		
			Course	name(Theme)				Instr	uctor		
М	letabolic and	l Circulatory	tory Regulations(Metabolic and Circulatory Regulations)			ARAKI Eiichi, Yamamoto Tatsuo, Mukouyama Masashi, Gotou Tomomi, Oike Yuuichi, Kaikita Kouichi, Hokimoto Seiji					
Goals with their ratio											
Under	construction	n · · · · 100%	6								
Т	eaching Styl	e 講	講義								
(	Class method		PowerPoint and/or OHP will be used in the lectures, and active participation in the discussion is encouraged. Extra classes or video lectures are considered for those who are regularly absent for unavoidable reasons.								
Class objectives			Aim of this course is to learn following items, 1. the pathogenesis of acute coronary syndrome (ACS) and related factors, 2. the significance of personalized medicine by stratification of patients with ACS by evaluating genetic and environmental factors, 3. the pathogenesis of diabetes mellitus and diabetic vascular complications, and its therapeutic strategy, 4. the molecular mechanism of effects or secretion of insulin, 5. the molecular mechanism and therapeutic strategy for metabolic syndrome and the development of obesity, 6. the relation between the progression of atherosclerosis or obesity, and inflammatory cells, 7. the physiological renal function, the functional differentiation and regulation in each segment of nephron, 8. the pathogenesis of major renal diseases and the underlining mechanisms causing the pathological conditions, 9. influence and the mechanism of the operative stress to the metabolism and circulation, and therapeutic strategy for controlling these influences.								
Goals			Students should be able to explain followings;  1. Platelet activation, and the coagulation and fibrinolytic biomarkers in acute coronary syndrome.  2. Basic mechanism of myocardial ischemia/reperfusion injury and cardiac remodeling.  3. Personalized medicine by stratification of patients with acute coronary syndrome by evaluating genetic and environmental factors.  4. Pathogenic mechanism of diabetes mellitus, diabetic complications. Insulin acrion and secretion.  5. Molecular mechanism and therapeutic strategy for metabolic syndrome and the development of obesity as the major pathogenesis of atherosclerosis  6. Detailed molecular structure, channels and receptors, and the regulation of nephron.  7. Functional renal changes to the renal blood flow and blood pressure, and the pathogenic mechanism of proteinuria and renal dysfunction.  8. Various influences by operative stress to the metabolism and circulation, and therapeutic strategy in based on understanding these influences.								
Class outline			1. Platelet activation, and the coagulation and fibrinolytic biomarkers in acute coronary syndrome. 2. Basic mechanism of myocardial ischemia/reperfusion injury and cardiac remodeling in experimental acute myocardial infarction. 3. Personalized medicine by stratification of patients with acute coronary syndrome by evaluating genetic and environmental factors. 4. Pathogenic mechanism of diabetes mellitus, diabetic complications, effects and secretion defect of insulin. 5. Molecular mechanism and therapeutic strategy for metabolic syndrome and the development of obesity, as the major pathogenesis of atherosclerosis. 6. Detailed molecular structure, channels and receptors, and the regulation of nephron. 7. Functional renal changes to the renal blood flow and blood pressure, and the pathogenic mechanism of proteinuria and renal dysfunction. 8. Various influences by operative stress to the metabolism and circulation, and therapeutic strategy in based on understanding these influences.								
NI -	Data		Each Summary				Cump mag up /				
No.	Date		d February	Theme		NAI-		Summary			
2	10/1		•	od Koichi Kaikita 【eE-0】 od Seiji Hokimoto			nalized me	<u>-                                      </u>	cine by genetic and environmental		
3	10/2	8 Fr	ri. 5th peri	od Hisao Ogawa 【eE-0】		Platelet activation, coagulation an coronary syndrome.			and fiblinolysis in acute		
4	11/0	4 Fr	ri. 5th peri	od Tatsuo Yamamoto		Types and influe			ve stress.		
5	11/1			od Tomomi Gotoh 【eE-0,eJ-0】	1	NO and nitroger		n metabolism disorders.			
6	11/1			od Eiichi Araki 【eE-0】				action –their molecular basis.			
7	11/2		· ·	od Eiichi Araki 【eE-0】		1		rations and their therapeutic			
8	12/0	2 Fr	ri. 5th peri	od Tatsuo Yamamoto		Physiological me stress.		echanism of influences by operative			
9	12/0	9 Fr	ri. 5th peri	od Tatsuo Yamamoto		Thera	peutic stra	tegy controlling	g operative stress.		
10	12/1	6 Fr	ri. 5th peri	od Yushi Nakayama 【eE-0】		Struc	ture and fu	nction of neph	ron.		
11	01/0	6 Fr	ri. 5th peri	od Masashi Mukoyama 【eE-0】		Sodium handling		g by the kidney.			
12	01/1	3 Fr	ri. 5th peri	od Masataka Adachi		Potas	sium handl	ing by the kidn	ey.		
13	01/2	0 Fr	ri. 5th peri	od Eiichi Araki		Patho	genesis an	d therapies in r	metabolic disorder.		
14	01/2	7 Fr	ri. 5th peri	od Tomomi Gotoh 【eE-0,eJ-0】		ER sti	ess-relatec	l diseases.			
15	02/0	3 Fr	ri. 5th peri	od Yuichi Oike		Mole	cular patho	genesis of life-	style diseases.		
Req	uired Textbo			re not specified, and handouts							
	Reading list	Sa "	'Braunwald aunders Pr 'Miller's A 'Brenner &	d's Heart Disease: A Text of C ess, Philadelphia, 2007. Anesthesia, sixth edition" edit Rector's The Kidney 10th ec	ardiovascular ed by Miller F lition, Elsevier	Medi RD. Els 7, 2016	cine, Eight evier Churc S	edition" edite	d by Libby P et al. e, Philadelphia, 2005.		

Information concerning enrollment	
Assessment methods and criteria/ratios	Grading will be based on active class participation, paper summaries, and the final report. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100. Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions
Language of instruction	lecture in English + English textbook

Class r	numbering code	Sei	mester	Course belonging/Course code	Year/Grade	Credit	Day,Period
		2016v	vhole year	Graduate School of Medical Sciences(20130)	1, 2, 3, 4	2	other
			Course	name(Theme)		Instru	ctor
		Repro	ductive and	Developmental Medicine()			KATABUCHI Hidetaka, SUBUCHI Hiroshi,
				Goals with their ratio	<u> </u>		
Under	constructio	n ····10	0%				
Т	eaching Styl	le	講義				
(	Class method	d					
C	lass objectiv	es	knowledge to and during	of "Reproductive and developmental med for physiology and pathology of human ferti pregnancy, and social issues related to thes f development and growth of man. (4) Basic eases.	lization and pregn e interventions. (3	ancy. (2) Medic 3) Basic knowled	al interventions before ge for physiology and
	Goals						
	Class outline	e	medicine. T physiology of placenta is a aspect of the including in embryos, cr The class fo conditions of course is no supported by	ill introduce the most recent and important he lecture related to pregnancy and deliver of reproductive system. Maturation of eggs another important factor for normal develop e reproductive system, and social and ethic vitro fertilization, ICSI (Intra Cytoplasmic Syopreservation of sperm will be discussed r neonatal medicine, we introduce principa of this period. The participant will learn mar irmal development of brain function during by surrounding environment of children which affect healthy development of children	y will discuss med is the important stoment of fetus. We cal problems. The operm Injection), or I physiology of new different disorduchildhood. The noch included social	ical and social is ep for fertilization of the fertilization of the will discuss biouse thical problems ocyte donation, who or infants are of the informal development.	ssues in addition to the on, and function of logical and medical s of assisted fertilization cryopreservation of ad various pathological mportant topic of this ent of young brain is
				Each Summary	,		
No.	Date	e		Theme		Summar	у
1	10/1	3	5th Period.	Kimitoshi Nakamura	Inborn errors of	metabolism	
2	10/2	20	5th Period.	Yasuhiro Indo 【eE-L】	Molecular Gene	tics of Congenita	al Insensitivity to Pain
3	10/2	27	5th Period.	Tadashi Matsubasa	Medical aspects Disabilities	of Severe Moto	r and Intellectual
4	11/1	0	5th Period.	Kimitoshi Nakamura	Eerly didgnosis	of disorders for d	children
5	11/1	7	5th Period.	Yasuhiro Indo			ion and Emotion: tivity to Pain with
6	11/2	24	5th Period.	Takashi Ohba	Pathogenesis, tra labor	eatments and pr	revention of preterm
7	12/0	)1	5th Period.	Kimitoshi Nakamura	Metabolic syndr	ome in childhoo	d
8	12/0	8	5th Period.	Hidetaka Katabuchi 【eJ-0】	Placental physio	logy and pathol	ogy
9	12/1	5	5th Period.	Ritsuo Honda	Disorders of sex	•	
10	12/2	22	5th Period.	Makoto Matsukura 【eE-0】	Developmental I Diagnosis and it	Disorder - Proble s Resolution -	ems in Medical
11	01/1	2	5th Period.	Takashi Ohba	prenatal diagnos	sis and ethics	
12	01/1	9	5th Period.	Yoshinori Okamura	Assisted reprodu	uction update	
13	01/2	26	5th Period.	Masanori Iwai	Recent neonatal neonatal hypoxi	intensive care a c ischemic brain	anf new strategies for injury
14	02/0	)2	5th Period.	Shiro Matsumoto	Pathophysiologi metabolism with	cal investigation iPS method.	for Inborn error of
15	02/0	)9	5th Period.	Hiroshi Mitsubuchi	Congenital abno	rmalities and ge	enetic counseling
Req	uired Textbo	ooks					
	Reading list						
Inforn	nation conce enrollment	erning					
Assessment methods and criteria/ratios							
Language of instruction			lecture in Ja	panese + Japanese textbook			

	numbering code	Semester	Course belonging/Course code	Ye	ear/Grade	Credit	Day,Period	
	2016whole year		Graduate School of Medical Sciences(20140)		1, 2, 3, 4	2	other	
		Cours	e name(Theme)		Instructor			
		Advances in	Oncologic Medicine()		Suzuk		KI Norie, BABA Hideo, MA Hideki	
			Goals with their rati	0				
Under	constructio	n · · · · 100%						
Т	eaching Styl	e 講義						
(	Class method	d PowerPoin video lectu	t will be used in the lectures, and active tres are considered for those who are reg	participat gularly abs	ion in the dis sent for unav	scussion is enc oidable reason	ouraged. Extra classes or is.	
Cl	lass objectiv	es To understoncology a	and advances in oncologic medicine, thi s follows:	s course s	serves evidei	nces and recen	t findings of medical	
	Goals	To underst oncology a surgery; (3	and advances in oncologic medicine, thi is follows: (1) Overview of tumor biology ) Recent advances in oral and maxillofac	s course s and gene ial surger	serves evider tics; (2) Rece y; (4) Recent	nces and recen ent advances in advances in th	t findings of medical gastroenterological oracic surgery	
	Class outline	some of le related ger diagnostic Many peop gastrointes	e overviews landmark findings in mechar ading-edge research and our data. We fo nes, cell cycle, cell death, cell differential tools, genome, transcriptome and prote ole suffer from gastroenterological cance stinal stromal tumor). We explain not only ge treatment for refractory or metastatic,	cus on fo tion; thera omics; can rs (esopha y standara	llowing topic apeutic agen ncer stem ce ageal, gastric d treatment f	es: molecular m ts based on tur III. c, colon, pancre or gastroentero	echanisms of tumor- mor biology; molecular eas, liver, billiary tract and blogical cancer but also	
			Each Summary					
No.	Date	e	Theme			Summa	ıry	
1	10/1	1 (Tue) 4th բ	period Norie Araki [eJ-0]	Tun	nor Genetics	and biology (ir	ntroduction)	
2	10/1	8 (Tue) 4th	period Norie Araki [eJ-0]	Tum	nor Genetics	and biology 1		
3	10/2	.5 (Tue) 4th	period Norie Araki (eJ-0)	Tum	nor Genetics	or Genetics and biology 2		
4	11/0	1 (Tue) 4th	period Hideo Baba [eJ-0]	Gas	Gastroenterological surgery (introduction)			
5	11/0	(Tue) 4th	period Hideo Baba 【eE-0】	Gas	troenterolog	ical surgery 1		
6	11/1	5 (Tue) 4th	period Hideo Baba [eJ-0]	Gas	Gastroenterological surgery 2			
7	11/2	.2 (Tue) 4th	period Hideo Baba 【eE-0】	Gas	troenterolog	ical surgery 3		
8	11/2	.9 (Tue) 4th	period Hideo Baba 【eE-0】	Gas	troenterolog	ical surgery 4		
9	12/0	(Tue) 4th	period Hideo Baba 【eE-0】	Gas	troenterolog	ical surgery 5		
10	12/1	3 (Tue) 4th	period Hideki Nakayama [eJ-0]	Ora	l and maxillo	facial tumors		
11	12/2	.0 (Tue) 4th	period Hideki Nakayama [eJ-0]	Diag	gnosis and tr	eatment of ora	l cancer	
12	01/1	0 (Tue) 4th	period Hideki Nakayama [eJ-0]	Cha	llenges in or	al cancer treati	ment	
13	01/1	7 (Tue) 4th	period Makoto Suzuki 【eE-0】	Tho	racic surgery	/ (introduction)		
14	01/2	.4 (Tue) 4th	period Makoto Suzuki [eJ-0]	Lun	g cancer			
15	01/3	(Tue) 4th	period Makoto Suzuki 【eE-0】	Мес	distinal tumo	r		
Req	uired Textbo		are not specified.					
	Reading list		"Natural obsessions:The search for the oncogene" by Angier. N, Houghton Mifflin Co, 1988. "Cancer: principles & practice of oncology, 7th ed" by DeVita VT, Lippincott Williams & Wilkins.2004 "The biology of cancer" by Weinberg RA Garland Science, 2007. "Clinical Oncology." by Abeloff MD, Churchill Livingstone, "ACS surgery: principles and practice" by Wilmore DW, WebMD. "Thoracic Surgery, 2nd edition" by Pearson FG, Churchill Livingstone, 2002					
	mation conce enrollment	<u> </u>						
	ment metho criteria/ratio		II be based on active class participation,	paper sui	mmaries,and	final report.		
Langu	uage of instru	uction lecture in .	apanese + Japanese textbook					

(	numbering code	Semester	Course belonging/Course code	Year	r/Grade	Credit	Day,Period
	2016who		Graduate School of Medical Sciences(20150)	1,	2, 3, 4	2	other
		Course	e name(Theme)		Instructor		
		The Forefront	of Clinical Oncology()		OYA Natsuo, MATSUNO Naofumi, MITSUYA Hiroaki, NAKAMURA Hideo, KATABUCHI Hideta MURAKAMI Ryuji, YONEMURA Yuji, TASHIRO Hironori, OKUNO Yutaka, IWASE Hirotaka		
			Goals with their ratio				
Inder	construction	1 · · · · 100%					
Т	eaching Style	講義					
(	Class method	those who	will be usually used in the lectures. Video are regularly absent for unavoidable reaso	ns.			
C	lass objective	In Lecture S techniques oncology, (	Series "Riron": C6 The Forefront of Clini in the most advanced clinical oncology, ir 3) gynecological oncology, (4) neurooncol	cal Oncol ncluding ( logy, (5) h	ogy II, you 1) radiatio ematologi	learn basic conc n oncology, (2) b cal oncology.	cepts and novel preast and endocrine
	Goals	You learn b oncology, ( oncology.	asic concepts and novel techniques in the 2) breast and endocrine oncology, (3) gyno	e most adv ecologica	vanced clir I oncology	nical oncology, ir r, (4) neurooncolo	ncluding (1) radiation ogy, (5) hematological
	Class outline	techniques surgery, che gynecologie brathythera of neuroon	front of radiation oncology, especially the is lectured. (2) The forefront of breast and emotherapy, and molecular target therapy cal oncology, especially the recent developy, external beam radiotherapy and chem cology is explained especially regarding the hematological oncology is lectured especial.	d endocring for breas pment and loradiother le molecu	ne oncolog It cancer and Id therapeu Brapy for u Ilar biology	gy is lectured, esp nd thyroid cance atic modalities, is terine cervical ca o in malignant bra	pecially regarding r. (3) The forefront of explained, including ancer. (4) The forefront ain tumors. (5) The
			Each Summary				
No.	Date		Theme			Summary	/
1	10/1	1 5th period	Natsuo Oya 【eJ-0】	• "R	adiation bi	iology and physic	es"
2	10/18	6th period	Natsuo Oya 【eJ-0】	• "Si raidot	tereotactic herapy"	radiotherapy an	d intensity-modulated
3	10/2	5 5th period	Ryuji Murakami 【eJ-0】	· "In radiot	nage-guide herapy"	ed radiotherapy a	and adaptive
4	11/0	1 5th period	Hirotaka Iwase 【eJ-0】	· "B	iological fe	eatures of breast	cancer"
5	11/08	3 5th period	Hirotaka Iwase 【eJ-0】	• "P	aradigm sh	nift in breast cand	cer treatment"
6	11/1	5 5th period	Hirotaka lwase 【eJ-0】			arget therapy for	
7	11/2:	2 5th period	Hidetaka Katabuchi 【eJ-0】		<u> </u>	3, 0, 0	cal malignancies"
8	11/29	5th period	Hironori Tashiro 【eJ-0】	• "Tı	reatment o	of gynecological r	malignancies"
9	12/0	5 5th period	Hironori Tashiro 【eJ-0】				e cervical cancer"
10	12/1:	3 5th period	Hideo Nakamura 【eJ-0】	· "c	haracter o	f brain tumor"	
11	12/20	5th period	Hideo Nakamura 【eJ-0】	· "B	rain tumor	diagnosis"	
12	01/10	5th period	Hideo Nakamura 【eJ-0】	· "B	rain tumor	therapy"	
	01/1	7 5th period	Naofumi Matsuno	"Н	ematologi	cal oncology I - le	eukocytes"
13	01/0	5th period	Yutaka Okuno	"Н	ematologic	cal oncology II - I	ymphocytes"
13 14	01/2			- "			
	01/2	1 5th period	Yuji Yonemura 【eJ-0】	H	ematologi	cai oncology iii -	erythrocytes"
14 15			Yuji Yonemura 【eJ-0】 are not specified. Handouts may be distrib				erythrocytes"
14 15	01/3		·				erythrocytes"
14 15 Req	01/3 juired Textbo	oks Textbooks	·				erythrocytes"
14 15 Req Inform	01/3 Juired Textbo Reading list mation conce	rning  Grading wil or the final students' uu class to be	·	aper summent's unde	maries, erstanding	of the course sub	oject matter. The

	numbering code	Semester	Course belonging/C	Course code	Yea	r/Grade	Credit	Day,Period
		2016whole yea	Graduate School o Sciences(20		1,	2, 3, 4	2	other
		Cou	rse name(Theme)				Instr	uctor
	Restorative Medicine()					Hiroshi	, Haga Yoshio, kamura Eiichi,	ohara Hidenobu, Mizuta Takahashi Takeshi, Ide Kawano Hiroaki, Okamoto en
			Goals	with their ratio				
	construction							
Т	eaching Styl							
(	Class method	PowerPo Extra cla	int and/or OHP will be used i sses or video lectures are cor	in the lectures, and nsidered for those	d active who ar	e participa e regularly	tion in the disc absent for una	ussion is encouraged. voidable reasons.
CI	lass objectiv	medical whole-br cardiova body sur regenera	ctives of this course are for y- care; (2) factors required to in ain function occurs, and risk scular diseases and their surg face blood flow distribution to tive medical techniques; (5) owledge required to plan out	mprove the resusci factors for coronal gical treatment; (4) between anatomica disorders of bone a	itation ry synd ) the m al locat and joi	rate, the m lrome; (3) t echanisms tions, and p int function	nechanisms by the latest know of skin wound plastic surgery	which irreversible loss of ledge regarding healing, differences in procedures and
	Goals	you want	mmended for you to review tl to ask any questions to the l res by using e-learning conte	ecturers, "Office H	als dis lour" is	tributed in available f	the lectures ar or you. It is also	nd your notebooks well. If o recommended to review
	Class outline	support With con results a intensive also furtl the basic induces methods which ne and valvu Although a patient knowled studiesd	ass, the current situation and ind vital function. Ind vital function. It in the field of the field of the field care, and in order to the field of the field care, and in order to the field of field	if medicine, critical as also improved did contribute the in ROSC (return of specerebral ischemia with even when the will provide lectur progress of surgical and joints are rare lain the theory of sectures regarding the discuss reconst	I care r ramation iternation ontane during hearth res regal treat ely dire skin wo the pro-	medicine h cally. We w onal guide cous circula resuscitati beat is rest arding risk ments for h ectly life-th gress mad	as produced a rill explain the beline for the resistion), we will per the resistion on, as well as the resistion of the control of the reatening concept and the lates in the area of	steady flow of successful basics of emergency and uscitation techniques and provide lectures regard to he processes by which ifically examine the te coronary syndrome, chemic heart diseases, litions, they greatly affect to molecular biological skin flaps through
				ch Summary				
No.	Date		Theme				Summa	ry
1	10/1	<del></del>	d Hironobu Ihn 【eE-0】		Woun	d healing		
2	10/1	9 4th perio	d Hironobu lhn 【eJ-0】		Flap			
3	10/2	6 4th perio	d Hironobu Ihn 【eJ-0】		Micro	surgery		
4	11/0	2 4th perio	d Junji Ide 【eJ-0】		Joint i	reconstruc	tion	
5	11/0	9 4th perio	d Hiroshi Mizuta [eJ-0]		<u> </u>		neration of arti	cular cartilage
6	11/1	6 4th perio	d Eiichi Nakamura 【eJ-0	]	Recor	nstruction (	of bone	
7	11/3	0 4th perio	d Takeshi Takahashi 【eJ	-0]	Clinic Medic		h in Emergency	and Critical Care
8	12/0	7 4th perio	d Kamohara Hidenobu 【	eJ-0]	Impor	tant factor	s in the succes	s for resuscitation
9	12/1	4 4th perio	d Kamohara Hidenobu 【	eJ-0]	Diagn	osis of bra	in death and th	ne denervated organs
10	12/2	1 4th perio	d Hiroaki Kawano [eJ-0]		Risk fa differe		cute coronary	syndrome and gender
11	01/1	1 4th perio	d Okamoto Ken 【eJ-0】		Sugic	al treatmer	nt of heart failu	re
12	01/1	8 4th perio	d Okamoto Ken 【eJ-0】		Surgio	cal treatme	nt of ischemic	heart disease
13	01/2	5 4th perio	d Okamoto Ken 【eE-0】		Surge	ry of valvu	ar heart diseas	e
14	02/0	1 4th perio	d Yoshio Haga 【eJ-0,eE-	0]	Estab	lishment o	f hypothesis an	d study design
15	02/0	8 4th perio	d Yoshio Haga 【eJ-0,eE-	0]	How t	o analyze	clinical data	
Req	uired Textbo	oks Textbool	s are not specified, and hand	douts will be distrik	buted.			
	Reading list							
	nation conce enrollment	erning						
Assessment methods and criteria/ratios		ds and on the st the basis of the pa	Grading will be based on active class participation, paper summaries, and the final report. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers dealt with in class to be scored from 0 to 100. Final grades will be based on the average score of the papers as well as participation in class discussions.					
Langu	ıage of instru	iction   lecture in	Japanese + Japanese textbo	ook				

	numbering code	Sei	mester	Course belongir	ng/Course code	Yea	ar/Grade	Credit	Day,Period
		2016v	vhole year	Graduate Scho Sciences		1,	2, 3, 4	2	other
			Course	name(Theme)				Instr	uctor
		Cano	cer therapeu	tics(Cancer therapeuti	cs)	BABA Hideo, Suzuki Makoto, In Hironobu, INOMATA Yukihiro, OYA Natsuo, SASAKI Yutaka, MITSUYA Hiroaki, MIZUTA Hiroshi, Kourogi Hirotsugu, KATABUCHI Hidetaka, NAKAYAMA Hideki, IWASE Hirotaka, MINODA Ryosei, KAWANO Yoshiaki, NAKAMURA Hidec			OYA Natsuo, SASAKI oaki, MIZUTA Hiroshi, ATABUCHI Hidetaka, ASF Hirotaka, MINODA
				Go	oals with their ratio				
Under	construction	n · · · · 10	0%						
Т	eaching Styl	е	講義						
(	Class method	d	utilize powe	ture pattern that attac or point,OHP. In additi oplementary lecture, ir	on, we deal with a stu	dent a	nd the mer	nber of society	orm of the class], we student of the distant
Cl	lass objectiv	es	radiotherap directions of leading-edg respiratory neoplasia (6	y, chemotherapy and i f cancer therapy. Furth e medical treatment fo tract tumor (3) brain ar	mmunotherapy and the nermore, the aims of the or various types of can nd nervous system nec nor (7) genitourinary s	ne hist ne cur cer as oplasm system	orical chan rent lecture follows: (1) n (4) head a tumor (8) s	ge, standard tre e are to underst ) gastroenterolo ind neck tumor gynecological ti	and thoroughly the ogical tumor (2) (5) otolarygological umor (9) orthopaedic and
	Goals		and immund To understagastroenter tumor (5) of	otherapy and the histo nd thoroughly the lead ological tumor (2) resp olarygological neoplas	rical change, standard ding-edge medical trea iratory tract tumor (3) sia (6) breast endocrin	l treati atmen brain e tum	ment and fu t for various and nervou or (7) genit	uture directions s types of cancous us system neop ourinary system	
,	Class outline	÷	The aims of current lecture are to understand the up-to date treatment for the various types of cancer in addito standard cancer therapy such as surgery, radiotherapy, chemotherapy and immunotherapy. In late years a guideline is devised every each organ, and maintain the balance of therapy is planned about the cancer. A number of clinical trials are promoted to attempt the standardization of the cancer therapy. You can learn hot the standard treatments are confirmed from the results of various clinical trials.				erapy. In late years a bout the cancer A		
					Each Summary				
No.	Date	е		Theme				Summa	ry
1	02/0	16	(Mon)5th pe	eriod Yutaka Sasaki	[eJ-0]	Medi	cal treatme	nt of the gastro	intestinal cancer
2	02/1	3	(Thu) 5th pe	eriod Hideo Baba 🏻 🕻	eJ-0]	Surgi	cal cure of	the digestive ca	ancer
3	02/1	6	(Mon)5th pe	eriod Hirotsugu Kohro	gi [eJ-0]	Medi	cal treatme	nt of the lung c	ancer
4	02/1	7	(Fri) 6th pe	eriod Makoto Suzuki	[eJ-0]	Surgi	cal treatme	nt of the lung o	ancer
5	02/2	20	(Mon)5th po	eriod Hideki Nakayam	a [eJ-0]	The l	ecture will l al applicati otherapy, a	on of surgery, r	on the effectiveness and
6	02/2	:3	(Thu) 5th pe	eriod Ryosei Minoda	[eJ-0]	The t	reatment o	f the head and	neck cancer
7	02/2	.7	(Mon)5th pe	eriod Hiroshi Mizuta	[eJ-0]	The t	reatment o	f the bone soft	part tumor
8	03/0	12	(Thu) 5th pe	eriod Hirotaka Iwase	[eJ-0]	Treat	ment of bre	east cancer	
9	03/0	16	(Mon)5th pe	eriod Hidetaka Katabu	ichi [eJ-0]	The t	reatment o	f the gynecolog	ic malignant tumor
10	03/0	19	(Thu) 5th pe	eriod Yoshiaki Kawanc	eJ-0]	The t	reatment o	f genitourinary	cancers
11	03/1	3	(Mon)5th pe	eriod Hironobu Ihn	[eJ-0]	Skin	cancer ther	ару	
12	03/1		(Thu) 5th pe	eriod Yukihiro Inomata	a [eJ-0]	Pedia	tric Solid C	Cancer Therapy	
13	03/2	:3	(Mon)5th pe	eriod Hideo Nakamura	a [eJ-0]	The t	reatment o	f the brain tum	or
14	03/2	.7	(Thu) 5th pe	eriod Yutaka Okuno	[eJ-0]	The t	reatment o	f the hematopo	ietic tumor
15	03/3	0	(Thu) 5th pe	eriod Natsuo Oya 【e	eJ-0]	Radio	otherapy of	the cancer	
Req	uired Textbo	ooks	We distribu	e in particular the prir	nt which we summarize	ed the	point of th	e lecture in wit	hout appointing it.
	Reading list		<ul><li>Cancer</li><li>Clinical</li><li>Cancer</li></ul>	linical oncology principles & practice o Oncology, M.D.Abelof Medicine, Holland-Fre uideline	f. J.O. Armitage, J.E.Nie	ederhi	uber.M.B.Ka	astan.W.G.McK	oincott Willams &Wilkins enna, Elsevier Garland Science
Inforn	nation conce enrollment	erning							
Assessment methods and criteria/ratios			understand shown at be students' ur class to be	ing finished.Grading w	natter which we raised vill be based on the stu aluated on the basis of inal grades will be bas	I to the udent' of pape	e [the aim o s understar ers and quiz	of the class] by inding of the couzzes related to	reports about a theme urse subject matter. The the topics dealt with in
Langu	uage of instru	uction	lecture in Ja	panese + Japanese te	xtbook				

Cours	e Coding	Year an	d Semester	Faculty Offering Course		Eligible dent Year	Credits	Weekday and Period		
		2016v	whole year	Graduate School of Medical Sciences(20180)	1,	, 2, 3, 4	2	others		
	Course Title(Theme)						Instructor(s)			
			Pali	ative Care()			Yamamo	to Tatsuo		
				Goals with their ratio						
Under	constructio	n · · · · 10	0%							
٦	Гуре of Clas	S	Lecture							
Te	aching Meth	iod	Using e-lea	rning system in Web site of Japan Society of	Clinic	al Oncolog	у			
(	Course Goal	S	Most clinica may challen competence	Most clinical professionals have been affected by caring for patients with palliative care needs. Such patients may challenge us at both a professional and at a personal level in areas where we feel our confidence or competence are challenged. This course serves as introductory for Palliative care medicine.						
Cou	rse Achiever Targets	ment								
	Outline		In order to understand the principle of palliative care medicine, we discussed the followings: (1) oncology, (2) symptom management, (3) emotional issues in palliative medicine, (4) culture and spiritual aspects of palliative medicine, (5) contribution of palliative medicine of allied health professions.							
				Details for Individual Classes	S					
No.	Date	Э		Theme of Course			Brief Outline o	of Course		
1										
Text	books/Mate	rials	not specifie	d						
	Reading List			book of Paliative medicine. 3rd. Edited by D dbook of Palliative care. Edited by Watson						
Enrolli	ment Prereq	uisites								
Assess	Assessment Methods and Criteria									
Langu	iage of Instri	uction	Instruction i	n Japanese + Japanese Textbook						

Class	numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
		2016	whole year	Graduate School of Medical Sciences(20190)	1	, 2, 3, 4	2	other
			Course	e name(Theme)			Instr	uctor
	The Theory of Clinical Research()					Iwase Hiro Saitou Hi	deyuki, Hamad	Yasuhiro, Usuku Koichiro, a Akinobu, Tamura Kenji, o, Baba Hideo,
				Goals with their ratio				-,
Under	construction	n · · · · 10	0%					
Т	eaching Styl	е	講義					
(	Class method	d l		will be usually used in the lectures. Video lare regularly absent for unavoidable reason:		s or e-learni	ng programs m	ay be considered for
С	lass objectiv	es	bioethics a evidence ba breast cand	Series, C10 The Theory of Clinical Research background systematically and learn treatn ased medicine, especially in hematological der, Furthermore, you learn the basics for ne oment of new drugs based on the data of cli	nent to malign w treat	be based o ancies, gast tments base	n a characteris ric cancer, live ed on clinical tr	tic of the biology, as r cancer, lung cancer and anslational researches,
	Goals		Epidemiolo of anti-tum	nend the fundamental knowledge of clinica gical background of clinical trials, Personali or agents, Tanslational research, Clinical tria cer, and Clinical trials on breast cancer.	zed ch	emotheran	/ Pharmacokin	etics/Pharmacodynamics
Class outline			1) Bioethics problem of special con responsibili 2) You learn chemothera 3) You learn evidence ba cancer, cold	res consist as follows; s; the clinical research that assumed bioeth the ethical issues specialized in the method sideration, the ethic guideline attentive reaty of the researcher.  In basically, epidemiological background of appy based on pharmacogenomics information about the biochemical characters and the ased medicine) in various kinds of cancers, prectal cancer, liver cancer, and breast cancets of the molecular biology will be discussed.	ding of clinical on, and treatm such as cer. In a	of the clinic the clinical trials, design personalizhents based s hematolog	al study, a stuc study, conside gn of clinical tri ed therapy bas on evidence o gical malignanc	ly participant needing rration about the social als, personalized ed on tumor biology. f the clinical trials (EBM; ies, lung cancer, gastric
				Each Summary				
No.	Date	<u> </u>		Theme	Т		Summa	nrv
1	10/1		5th period.	Kadooka Yasuhiro, eJ-O	Histo	orv of bioeth	nics for clinical	•
2	10/2			Kadooka Yasuhiro, eJ-O	+			for clinical trials
3	10/3	1	5th period,	Kadooka Yasuhiro, eJ-O	Topi	cs of bioeth	ics for clinical	research
4	11/0	7	5th period,	Usuku Koichiro, eJ-O, eE-O	Epid	emiological	background of	f clinical trials
5	11/1	4	5th period,	Hideyuki Saito, eJ-O			emotherapy ba nics information	
6	11/2	:1	5th period,	Akinobu Hamada, eEJ-L	Phar agen		cs/Pharmacody	ynamics of anti- tumor
7	11/2	8	5th period,	Kenji Tamura, eEJ-O	Phar agen		cs/Pharmacody	ynamics of anti- tumor
8	12/0	5	5th period,	Hirotaka Iwase, eEJ-O	Desi	gn and Asse	essment of clini	cal trailas
9	12/1	2	5th period,	Makoto Suzuki, eE-O	Clini	cal trials on	lung cancer (1	)
10	12/1	9	5th period,	Makoto Suzuki, eE-O	Clini	cal trials on	lung cancer (2	2)
11	12/2	.6	5th period,	Hideo Baba, eE-O	Clini	cal trials on	gastric cancer	
12	01/1	6	5th period,	Hideo Baba, eE-O	Clini	cal trials on	colorectal can	cer
13	01/2	3	5th period,	Hideo Baba, eE-O	Clini	cal trials on	hepatic cell ca	arcinoma
14	01/3		5th period,	Hirotaka lwase, eEJ-O	Clini	cal Trials or	n breast cancer	(1)
15	01/3	0	6th period,	Hirotaka Iwase, eEJ-O	Clini	cal Trials or	n breast cancer	(2)
Req	uired Textbo	ooks	Response C	et al. Revised recommendations of the Inte riteria, Treatment Outcomes, and Reportin Clin Oncol. 2003 Dec 15;21(24):4642-9.	rnatior g Stanc	nal Working dards for Th	Group for Diag erapeutic Trial	gnosis, Standardization of s in Acute Myeloid
	Reading list							
Inforr	nation conce enrollment	erning						
	Assessment methods and criteria/ratios		understand shown at be students' un class to be	We evaluate the attendance situation to a lecture, lecturing questions and answers and the lecture understanding degree about the matter which we raised to the [the aim of the class] by reports about a theme shown at being finished. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of papers and quizzes related to the topics dealt with in class to be scored from 0 to 100. Final grades will be based on the average score of the papers and quizzes as well as participation in class discussions.				
Langu	uage of instru	uction	lecture in Ja	apanese + Japanese textbook				

## Academic Year 2016, D1 Medical & Life Science Seminar

•Place: Lecture room 2,

Medical Education & Library Building 3F.

•Time & Date: From 17:30 (Usually on Wednesday)

No	Schedule	Talker	Title	Affiliation	Inviter
1.	April 22 <sup>nd</sup> (FRI) 17:00~	Ichiro KURANE	Dengue fever and dengue hemorrhagic fever: understanding of the pathogenesis and protective mechanisms	Director, National Institute of Infectious Diseases	AIDS Research I
2.	May 11 <sup>th</sup> (WED)	Akiko HAYASHI	Visualization of the morphology of spine and its application for innovative drug development	Professor, Institute of Molecular and Cellular Regulation, Gunma University	Molecular Physiology
3.	May 25 <sup>th</sup> (WED)	Masahiko NISHIYAMA	Cancer treatment and care: The path towards further progress	Professor, Gunma University Graduate School of Medicine, Department of Molecular Pharmacology & Oncology	Obstetrics & Gynecology
4.	June 1 <sup>st</sup> (WED)	Michisuke YUZAKI	Emerging roles of the C1q complement family: link between the brain and immune system	Professor, Department of Physiology, Keio University School of Medicine	AIDS Research Ⅲ
5.	June 15 <sup>th</sup> (WED)	Tsukasa SEYA	Development of priming adjuvant for vaccine immunotherapy	Professor, Graduate School of Medicine, Hokkaido University	Immunology
6.	July 22 <sup>nd</sup> (FRI) 18:30~	Itoshi NIKAIDO	Single-cell transcriptome analysis for realization of effective regenerative medicine	Unit Leader, Bioinformatics Research Unit, RIKEN Advanced Center for Computing and Communication	IRCMS— I
7.	September 7 <sup>th</sup> (WED)	Nobuhiko YAMAMOTO	Activity-dependent neuronal circuit formation in the developing cortex	Professor, Osaka University, Graduate School of Frontier Biosciences	Sensory & Cognitive Physiology
8.	October	Takehiko OGAWA	In vitro spermatogenesis	Professor, Laboratory of Proteomics, Institute of Molecular Medicine and Life Science, Yokohama City University Association of Medical Science	Pathology & Experimental Medicine
9.	November 9 <sup>th</sup> (WED)	Keizo TOMONAGA	Bornavirus: a new direction of RNA virus research	Professor, Department of Viral Oncology, Institute for Virus Research, Kyoto University	Microbiology
10.	November	Teizo YOSHIMURA	The role of chemoattractants in inflammation and cancer	Associate Professor, Department of Pathology & Experimental Medicine, Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University	Cell Pathology
11.	January 20 <sup>th</sup> (FRI)	Toshiya MURAI	Social cognition in neuropsychiatric disorders	Professor, Kyoto University, Graduate School of Medicine	Neuropsychiatry
12.	Preparing	Tetsuo NODA	Present and future perspective of cancer research.	Cancer Institute, Director	Gastroenterological Surgery
13.	Preparing	Kenshi HAYASHIDA	Basic knowledge of biostatistics for clinical research	The Chemo-Sero-Therapeutic Research Institute, Clinical Development Department, Development Coordination Division, Managing Specialist (Biostatistician)	

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

(http://www.medphas.kumamoto-u.ac.jp/medgrad/keijiban/seminar.html)

## Academic Year 2016, D2 Learning from Experienced Doctors Seminar

•Place: Lecture room 2,

Medical Education & Library Building 3F.

•Time & Date: From 17:30 (Usually on Wednesday)

No	Schedule	Talker	Title	Affiliation	Inviter
1.	May 18 <sup>th</sup> (WED)	Manabu YOSHIMURA	Current trend of Medical Education; from hospital to community	Professor and Chair, Department of Community and General Medicine, Faculty of Medicine University of Miyazaki	AIDS Research III
2.	June 29 <sup>th</sup> (WED)	Yuzuru KANAKURA	Diagnosis and treatment of hematopoietic stem cell	Professor, Department of Hematology and Oncology, Osaka University Graduate School of Medicine	Medical Biochemistry
3.	July 1 <sup>st</sup> (FRI)	Hiroyoshi NISHIKAWA	New cancer immunotherapy by controlling regulatory T-cells	Professor, Department of Immunology, Graduate School of Medicine, Nagoya University	Immunogenetics
4.	July 6th (WED)	Yasutoshi KOGA	Development of therapeutics agents for mitochondrial disease	Professor, Department of Pediatrics and Child Health, Kurume University School of Medicine	Molecular Physiology
5.	July 8 <sup>th</sup> (FRI)	Hiroaki KAZUI	Current state of diagnosis and treatment for idiopathic normal pressure hydrocephalus	Assistant Professor, Department of Psychiatry, Osaka University Graduate School of Medicine	Neuropsychiatry
6.	September	Naoyuki MATSUDA	Pathophysiology and Therapeutic Regulation in Severe Sepsis and Septic Shock	Professor, Emergency & Critical Care Medicine, Nagoya University graduate School of Medicine	General Medicine
7.	December 6 <sup>th</sup> (TUE) 17:30~	Kazutoshi MORI	Dynamics of function and regulation of the endoplasmic reticulum	Professor, Graduate School of Science, Kyoto University	Molecular Genetics
8.	January 11 <sup>th</sup> (WED)	Yoshiki KUDO	Functions of human placental trophoblast: physiology and pathology	Professor, Department of Obstetrics and Gynecology, Graduate School of Biomedical Sciences, Hiroshima University	Obstetrics & Gynecology
9.	February 8 <sup>th</sup> (WED)	Kiyoko KATO	Development of Endometrial Cancer Stem-like Cells Target Therapy	Professor, Department of Gynecology and Obstetrics, Graduate School of Medical Sciences, Kyushu University	Obstetrics & Gynecology
10.	Preparing	Yoko KATO	The carrier formation for doctors and international collaboration with the Japanese neurosurgery	Professor, Department of Neurosurgery, Fujita Health University Banbuntane Hotokukai Hospital	Neurosurgery
11.	Preparing	Toshiharu YAMAGUCHI	Treatment strategy for GI cancer in a high volume cancer center.	Cancer Institute Hospital, Hospital Director	Gastroenterological Surgery

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

(http://www.medphas.kumamoto-u.ac.jp/medgrad/keijiban/seminar.html)

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

### A report format of "D1: Medical and Life Science Seminar"

Write 2 essays based on 2 talks chosen from the seminar "D1: Medical and Life Science Seminar". Length of the essays should be 250-500 words. "D1: "Medical and Life Science Seminar" requires students to attend more than 15 lectures for credit before completion of their Thesis research. Send each essay to the supervisor (inviter of the talker) of the talk within one month by E-mail (not by hard copy or any other digital media). The file of the essay should be included in the E-mail both in an attached file and in the text. A carbon copy E-mail should be also sent to Medical Faculty Educational Affairs Planning Section (iyg-igaku@jimu.kumamoto-u.ac.jp). Attendance will be taken in every talk by signing your name at the entrance of the lecture room.

Graduate schools of medicine, Medical Course, (Doctor) D1"Medical and Life Science Seminar" Report

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

## A report format of "D2: Learning from Experienced Doctors Seminar"

Write 2 essays based on 2 talks chosen from the seminar "D2: Learning from Experienced Doctors Seminar". Length of the essays should be 250-500 words. "D2: Learning from Experienced Doctors Seminar" requires students to attend more than 15 lectures for credit before completion of their Thesis research. Send each essay to the supervisor (inviter of the talker) of the talk within one month by E-mail (not by hard copy or any other digital media). The file of the essay should be included in the E-mail both in an attached file and in the text. A carbon copy E-mail should be also sent to Medical Faculty Educational Affairs Planning Section (iyg-igaku@jimu.kumamoto-u.ac.jp). Attendance will be taken in every talk by signing your name at the entrance of the lecture room

Graduate schools of medicine, Medical Course, (Doctor) D2 "Learning from Experienced Doctors Seminar" Report

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

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

- 1. In the wake of realization of doctoral course lessons in the graduate school, presentations at academic meetings, such as academic conferences and lecture meetings, under the sponsorship of academic societies and universities, but not under the sponsorship of private organizations will be approved as credits.
- 2. "D3 Medicine and Life Science Training" is an elective subject in the doctoral course and up to a maximum of 2 credits can be awarded from presentations at academic conferences. (Refer to the list of lecture course/subject and credit in the syllabus.)
- 3. The criteria for credit approval are stipulated below. In addition, academic meetings that meet the above criteria such as academic conferences, lecture meetings and symposiums, will be judged by the committee of the postgraduate education.
  - 1) In international academic meetings such as conferences, meetings, and symposiums, which are held domestically and abroad, or in national conferences and study meetings, which are held domestically, attendance as a leading presenter of a poster or an oral presentation as the first author of the abstract will be approved for a maximum of 2 credits.
  - 2) In local academic meetings, such as conferences, lecture meetings and seminars, leading a poster or oral presentation as the first author of the abstract will be approved for a maximum of 1 credit.

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

- 4. How to apply for credits and the process of approving credits (The stipulations of this matter and the necessary forms are published on the website for the Graduate School of Medical Sciences and can be downloaded from the website).
  - 1) Graduate students should record and submit the necessary information. Record in the prescribed application form (Refer to Format 1) the names of academic meetings, the term of the meetings and reports. Submit the written form to the Educational Affairs Planning Section (Ext. 5029) with 1) a certificate of participation (a copy is acceptable), 2) a copy of the program in which the presentation is published in and 3) a copy of the abstract that the student has published as a leading presenter. In principle, submit the forms within the same academic year as conference participation. The application form will be examined by the committee of the postgraduate education (generally held on every third Wednesday).
  - 2) The committee of the postgraduate education will review all submissions and calculate credit based on the detailed regulations (Attachment 1). The credits will be calculated, and when they reach 2 or more, they will be given to SOSEKI by the Educational Affairs Planning Section. Students need to view SOSEKI to check their acquired credits. If the number of credits doesn't reach 2, it will not be approved (0 credits).

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

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

- 1. Presentations at academic meetings given in 2008 by students who entered in the academic year of 2008 can be approved for credit. However, the application form and the documents that show proof of the students' presentations must be submitted within the 2008 academic year.
- 2. The relation between the term of academic meetings and the number of credits to be approved is based on the following criteria.
  - 1) The maximum credits will be given for participation in three (3) day academic meetings. "Riron" lecture-style classes, are lecture courses in a subject that consist of fifteen (15) 90-minute sessions (32.5 hours in total). These are worth 2 credits. Academic meetings are generally held from 8 a.m. to 6 p.m. It can be considered that three days participation in academic meetings is equivalent to about thirty (30) hours of study in a regular class.
  - 2) An academic meeting, which is held for half a day should be counted one sixth (1/6) of one credit. For example, one third (1/3) of the stipulated maximum credits should be given by an academic meeting held for one (1) day, a half (1/2) for one and a half (1/2) days and two thirds (2/3) for two (2) days.

#### 3) Specific examples of calculating credits:

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

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

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

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

	App	lication date:	(year/month/day)
Name:	Year	Student number:	Affiliation:
Course name (if applicable):		Phone number:	
E-mail address:			
Name of academic meeting:			
Date of meeting (y/m/d):	~	City and venue of	meeting:
Date when the applicant par	ticipated in the	meeting(y/m/d):	<b>~</b> ( days)
Presenters' names (all):			
Title of the presentation:			(circle one) oral poster
The number of credits to be	applied for app	proval	
(Refer to the detailed regular	tions in Attach	ment 1 about how to cal	culate): credits
Report about what you have	learned throug	gh participating in the ac	ademic meeting (Write 200 words or
more below.)			

Submit 1) a certificate of participation in the academic meeting (a copy is acceptable), 2) a copy of the program in which the presentation is published in, 3) a copy of the abstract that the student has published as a leading presenter in written form together with this application form to Student Affairs Section (5029). (Screening for approval of credits will be conducted in the committee of the postgraduate education, which is held on every third Wednesday.)

# Academic Year 2016, D4 Translational Research Seminar

- •Place: Lecture room 2, Medical Education & Library Building 3F.
- •Note: The date, time or place of these lectures may change due to the instructor's and lecturer's schedules. Please check our website for the latest information.

No	Schedule	Talker	Title	Affiliation	Inviter
1.	April 22 <sup>nd</sup> (FRI) 17:00~	Ichiro KURANE	Dengue fever and dengue hemorrhagic fever: understanding of the pathogenesis and protective mechanisms	Director, National Institute of Infectious Diseases	AIDS Research I
2.	May 11 <sup>th</sup> (WED)	Akiko HAYASHI	Visualization of the morphology of spine and its application for innovative drug development	Professor, Institute of Molecular and Cellular Regulation, Gunma University	Molecular Physiology
3.	May 25 <sup>th</sup> (WED)	Masahiko NISHIYAMA	Cancer treatment and care: The path towards further progress	Professor, Gunma University Graduate School of Medicine, Department of Molecular Pharmacology & Oncology	Obstetrics & Gynecology
4.	July 1 <sup>st</sup> (FRI)	Hiroyoshi NISHIKAWA	New cancer immunotherapy by controlling regulatory T-cells	Professor, Department of Immunology, Graduate School of Medicine, Nagoya University	Immunogenetics
5.	July 6 <sup>th</sup> (WED)	Yasutoshi KOGA	Development of therapeutics agents for mitochondrial disease	Professor, Department of Pediatrics and Child Health, Kurume University School of Medicine	Molecular Physiology
6.	February 8 <sup>th</sup> (WED)	Kiyoko KATO	Development of Endometrial Cancer Stem-like Cells Target Therapy	Professor, Department of Gynecology and Obstetrics, Graduate School of Medical Sciences, Kyushu University	Obstetrics & Gynecology
7.	Preparing	Tetsuo NODA	Present and future perspective of cancer research.	Cancer Institute, Director	Gastroenterological Surgery
8.	Preparing	Kenshi HAYASHIDA	Basic knowledge of biostatistics for clinical research	The Chemo-Sero-Therapeutic Research Institute, Clinical Development Department, Development Coordination Division, Managing Specialist (Biostatistician)	
9.	Preparing	Toshiharu YAMAGUCHI	Treatment strategy for GI cancer in a high volume cancer center.	Cancer Institute Hospital, Hospital Director	Gastroenterological Surgery

#### A report format of "D4: Translational Research Seminar"

This course, offered from 2014, is the subject using the selected 5 seminars of "D2 Learning from Experienced Doctors Seminar" and the selected seminars of "HIGO Business Seminar Series."

Write 1 essay based on 1 talk chosen from the seminar "D4: Translational Research Seminar". Length of the essay should be 250-500 words. "D4: Translational Research Seminar" requires students to attend more than 8 lectures for credit before completion of their Thesis research. Send the essay to Medical Faculty Educational Affairs Planning Section within one month by E-mail (not by hard copy or any other digital media). The file of the essay should be included in the E-mail both in an attached file and in the text. (iyg-igaku@jimu.kumamoto-u.ac.jp). Attendance will be taken in every talk by signing your name at the entrance of the lecture room

Graduate schools of medicine, Medical Course, (Doctor) D4" Translational Research Seminar" Report

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

# 9. Course Work subject

(Medical Experiment Course)

# Academic Year 2016 Graduate School's Medical Experiment Course

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

Date		AM		PM
	8:45 ~	Introduction to recombinant DNA technique	13:15 ~	Principle and application of polymerase chain reaction
April 5	10:15	(Molecular Genetics : Kazutoyo Terada)	14:45	(Medical Biochemistry : Sato Yoshifumi)
(Tue.)	10:30	Gene Trasfer Technique	15:00	Research Integrity
	~ 12:00	(Molecular Physiology: Wei fanyan)	<b>~</b> 16:30	(Bioethics: Yasuhiro Kadooka)
	8:45	Cell imaging and quantitative analysis	13:15	Protein Purification (General Methods)
April 6	~ 10:15	(Medical Cell Biology : Noriko Saitoh)	~ 14:45	(Molecular Cell Biology : Masatoshi Esaki)
(Wed.)	10:30	Basic science and clinical research for molecular imaging (Pathology and Experimental Medicine:	15:00	Protein for labile molecule handling  —An example:Purification of a protease
	~ 12:00	Koki Hasegawa)	<b>~</b> 16:30	(Molecular Pathology : Takahisa Imamura)
	8:45	Methods in cell biology	13:15	Analytical methods for intracellular
April 7	~ 10:15	(Molecular Pharmacology : Kazuaki Umeda)	<b>~</b> 14:45	signaling (Hematopoiesis: Shinya Suzu)
(Thu.)	10:30	Experiment study and safety control (Environmental Safety Center:	15:00	Introduction to flowcytometry
	~ 12:00	Yoshihiro Yamaguchi)	<b>~</b> 16:30	(Department of Immunology and Hematology, School of Health Sciences : Seiji Inui)
	8:45	Pharmacokinetics (Clinical Pharmaceutical Sciences:	13:15	Production of polyclonal and monoclonal antibodies
April 8	~ 10:15	Hideyuki Saito)	<b>~</b> 14:45	(Germline Development : Akira Nakamura)
(Fri.)	10:30	Basic Methods in Immunology	15:00	In situ hybridization
	~ 12:00	(Immunogenetics : Satoru Senju)	<b>~</b> 16:30	(Developmental Neurobiology : Kunimasa Ota)
	8:45	Experimental animals and animal Experimentations I	13:15	Reproductive Engineering Techniques
A muil 11	~ 10:15	(Division of Microbiology and Genetics: Daisuke Torigoe)	<b>~</b> 14:45	(Reproductive Engineering: Naomi Nakagata)
April 11 (Mon.)	10:30	Experimental animals and animal Experimentations II	15:00	Proteomics
	<b>~</b> 12:00	(Division of Microbiology and Genetics : Daisuke Torigoe)	<b>~</b> 16:30	(Tumor Genetics and Biology : Norie Araki)
	8:45	Practice and Guidance for Biological Laboratory Safety	13:15	Guidance for Living Modified Organism (LMO)
	~ 10:15	(Medical Virology: Yosuke Maeda)	<b>~</b> 14:45	(Division of Bioinformatics : Masatake Araki)
April 12 (Tue.)	10:30	Immunohistochemistry	15:00	Methods for Literature Search
	<b>~</b> 12:00	(Cell Pathology : Yoshihiro Komohara)	<b>~</b> 16:30	(Lecture Room: The 3 <sup>rd</sup> floor of General Medical Research Building) (Medical Information Science: Koichiro Usuku)

※The lectures will be given in Japanese.

# 10. Departmental Course "Practice(jissen)" I,II

#### Medical Sciences

Field	Subject	Page	Field		Subject	Page
	1 Anatomy	57		47	Gastroenterological Surgery	130
	2 Histology	58	1	48	Thoracic Surgery	132
	3 Morphological Neural Science	59	]	49	Cardiovascular Surgery	134
	4 Developmental Neurobiology	60	1	50	Breast and Endocrine Surgery	136
	5 Sensory and Cognitive Physiology	61	1	51	Pediatric Surgery and Transplantation	138,139
	6 Molecular Physiology	63	1	52	Neurosurgery	140,141
	7 Molecular Enzymology	65	1	53	Orthopaedic	142
	8 Medical Biochemistry	66	G.	54	Obstetrics and Gynecology	144,145
	9 Molecular Genetics	68	Surgery	55	Urology	146
Basic	10 Tumor Genetics and Biology	70	]	56	Ophthalmology	148
Medicine	11 Pathology and Experimental Medicine	72	1	57	Otolaryngology-Head and Neck Surgery	150,151
	12 Cell Pathology	74	1	58	Oral and Maxillofacial Surgery	152
	13 Molecular Pathology	76	1	59	Dermatology and Plastic Surgery	153
	14 Molecular Pharmacology	77	1	-	Agressology	155
	15 Pharmacology and Molecular Therapeutics	s 79	1		Anesthesiology	156
	16 Microbiology	81	1		International Medical Cooperation	157
	17 Immunology	83			`	
	18 Immunogenetics	85		63	Cellular Interactions	_
	19 Molecular Brain Science	87	1	64	Molecular Cell Biology	158
	20 Medical Oncology and Translational Research	88	1	-	Kidney Development	160
	21 Regulatory Science	_	Institute of	-	Brain Morphogenesis	162
	22 Public Health	89	Molecular	67	Cell Modulation	164
Environmental	23 Forensic Medicine	91	Embryology and	68	Cell Maintenance	166
and Socio	24 Bioethics	92	Genetics	69	Cell Differentiation	167
Medical Sciences	25 Clinical Ethics	94	1	$\vdash$	Pattern Formation	_
	26 Clinical Psychology	-	1	71	Stem Cell Biology	169
	27 Respiratory Medicine	95	1	72	Medical Cell Biology	171
	28 Cardiology	96				
	29 Endocrinology and Metabolism	98		73	AIDS Research I	172
	30 Nephrology	100	1	74	AIDS Research II	174
	31 Gastroenterology and Hepatology	102	1	75	AIDS Research III	176
	32 Hematology	104	1	76	AIDS Research IV	177
	33 Rheumatology	106	1	77	AIDS Research V	178
	34 Infectious Diseases	107	1	78	AIDS Research VI	_
	35 Neurology	108	Center for AIDS	79	AIDS Research VII	180
Internal Medicine	36 Pediatrics	110	Research	80	AIDS Research VIII	_
and Pediatrics	37 Diagnostic Medicine	112	1	-	AIDS Research IX	181
	38 Diagnostic Radiology	114	1	82	AIDS Research X	182
	39 Radiation Oncology	116	1	83	AIDS Research XI	183
	40 Neuropsychiatry	118	1	84	AIDS Research XII	184
	41 Emergency and General Medicine	120	1	85	AIDS Research XIII	186
	42 Health Care Science	121				
	43 Clinical Chemistry and Informatics	122	Institute of Resource	86	Reproductive Engineering	187
	44 Medical Information Sciences	124	Development And	-	Bioinformatics	188
	45 Physiological Function Assessment	126	Analysis	-	Radioisotope Science	190
	46 Advanced Cardiovascular Medicine	128		-	IRCMS-I	191
	•	•	International Research	-	IRCMS-II	193
			Center for Medical Sciences	-	IRCMS-III	195
			Sciences		IRCMS-IV	_
				1		
				93	Metabolomics	197

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vhole year	Graduate School of Medical Sciences(20380)	1,	2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
"Rese	arch Co	nducting P	rogram ""Practice"" I : Anatomy()			Fukuda	Takaichi
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	⁄le	講義					
Class metho	d	lecture, di	scussion				
Class objectiv	/es	central ne	e aims to instruct students for acquirin urons and also about the experimental nicroscopy, unbiased quantitative anal	techr	ential know niques sucl	vledge about h as light mic	the morphology of roscopy, confocal laser
Goals			an explain the detailed morphological sential techniques for morphological s			ons in the ce	ntral nervous system
Class outlin	e	Morpholog that morph Department several cri- junctions, including of reconstruc-	siological function in vivo requires partigical and functional aspects are insepanological approaches still constitute that Course focuses on the tissue archite tiscal components of the system such as dendrites and spines. Students are instelectron microscopy, confocal laser scattion/analysis of the structure, and unb the representative literatures, lectures students.	rably   e essecture c cytoa ructe inning iased	related to ential part of the cen architectur d for nece g microsco morphom	each other wi of the biomed tral nervous s re, synapses, ssary experim py, computer etry (stereolo	thin the body such lical science. This ystem, particularly on neuronal gap sental techniques -based 3D- gy), through intensive
Required Textb	ooks						
Reading list	t						
Information concerning enrollment							
Assessment met and criteria/ra		of the repr	vement will be evaluated according to the sentative papers, 2) knowledge on the to deduce the appropriate conclusion the historical promite to the historical promite on the historical promite.	e prin from 1	ciples of m the obtain	najor morohol	logical techniques and

Class numbering code	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016w	hole year	Graduate School of Medical Sciences(21190)	1,	2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Resea	rch Co	nducting P	rogram "Practice"     : Anatomy()			Fukuda	Takaichi
			Goals with their ratio				
Under construction	on · · · ·	100%					
Teaching Style	е	実験					
Class method	ł	practica <b>l</b> ti	raining in the labo				
Class objective	es		e aims to instruct students for acquirin gical studies on the central nervous sys		basic and	advanced tec	hniques to execute
Goals		morpholog laser scan	an prepare histological specimens of t gical techniques such as multi-label flu ning microscopy, execute bias-free qua e conclusion.	oresce	ence immu	ınohistochem	istry and confocal
Class outline	:	techniques with the hi	re instructed for execution of the expe s. They learn to prepare high-quality sp ghest resolution, and to observe and ir results should be presented in scientific	ecime nterpr	ens for hist et the stru	tology, to ope cture for an ir	rate EM and CLSM
Required Textbo	oks						
Reading list							
Information concerning enrollment							
Assessment meth and criteria/rati		The follow morpholog	ing criteria must be satisfied: 1) acquis gy, 2) appropriate analysis of the obtair	ition o	of principa su <b>l</b> ts, 3) pu	l experimenta ublication in h	al skills for nigh-quality journal(s).

Class numbering code	Semester		Course belonging/Course code		Year/Grade		Credit	Day,Period
	2016whole ye	ar	Graduate School of Medical Sciences(20280)		1, 2, 3, 4		10	other
	Coi	ırse r	name(Theme)				Instr	uctor
Rese	arch Conductir	g Pro	ogram "Practice" I : Histology()				Wakayama	Tomohiko
			Goals with their rati	o				
Under construct	ion · · · · 100%							
Teaching Sty	le 講義							
Class metho	d Super Site ar	isor: d Fa	Tomohiko Wakayama Program Sch cilities: seminar rooms and laborate	edu ries	ıle: y at D	ear 1-4, e epartmen	very Tuesday It of Histo <b>l</b> ogy	(7th period)
Class objectiv	/es							
Goals								
Class outlin	Histology is the study of the tissues of the body for human and experimental animals. Studen learn how these tissues are arranged to constitute organs of their bodies. Spermatogenesis is complicated process to produce spermatozoa. "Staging" or the cellular association in seminiferous epithelium is required for the evaluation of spermatogenesis. The stages are defected according to morphological criteria. Histochemistry is a valuable method to determine stages spermatogenesis. Students will learn histochemistry to indicate methods for visualize the expand cellular localization of a variety of biological molecules in tissue sections. Students will lesseveral procedures to obtain the information of cellular localization based on enzymatic reactions, antigen-antibody reactions, or nucleic-acid hybridization. They should also a the function of the molecules in spermatogenesis. The results should be published as scienting papers and students will also present their data in some scientific meetings.				matogenesis is a pociation in a stages are defined etermine stages in sualize the expression Students will learn enzymatic reactions, by should also analyze			
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
Assessment methods and criteria/ratios  Students are evaluated for their course grades and credits based on the course hours cor and reports submitted. The evaluation will be done based on the following issues.  1) The ability to read the representative literatures related in the research theme.  2) The knowledge on the principles and skills of histochemical techniques.  3) The ability to analyze the obtained data.  4) The ability to explain their research theme.				·				

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21090)	1,	2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Resea	arch Co	nducting Pr	ogram "Practice" <b>II</b> : Histology()			Wakayama	Tomohiko
			Goals with their ratio				
Under construct	ion · · ·	·100%					
Teaching Sty	<b>l</b> e	講義					
Class metho	d	Supervisor Site and F	: Tomohiko Wakayama Program Sched acilities: seminar rooms and laboratori	dule: y es at l	/ear 1-4, e Departmer	very Thursday	/ (7th periods) /
Class objectiv	/es						
Goals							
Class outlin	e	They will le	vill acquire histochemical techniques to earn to prepare and observe tissue spe y. They should present obtained result	cimer	is for histo	chemistry in I	ight and electron
Required Textb	ooks						
Reading list	t						
Information conc							
Assessment methods and criteria/ratios  Students are evaluated for their course grade and reports submitted. Evaluation will be done based on the followin 1) Acquisition of histochemical techniques to variety of functional molecules in spermatoge 2) Research progression based on the data of 3) Publication in high-quality journal(s).					he express	sion and ce <b>ll</b> u	·

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vhole year	Graduate School of Medical Sciences(20400)	1,	2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research Conduc	ting Pro	gram "Prac Neu	tice" I : Morphological Neural Science(, rrogenesis)	Adult		TAMAMAI	(I Nobuaki
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le	その他					
Class metho	d	Experimen	t and discussion.				
Class objectiv	es/es	Present researcher	search data in an international meeting 's opinion. Then, we will prepare articl	that pap	relating to er to publi	Neuroscienc sh it in a prop	e, and collect other per journal.
Goals			now to induce adult neurogenesis in the ing neuron progenitors.	e neo	cortex and	recover brain	n function by
It is well known that a significant number of neurons are continuously produced in the two si the adult mammalian brain, the hippocampal dentate gyrus and the subventricular zone of the telencephalon. The dentate gyrus produces new granule cells to code new descriptive memory day. The subventricular zone of the telencephalon produces new GABAergic neurons as a rest to the turn-over of the olfactory receptor cells in the nasal epithelium. Therefore, the adult neurogenesis might be the phenomena generally induced by the stress added on the neuron progenitors. As the results of aging, accidents, and other factors, brain suffers from hemorrhal ischemia, epilepsy, amyloid deposition, virus infection and physical damages. There pathology damage may be stress to the neocortical neuron progenitors hidden somewhere inside the contents.						cular zone of the scriptive memory every eurons as a response re, the adult on the neuron from hemorrhage, There pathological	
Required Textbo	ooks						
Reading list	t						
Information concerning enrollment Need visit professor office.							
Assessment met and criteria/ra		Assessmer	nt will base on the seminar presentation	of th	eir own re	search result	S.

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vhole year	Graduate School of Medical Sciences(21210)	1,	2, 3, 4	8	other
	Course name(Theme)						uctor
Research C	Conduct cience(	ing Progran Growth fac	n "Practice" II : Morphological Neural tor for Neuron progenitors)			TAMAMAI	(I Nobuaki
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	その他					
Class metho	d	Experimen	t and discussion				
Class objectiv	es es	Present researcher	search data in an international meeting rs opinion. Then, we will prepare article	that pape	relating to r to publis	Neuroscienc sh it in a prop	e, and co <b>ll</b> ect other er journa <b>l</b> .
Goals			tablish which growth factors stimulate was find out the location of the neuron p	which type of neuron progenitors in the neocortex. ogenitors.			
Class outline	e	Otherwise, inhibitory	of the excitatory neurons and the inhibi , brain circuit will suffer from epilepsy c neurons. In order to prepare proper nu are neuron progenitor at the same time	r dep ımber	ress becau	use of to man	y excitatory neurons or
Required Textb	ooks						
Reading list					·		
Information concerning enrollment Need visit professor office.							
Assessment met and criteria/ra		Assessmer	nt wi <b>ll</b> base on the seminar presentation	of th	eir own re	search result	

Class numbering code	Sen	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016w	hole year	Graduate School of Medical Sciences(20270)	1,	2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research Condu	ucting F	Program "Pr	actice" I : Developmental Neurobiology	<b>y</b> ()		Ohta Kı	ınimasa
			Goals with their ratio				
Under construction	on ····	100%					
Teaching Style	е	講義					
Class method	t l	PowerPoin	t will be used in the lecture				
Class objective	es		f this lecture is to assist students to lea n cell maintenance.	rn the	e molecula	r mechanism	of axon guidance and
Goals		formation	the developmental neurobiology cove but also the regulation of neural stem c al diseases including Parkinson's disea	ells, t	he develo	pment of cere	ebral cortex, clinical
Class outline		formation	on guidance, the lecture will introduce between retinal ganglion cells to the ey al cord, the motor axons to muscle in t	e field	d in the br	nechanism of ain, commiss	the neuron circuit ure axons to floor plate
Required Textbo	oks	No textboo	ok is specified but handouts summarizi	ng the	e lecture w	i <b>ll</b> be provide	d.
Reading list		Kandel et a	al., Principles of Neural Sciences, Fifth	Editio	n, 2012		
Information concerning enrollment Should have basic knowledge for biology.							
Assessment meth and criteria/rati		Grading wi topics in e	III be based on active class participation ach class.	n, pap	oer summa	ries, and the	report related to the

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period
21080	2016v	vhole year	Graduate School of Medical Sciences(21080)	1,	2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research Condu	ucting F	Program "Pr	actice" II : Developmental Neurobiolog	y()		Ohta Kı	unimasa
			Goals with their ratio				
Under constructi	on · · ·	100%					
Teaching Styl	le	実習及び実	技				
Class method	d	PowerPoir	t will be used in the lecture				
Class objective	es	The goal o	f this lecture is to learn the electropora	tion n	nethod usi	ing chick and	mouse.
Goals		Students v important	vill learn the electroporation methods a molecules functions during the develop	nd be oment	e able to p t, specifica	erform it. The ally in the ner	y wi <b>ll</b> notice how the vous system.
Class outline	)	function te	e the molecular function of your target echnique is very effective. This lecture v mouse embryos.	moled vill int	cules, the stroduce th	gain-of functi e e <b>l</b> ectropora	on and loss-of- tion method using
Required Textbo	ooks	No textboo	ok is specified.				
Reading list		Developm	ental Biology by Scott Gilbert				
Information concerning enrollment Should have basic knowledge for biology.							
Assessment metl and criteria/rat		Grading w topics in e	III be based on active class participation ach class.	n, pap	er summa	ries, and the	report related to the

Class numbering code	Semester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period
	2016whole year	Graduate School of Medical Sciences(20390)	1,	2, 3, 4 10		other
	Course			Instr	uctor	
Research Conduc	cting Program "Pra	gy()	Song We	n-Jie, Takemo Masa	oto Makoto, Nishimura ataka	
		Goals with their ratio				
Under construct	ion ····100%					
Teaching Sty	le 講義					
Class metho	d Lecture ar	nd tutorial				
Class objectiv	res neuroscie forefront	erception is a major brain function, and nce. This course will cover the backgrou of sensory neuroscience research, so to Irch project.	ınd, g	ive examp	les, and take	students to the
Goals		se aims to make students theoretically rence research.	eady t	o start his	/her own pro	ject of sensory
Class outline	e and system understan research v research,	arn in this class mechanisms of sensory m level, through reading research article ding of sensory information processing. vill be thoroughly discussed. Students a using electrophysiological or optical ap d execution of experiments, and also on	es that Mear re the proac	t have sigr nwhi <b>l</b> e, me en required hes. The s	nificantly adva thods used for to make the upervisors wi	nced our or sensory physiology ir own plan of auditory Il give advice on the
Required Textb	ooks					
Reading list	i					
Information conc enrollment	erning					
Assessment met and criteria/ra	execution research a for evalua Criteria: A 1) be high 2) have de 3) have of	successful student must ly motivated in conducting proper design eveloped skills in scientific communication otained novel findings either on neural b ms of acoustic information processing, o	retation tation gn and ion, ai	on of resence at lab mediated	arch results. Feetings, are a	Publications of Iso taken into account ents, and or on neuronal

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21200)	1,	, 2, 3, 4	8	other
		Course			Instr	uctor	
Research Conduc	ting Pro	ogram "Prac	ogy()	Song We	n-Jie, Takemo Mas	oto Makoto, Nishimura ataka	
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le	講義					
Class metho	d	Hands on	demonstrations and tutorials				
Class objectiv	/es	This cours required fo	e aims to train students to master at le or sensory neuroscience research.	ast on	e of the m	ajor techniqu	es that is currently
Goals		Students are required in this course to master 1) techniques for preparing cell/animal models for research, and 2) patch clamp recording at all configurations for investigation of ion channels and receptors, or in vivo intracellular and extracellular recording techniques for experimental analyse cellular physiology and neuronal circuit properties, or optical imaging and psychophysical techniques for experiments in auditory perception.					
Class outlin	е	neurophys chronic an configurati extracellul neuronal c	this class is for the students to acquiriology. Specifically, students are requirimal models for sensory physiology resions through investigation of ion chanrar recording techniques through expericuit properties, or 4) optical imaging ts in auditory perception.	ed to earch els ar iment	master 1) i, and 2) pa nd recepto tal analyse	techniques for atch clamp re rs, or 3) in viv s of cellular p	or preparing acute or cording at all o intracellular and hysiology and
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment methods and criteria/ratios  Methods: Students are evaluated based on the course hours completed, their experimen and techniques acquired during this course, and reports submitted for evaluation. The reassessment methods the laboratory and academic meetings.  Criteria: A successful student must 1) have gained the ability of preparing animal models, and 2) have mastered either patch-clamp recording techniques, or intracellular/extracellular techniques, or optical imaging techniques, or psychophysical techniques for addressing sensory perception.							ion. The report tion and discussion at tracellular recording

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(20250)	1,	2, 3, 4	10	other	
		Course	name(Theme)			Instr	uctor	
"Research Conducting Program ""Practice"" I : Molecular Physiology"()  Tomizawa Kazuhito								
Goals with their ratio								
Under construction · · · · 100%								
Teaching Sty	<b>l</b> e	演習						
Class metho	d	Practice w	ith mentor and seminar in the Departm	ent of	f Mo <b>l</b> ecula	r Physiology		
Class objectiv	/es	1) Proposa molecular 2) Underst 3) Logical, 4) Novel fi 5) Original molecular	If this course is that students will have to all of appropriate research projects on the mechanism on regulation of homeostation and how to investigate molecular may proper experimental design to clear the notings obtained by appropriate and proper and innovative findings that can contribute mechanism on homeostasis but also to nent of various diseases.	ne bas sis by echar e med oper a ibute	sis of unde hormone hism of the chanism of analytical a not only to	erstanding the and central n e regulation of the regulation approaches. o better unde	ervous system. f homeostasis. n of homeostasis. rstanding for	
Goals	The achievement will be evaluated according to the following criteria.  1) Proposal of appropriate research projects on the basis of understanding the background on the molecular mechanism on regulation of homeostasis by hormone and central nervous system.  2) Understanding how to investigate molecular mechanism of the regulation of homeostasis.  3) Logical/proper experimental design to clear the mechanism of the regulation of homeostasis.  4) Novel findings obtained by appropriate and proper analytical approaches.  5) Original and innovative findings that can contribute not only to better understanding for molecular mechanism on homeostasis but also to successful development of diagnosis, preventing the successful development of diagnosis, preventing the successful development of diagnosis.						ervous system.  f homeostasis.  on of homeostasis.  erstanding for	
Class outlin	and treatment of various diseases.  The aim of this Departmental Course is to learn how to propose scientific hypothesis for novel molecular mechanisms of the regulation of homeostasis. The hypothesis must then be proven experimentally. On the basis of the results obtained, further experimental design will be construted to develop a novel approach for the acknowledgement of pathophysiology of some diseases and prevention and treatment of the diseases. Specific research projects to be executed should be determined by searching latest literatures related to the molecular physiology. Research project and working hypothesis can be modified and improved depending on the progress and achieve of research. Finally, the experimental results should be reported in international scientific journ the fields of physiology, pathophysiology, molecular biology and cell biology. All instructions in processes, which are necessary to fulfill requirements for PhD thesis, are conducted in this Departmental Course.						then be proven gn will be constructed some diseases and cuted should be. Research projects gress and achievement al scientific journals in All instructions in these	
Required Textb	ooks	If needed,	you will be suitably indicated.					
Reading list	t							
Information conc enrollment		Should ha	ve basic knowledge about physiology.					
Assessment met and criteria/ra		their unde research fo interpretat	re evaluated for their course grades an rstanding and knowledge earned about or molecular physiology and pathophys tion and criticism of the results obtained and academic meetings is also taken in	t scier iology d. The	ntific inform /, and abili e presenta	mation on red ity for experir tion including	cent progress in the nental planning and	

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21060)	1,	2, 3, 4	8	other	
		Course			Instr	uctor		
Research C	onducti	ing Program	n "Practice" II : Molecular Physiology()			Tomizawa	a Kazuhito	
			Goals with their ratio					
Under construct	ion · · · ·	100%						
Teaching Sty	le	その他						
Class metho	d	Program S	r: Kazuhito Tomizawa chedule: year 1-4, every Thursday (6th acilities: Seminar room and laboratorie:	-7th p	eriods) epartment	of Molecular	· Physiology	
Class objectiv	es es	The goal of this course is that students learn the following ability; 1) culture cells and regular and protein functions in cells. 2) experimental skills to isolate pancreatic $\beta$ cells. 3) experimental techniques to image intracellular signaling such as calcium. 4) experimental techniques for physiological analyses in vivo. 5) experimental skills to investigate signal transduction such as protein phosphorylation.						
Goals		skills to cu skills to iso signaling s	vement will be evaluated according to to the latter cells and regulate gene and prote plate pancreatic $\beta$ cells . 3) Acquisition uch as calcium. 4) Acquisition of experquisition of experquisition of experimental skills to investigation.	in fun of ex iment	ictions in o perimenta :al techniq	ce <b>ll</b> s. 2) Acqui I techniques ues for physic	sition of experimental to image intracellular ological analyses in	
Class outline	e	of homeos functional of pancrea imaging, 4	this class is to acquire the techniques tasis. Specifically, students are required regulation of cultured cells using generatic $\beta$ cells and the culture, 3) optical in physiological analyses in vivo, and 5) osphorylation.	d to m trans magin	naster 1) te fection and g techniqu	echniques for d protein tran ues such as in	cell culture and isduction, 2) isolation itracellular Ca2+	
Required Textb	ooks	If needed,	you will be suitably indicated.					
Reading list								
Information concerning enrollment								
Assessment met and criteria/ra		their expe	re evaluated for their course grades an rimental skills and techniques acquired . The report assessment can be substiti on and discussion at the laboratory and	durir uted k	ng this cou by the asse	rse, and repoessment of ea	rts submitted for	

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(20260)	1,	, 2, 3, 4	10	other	
	Course name(Theme)						uctor	
Research Co	onducti	ng Program	"Practice" I : Molecular Enzymology()			NOMIYAN	IA Hisayuki	
			Goals with their ratio					
Under construct	ion · · ·	100%						
Teaching Sty	le	演習						
Class metho	d	computer	manipulation					
Class objectiv	es es	Lean comp	outer analyses of RNAseq data of chem	okine	ligands ar	nd receptors		
Goals		Acquire ca	pability of bioinformatics analyses of R	NAse	NAseq data using R language under UNIX system.			
Class outline	e	Various RN ligands an performed	NAseq data are registered in public dat d receptors are retrieved from the data	abase bases	s. In this c s, and glob	ourse, RNAse al analyses of	q data of chemokine the data are	
Required Textb	ooks							
Reading list	t							
Information concerning enrollment								
Assessment met and criteria/ra		Understan	ding of UNIX system and writing progra	ams b	y R langua	ge.		

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21070)	1,	, 2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research Co	onductii	ng Program	"Practice" II : Molecular Enzymology()			NOMIYAN	IA Hisayuki
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	実習及び実	技				
Class metho	d	experimen	ts and computer analyses				
Class objectiv	/es	Lean how	to obtain RNAseq data by experiments	and a	nalyze the	data with co	mputer
Goals		Acquire ho	ow to obtain RNA seq data by next gene mputer	ration	n sequenc	er and analyz	e vast amounts of the
Class outline	е	Obtain RN	Aseq data by experiments and analyze	the d	ata by UNI	X system	
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra			paration techniques, sample preparatio of computer analyses	n tec	hniques fo	or next genera	tion sequencer and

Class numbering code	Semester		Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016whole y	ear	Graduate School of Medical Sciences(20500)	1	, 2, 3, 4	10	other
	Co	urse	name(Theme)			Instr	uctor
Research C	onducting Pro	gran	"Practice" I : Medical Biochemistry()		Yama	igata Kazuya,	Yoshizawa Tatsuya
			Goals with their ratio				
Under construct	ion · · · · 100%						
Teaching Sty	le 講義						
Class metho	d Progr	am S	: Kazuya Yamagata, Tatsuya Yoshizaw. chedule: year 1-4, every Friday (6th pe acilities: Seminar room and laboratorie	eriod)	1edical Bio	chemistry	
Class objectiv	es to un	derst	to clarify the molecular mechanisms of and the metabolic pathways of diabete ded to propose an approach to investig	es me	llitus and n	netabolic synd	drome. They wi <b>ll</b> be
Goals	mech cellul	anisr ar bio tific n	this course is to clarify novel metabol ns of diabetes mellitus, metabolic sync ological approaches. The obtained res neeting. Students will be conducted h	lrome u <b>l</b> ts sk	or átheros nould be re	clerosis by us ported in sci	sing biochemical and entific journals and
Class outlin	e literat interp prese	ures retat ntati	will be comprehensively assessed by the to the project, ability of proposing restion of experimental results, and prese on in the scientific meeting is also takent in the PhD research.	earch ntatio	project, ac n/reports i	ccuracy of exp n the course.	periments, Research article or
Required Textb	ooks						
Reading list							
Information conc enrollment	erning						
	The a	chiev	vement will be evaluated according to	the fo	llowing cri	teria.	
Assessment methods and criteria/ratios  1) Acquisition of the latest knowledge on mechanism of glucose and lipid metabolism regular pathology of diabetes. Obtaining novel findings by appropriate and proper experimental approaches.							abolism regulation and perimental
		opme	cion of the latest knowledge on mecha ent/progression. Obtaining novel findi es.				

Class numbering code	Ser	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vhole year	Graduate School of Medical Sciences(21310)	1, 2, 3, 4		8	other
		Course	name(Theme)			Instr	uctor
Research C	onducti	ng Program	"Practice" II : Medical Biochemistry()		YAMA	GATA Kazuya	, Yoshizawa Tatsuya
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	講義					
Class metho	d	Program S	r: Kazuya Yamagata, Tatsuya Yoshizawa chedule: year 1-4, every Tuesday (6th- acilities: Seminar room and laboratorie	7th pe	eriods) Iedica <b>l</b> Bio	chemistry	
Class objectiv	/es	The aim is to clarify the molecular mechanisms of metabolic diseases. The students will be required to understand the metabolic pathways of diabetes mellitus and metabolic syndrome. They will also required to propose an approach to investigate the novel mechanisms of the diseases.					
Goals		biological metabolisr	f this practical course is to acquire vari experimental technique required for ir n regulation or cardiovascular lesion d syndrome or atherosclerosis, and for p	vestig	sating path oment/pro	ogenesis of g	lucose and lipid Iting from diabetes,
Class outline	e	experimen	vill be comprehensively assessed base tal skills and reports. Research article lly approved as a report for grades and	or pre	sentation		
Required Textb	ooks						
Reading list	t						
Information concerning enrollment							
Assessment met and criteria/ra		1) Underst experimen	vement will be evaluated according to canding and acquisition of biochemical ital methods for analysis of diabetes, m of proposing and carrying out appropri medicine.	, cellu etabo	ılar biologi Iic syndro	cal and mole me or atheros	clerosis.

Class numbering code	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016w	/hole year	Graduate School of Medical Sciences(20240)	1,	2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research	Conduc	ting Progra				Terada, Keishi Miyata, suyoshi Kadomatsu	
			Goals with their ratio				
Under construct	tion ····	100%					
Teaching Sty	/le	実習及び実	技				
Class metho	od	Program S Site and Fa rule	chedule: year 1-4, every Tuesday (3rd acilities: staff room and laboratories at	period Depa	d) rtment of N	Molecular Gei	netics, as a general
Class objectiv	ves	The aim of molecular	fthis Departmental Course is understa genetics, metabolomics, molecular cel	nding I biolo	the experi ogy and ob	mental proce taining curre	dures concerning nt information.
Goals	1) Understanding the experimental procedures concerning molecular genetics, metabolomics a molecular cell biology. 2) Proposal of appropriate research projects on the basis of understanding the background on molecular genetics, metabolomics and molecular cell biology. 3) Logical and proper experimental design to execute proposed projects. 4) Obtaining current information concerning molecular genetics, metabolomics, molecular cell biology, and furthermore original and innovative findings.						
Class outlin	e	the gene p control or experimen performed Finally, the journal. All	this Departmental Course is to learn heroducts, which are associated with me apoptosis. The hypothesis must then buts. Further experiments using correspond to examine the biological functions of experimental results should be report instructions in the above-mentioned and for PhD thesis, are conducted in the	taboli e prov nding those ed in proces	c disorder ven by in v gene-kno gene prod academic sses, which	s, stress responders, stress responders, in vivo of ckout mice with ducts in tissue meeting and are necessal	onse, protein quality r individual level ill be designed and e or whole body levels. international scientific
Required Textb	ooks						
Reading lis	t						
Information conc enrollment							
Assessment methods and criteria/ratios  Students are evaluated for their course grades and credits based on the course hours compared about scientific information on recent progress research for the fields, which are related to our Department. In addition, the ability for experimental planning, interpretation and criticism of the results obtained, are also evaluated on oral presentation, reports and so on. The scientific article, presentation at the academic meeting progress reports at the department meeting are also taken into consideration to assess the achievement in the PhD research.							ent progress in the bility for experimental ed on oral lemic meeting or

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period			
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21050)	1,	, 2, 3, 4	8	other			
Course name(Theme)					Instructor					
Research (	Conduc	ting Progra	m "Practice" II : Molecular Genetics()			ke, Kazutoyo Terada, Keishi Miyata, yoshi Endo, Tsuyoshi Kadomatsu				
Goals with their ratio										
Under construction ····100%										
Teaching Style 実習及び実技										
Class method		Program Schedule: year 1-4, every Monday (2nd period) Site and Facilities: staff room and laboratories at Department of Molecular Genetics, as a general rule								
Class objectives		The aim of this class is to acquire the techniques, using animals like mice, tissue or cultured cells, to perform experiments concerning molecular biology, molecular cell biology, biochemistry and histochemistry.								
Goals		1) Acquisition of experimental skills, using cultured cells, concerning molecular biology, molecular cell biology and biochemistry.  2) Acquisition of experimental skills, using tissue and whole body, concerning molecular biology, biochemistry and histochemistry.  3) Proposal of appropriate research projects on the basis of understanding the background on molecular genetics, metabolomics and molecular cell biology.  4) Planning and executing logical and proper experimental design to proposed projects.								
Class outline		Students are instructed to plan, and to execute experiments to clarify the biological roles of genes and their products, which are supposed to be involved in metabolic disorders, stress response, protein quality control or apoptosis.								
Required Textb	ooks									
Reading list	t									
Information conc enrollment										
Assessment methods and criteria/ratios		Students are evaluated for their course grades and credits based on the course hours completed, their experimental skills and techniques acquired during this course, and reports submitted for evaluation. The report assessment can be substituted by the assessment of each student's scientific article, presentation and discussion at the laboratory and academic meetings.								

Class numbering code	Sen	nester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period			
	2016whole year		Graduate School of Medical Sciences(20520)	1,	2, 3, 4	10	other			
		Course	name(Theme)		Instructor					
Research Cond	ducting F	Program "Practice" I : Tumor Genetics and Biology()			ARAKI Norie					
Goals with their ratio										
Under construction · · · · 100%										
Teaching Style		その他								
Class method		Program Schedule: year 1-4, every every Friday (1st-2nd period) Site and Facilities: seminar room and laboratories at Department of Tumor Genetics and Biology, Instruction in Japanese and English + Japanese and English Textbook								
Class objectives		The aim of this Departmental Course is to learn how to propose scientific hypothesis for the specific molecular mechanisms of tumor cells compared with normal cells, especially on the cell cycle, differentiation, and apoptosis.								
Goals		The aim of this Departmental Course is to learn how to propose scientific hypothesis for the specific molecular mechanisms of tumor cells compared with normal cells, especially on the cell cycle, differentiation, and apoptosis, and obtain some new findings.								
Class outline		The aim of this Departmental Course is to learn how to propose scientific hypothesis for the specific molecular mechanisms of tumor cells compared with normal cells, especially on the cell cycle, differentiation, and apoptosis. Recent scientific literatures related to the subject of tumor genetics, molecular and cellular biology will be searched and studied in detail, that is, how to proposed the hypothesis based on the back ground, create experimental evidences, and discuss and prospect on the original and innovative findings. The specific research projects demonstrated must be proven experimentally. On the basis of the results obtained, further experimental design will be constructed to develop a novel approach for understanding of tumor related diseases. Finally, the experimental results should be reported in international scientific journals in the fields of oncology, biochemistry, molecular biology, and/or cell biology, All instructions in the above-mentioned processes, which are necessary to fulfill requirements for PhD thesis, are conducted in this Departmental Course.								
Required Textbooks		"The biology of cancer" by Weinberg RA, Garland Science. "Molecular Biology of The Cell" B Albert et al, Garland Science								
Reading list										
Information concerning enrollment										
Assessment met and criteria/ra	hods tios	The achievement will be evaluated according to the following criteria.  1) Understanding how to investigate the differences of molecular mechanisms between tumor cells and normal cells, especially on the cell cycle, differentiation, and apoptosis.  2) Proposal of appropriate research projects and experimental design on own thesis subject.  3) Novel findings obtained on the abnormal cellular and molecular functions in tumor cells.  4) Proper discussion and review on the original findings obtained.  Paper publication and oral presentation on own original findings in the thesis subject with proper discussion against the questionnaires.								

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21330)	1,	2, 3, 4	8	other		
		Course	name(Theme)			Instr	uctor		
Research Cond	ducting	Program "P	ractice" <b>II</b> : Tumor Genetics and Biology	<b>′</b> ()		ARAK	l Norie		
			Goals with their ratio						
Under construct	ion · · ·	100%							
Teaching Sty	le	その他							
Class metho	d	Site and F	chedule: year 1-4, every Tuesday (6th- acilities: seminar room and laboratories n in Japanese and English + Japanese a	at De	eparťment	of Tumor Ge book	netics and Biology,		
Class objectiv	/es	biology of	f this class is to acquire the techniques tumor cells, Based on those skills, stud n for cancer research.						
Goals		students s	should obtain experimental techniques hould study cancer cell functions aimin n some new findings.	for re g at a	cent cance application	er research. E for own cand	ased on those skills, cer research subject		
Class outlin	The aim of this class is to acquire the techniques to analyze molecular mechanism and cellular biology of tumor cells. Specifically, experimental techniques to be earned in this course include establishment of experimental tumor cellular models after overexpression or knockdown of particular tumor related molecules, and comprehensive screening of tumor related cellular molecules with proteomic differential display, such as 2-Dimentional differential gel electropho with specific fluorescent dyes (2D-DIGE), nanoLC-shotgun based differential proteomics (iCAT, iTRAQ4-plex, 8-Plex) that were newly established in this department, using nano-LC tandem MS (ESI-QQTOF, ESI-QQQ, MALDI-TOF-TOF, DNA array), with the highest sensitivity, resolution, and throughput. Particular emphasis is placed also on and advanced techniques to investigate intracellular signal transduction, tumor cellular observation with time laps-confocal microscopic analysis, bioinformatics on tumor related molecules and so on, all of which will be thoroughly studied in this Departmental Course.								
Required Textb	ooks	"The biol et al, Garla	ogy of cancer" by Weinberg RA, Garla and Scinece	nd Sc	ience. "Mo	lecular Biolo	gy of The Ce <b>ll</b> " B A <b>l</b> bert		
Reading list	t								
Information conc enrollment									
Assessment met and criteria/ra		1) Acquisit tumor cell construction purification 2) Understruction 3) Execution	tion of experimental skills to analyze ce s, that is, cell culture, microscopic anal on/overexpression, siRNA/knockdown, n/indentification/sequensing, PAGE, LC tanding how to analyze the differentiall	vill be evaluated according to the following criteria. Experimental skills to analyze cellular biology, molecular biology, biochemistry of cell culture, microscopic analysis, DNA/RNA preparation, plasmid expression, siRNA/knockdown, western blotting, immuno-precipitation, protein ification/sequensing, PAGE, LC-MS- aperation, bioinformatics, etc. now to analyze the differentially expressed gene/protein in tumor cells. Perimental techniques to the proposed research projects and proper constructions on own thesis subject.					

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period			
	2016whole year	Graduate School of Medical Sciences(20590)	1,	, 2, 3, 4	10	other			
	Cours	e name(Theme)			Instr	uctor			
Research Condu	cting Program "Prac	tice" I : Pathology and Experimental Medicine	∍()		Takaa	aki Ito			
		Goals with their ratio							
Under constructio	n ····100%								
Teaching Styl	e 講義·演習								
Class method	d repeated le	ectures, discussions and experiments							
Class objectiv	es studies, ma	dying in this laboratory, students have chanc lke experimental designs, learn techniques n tific article(s) by themselves.	es to h ecessa	ave researd ary, perform	ch theme(s), thi experiments, s	nk the aims for the truggle with data, and			
Goals	their know differentia experimen discussion	Graduate students will be evaluated for their course grades and credits based on the course hours completed, their knowledge about scientific information on recent progress in the researches for proliferation and differentiation mechanisms of lung epithelial cell (or other epithelial cell system), and ability to make experimental planning and interpretation and criticism of the results obtained. The presentation including discussion at the intra-laboratory and academic meetings is also taken into consideration to assess the level of achievement in the PhD research.							
Class outline	Focusing of and chronic	n epithelial cells (especially of respiratory tra c diseases such as interstitial pneumonia wil	ict) , m I be sti	olecular me udied from	echanisms on g the pathologica	enesis of (lung) cancers Il points of view.			
		Each Summary							
No. Date	e	Theme			Summa	ry			
1		echanisms of diseases from the points of ice and pathology	Pleas	se see the a	bove mentione	d.			
Required Textbo	ooks								
Reading list									
Information concerning enrollment									
Assessment methods and criteria/ratios  The achievement will be evaluated, considering following criteria. 1) Understanding of basic scientific issu cell biology and pathology of the epithelial systems in normal or neoplastic conditions. 2) Making logical/experimental design to study mechanisms of cell proliferation and differentiation of the cell and tissue sys 3) Finding novel data obtained by appropriate analytical approaches.									
Language of instru	uction lecture in .	apanese + Japanese textbook							

Class numbering code	Sen	nester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016w	hole year	Graduate School of Medical Sciences(21400)	1	, 2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research Cond	ducting		Practice" <b>II</b> : Pathology and Experimen edicine()	:a <b>l</b>		Taka	aki Ito
			Goals with their ratio				
Under constructi	on ····	100%					
Teaching Styl	le	その他					
Class method	a	Program S	r: Takaaki Ito chedule: year 1-4, every Tuesday (1st acilities: seminar room and laboratori	·4th po es at [	eriods) Departmen	t of Pathology	and Experimental
Class objective	es	The aim of	this class is to acquire the technique	to stu	udy the abo	ove research	issues.
Goals		To execute experimen	e experimental projects, the graduate tal techniques as well as their princip	studer e, met	nts are acq thods and a	uired to be fa applications.	miliar with various
Class outline	9	experimen immunohis analyses, v	this class is to acquire the technique tal techniques to be earned in this co stochemistry and in situ hybridization various blotting methods, gene transfe thological samples.	urse ir ce <b>ll</b> a	nc <b>l</b> ude mor nd tissue c	phological te ultivation, flo	chniques including w cytometrical
Required Textbo	ooks						
Reading list							
Information conce enrollment	erning						
Assessment metl and criteria/rat	hods tios	1) Underst 2) Acquisit 3) Acquisit 4) Acquisit 5) Acquisit cell prolife	vement will be evaluated according to canding the cell and tissue morphologicion of reliable morphological techniquion of experimental skills to investigation of experimental skills to investigation of experimental techniques to progration and differentiation mechanismental the FACS analyses.	/ in no ues to e sign e tran duce	ormal and postudy of real transductions	oathological c esearch projection mechan activity.	cts. isms.

Class numbering code	Ser	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016w	/hole year	Graduate School of Medical Sciences(20510)	1,	2, 3, 4	10	other	
		Course	name(Theme)			Instr	uctor	
Researd	ch Cond	ucting Prog	gram "Practice" I : Cell Pathology()		TAKEYA	A Motohiro, K	OMOHARA Yoshihiro	
			Goals with their ratio					
Under construct	ion · · · ·	100%						
Teaching Sty	<b>l</b> e	講義						
Class metho	d	Students I	basically study at seminar room and lal	oorato	ries of De <sub>l</sub>	partment of C	Cell Pathology	
Class objectiv	/es	include promicroscop	f this class is to acquire the techniques ocessing of histopathological specime by, electron microscopy, production of odels, and various techniques of molec	ns, imi mono	munohisto clonal anti	chemical ana	lysis, confocal laser	
Goals		The aim of this class is to acquire the techniques to analyze disease process. These techniques include processing of histopathological specimens, immunohistochemical analysis, confocal lass microscopy, electron microscopy, production of monoclonal antibodies, establishment of anima disease models, and various techniques of molecular biology. Particular emphasis is placed on t techniques to evaluate macrophage functions in various pathological conditions. These include detection of macrophages in pathological tissue specimens, isolation and culture of human and animal macrophages, functional evaluation of macrophage-specific receptors, intracellular processing of phagocytosed materials, detection of cytokines produced by macrophages, and signal transduction pathway during macrophage activation. All of which will be thoroughly studied in the Departmental Course.						
Class outlin	e	induced by inflammati pathologic detailed di own resea skills for pubiology an literatures can be monthe experii pathology, processes,	If this Departmental Course is to learn ry various pathological processes includion, or tumorigenesis. For this purpose cal changes of human tissues obtained isease process of a selected disease, stock project. During their own research athological diagnosis, ultrastructural of different modernaments of the modernaments of the modernaments of the modernaments of the mental results should be reported in in a biochemistry, cell biology or molecular, which are necessary to fulfill requiremental Course.	ding m stude at bio cudent proce oserva action proje e prog ternat ar biolo	etabolic d nts will ha psy, surgic s are requ ss the stuc tion, cell c should be cts. Resear ress and ac tional scier ogy. All ins	isorders, circ ve an opportual operation ested to plan dents will lear culture, handl collected throch projects a chievement o triffic journals tructions in the	ulatory disturbances, unity to examine or autopsy. To pursuit and conduct their n the fundamental ing of animals, cell rough scientific nd working hypothesis f the research. Finally, in the fields of he above-mentioned	
Required Textb	ooks							
Reading list	t							
Information conc enrollment		ing						
Assessment met and criteria/ra		1) Ability to levels. 2) Underst 3) Ability to disease pro 4) Ability to	vement will be evaluated according to o explain and evaluate pathological chat anding of fundamental techniques to podesign the experiments to clarify cell ocess.  To propose original research data and coeld concerned.	anges perfori u <b>l</b> ar a	of tissue s m patholog nd molecu	specimens at gical experim lar pathogen	ents. esis of a selected	

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vhole year	Graduate School of Medical Sciences(21320)	1, 2, 3, 4		8	other	
		Course	name(Theme)			Instr	uctor	
Research Conducting Program "Practice" II : Cell Pathology()  TAKEYA Motohiro, KOMOHARA							OMOHARA Yoshihiro	
			Goals with their ratio					
Under construct	ion···	·100%						
Teaching Sty	/le	講義						
Class metho	d	Students b	pasically study at seminar room and lab	oratoı	ry of Dep.	of Ce <b>ll</b> Patho <b>l</b>	ogy	
Class objectiv	/es	induced by inflammati pathologic detailed di own resea skills for pubiology an literatures can be mo the experi pathology, processes, Departme	The aim of this Departmental Course is to learn morphological and functional changes of the ce induced by various pathological processes including metabolic disorders, circulatory disturbance inflammation, or tumorigenesis. For this purpose students will have an opportunity to examine pathological changes of human tissues obtained at biopsy, surgical operation or autopsy. To put detailed disease process of a selected disease, students are requested to plan and conduct their own research project. During their own research process the students will learn the fundamenta skills for pathological diagnosis, ultrastructural observation, cell culture, handling of animals, ce biology and molecular biology. Worldwide information should be collected through scientific literatures to execute their own original research projects. Research projects and working hypot can be modified and improved depending on the progress and achievement of the research. Fir the experimental results should be reported in international scientific journals in the fields of pathology, biochemistry, cell biology or molecular biology. All instructions in the above-mentior processes, which are necessary to fulfill requirements for PhD thesis, are conducted in this Departmental Course.					
Goals		microscop disease mo technique detection animal ma processing transduction	ocessing of histopathological specimer y, electron microscopy, production of a odels, and various techniques of molec is to evaluate macrophage functions in of macrophages in pathological tissue crophages, functional evaluation of mag of phagocytosed materials, detection on pathway during macrophage activated to the course.	nonoo ular b variou specir croph of cyt	clonal anti iology. Pa is patholog nens, isola iage-speci okines pro	bodies, estab rticular emph gical conditio ation and cult fic receptors, oduced by ma	lishment of animal asis is placed on the ns. These include ure of human and intracellular crophages, and signal	
Class outlin	е							
Required Textb	ooks							
Reading lis	t							
Information conc enrollment								
Assessment met and criteria/ra		1) Ability to levels. 2) Understo 3) Ability to disease produced to the diseas	vement will be evaluated according to to complete and evaluate pathological characteristics of fundamental techniques to produce the experiments to clarify cell ocess.  The propose original research data and deld concerned.	anges erfori u <b>l</b> ar ai	of tissue s m patholog nd molecu	specimens at gical experim llar pathogen	ents. esis of a selected	

Class numbering code	Ser	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(20490)	1,	2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research (	Conduct	ing Progran	m "Practice" I : Molecular Pathology()			IMAMUR <i>i</i>	A Takahisa
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	講義					
Class metho	d	Lecture an	d practice in the seminar room or exp	erimer	nt rooms o	f Molecular P	athology Lab.
Class objectiv	es/es		f analytical methods for blood coagula bles. Practice methods for protease ass				
Goals			e of analytical methods for blood coag elect proper methods for the research				cancer, acquire the
Class outlin	е	that blood defense sy analyzing i cancer cel cancer cel	od coagulation by analysis of tissues wi coagulation is induced by inflammation stem. Learn pathogenic activities of promodulation of plasma and cell function I C5a-receptor expression in patients' I C5aR-expression and progression. Ef evasion assay and animal experiments.	on and otease and cance fects of the cance fects of the cancer fec	I immune res from ba practice ter tissues a of C5a on c	eactions and cteria and leu he analysis m nd show rela cancer cell bio	contributes as a host kocytes through ethods. Investigate tionship between blogy are explored by
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra		for the stu- conference molecules analyzing l	bilities to understand and criticize boody, interpret and present the results. Pe and reports can take the place of the of blood coagulation and leukocyte fublood coagulation, protease reactions I execution, 4. acquisition of new findi	aper p repoi nctior or car	oublishing, ts. Points ns, 2. settir ncer, 3. exp	presentation for the report ng-up a prope periment plan	in the society s: 1. knowledge on er research theme for

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21300)	1,	, 2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research C	Conduct	ing Progran	n "Practice" II : Molecular Pathology()			IMAMURA	\ Takahisa
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	'le	講義					
Class metho	d	Lecture an	d practice in the seminar room or expe	erimer	nt rooms of	Molecular P	athology Lab.
Class objectiv	/es		d the relationships and interaction amon n reaction and cancer and acquire nev			n, immune re	action, b <b>l</b> ood
Goals		Practice ar handling a	nalytical methods for blood coagulation nd activity assay. Chose proper metho	n, a <b>ll</b> e ds for	rgic reaction the resear	ons and cance ch theme and	er, and protease d execute.
Class outlin	e	migration/ fluorogeni RNA and p	nimal experiments, tissue analysis meth invasion assay for leukocytes and canc c substrates, immunological methods i roteins and recombinant protein prepa al research on blood coagulation, prot	er ce nclud aratio	l <b>l</b> s, proteas ing antiboo n. Using th	e activity mea dy preparation ese methods,	asurement using n, handling of DNA, perform molecular
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra		conference method fo blood and the metho- preparatio	cills of experiment methods and report e and reports can take the place of the r model inflammation induction, 2. acg function analysis, 3. understanding the ds, 4. understanding the principal of in n and acquisition of the methods, 5. po ion of new findings on blood coagulati	repoi uisitio prina muno erform	rts. Points f on of metho cipal of pro ological me nance a pro	or the reports od for leukoc otease analysi other othe	s: 1. acquisition of the yte separation from is and acquisition of ing antibody using these methods,

Class numbering code	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016w	/hole year	Graduate School of Medical Sciences(20410)	1,	2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research Conduc	cting Pro	ogram "Prac ogram "Prac	earch	NAKAI Kik	NISHI Hiroyuk uchi Kouji, Sa	i, UMEDA KAZUAKI, kamoto Yasuhisa	
			Goals with their ratio				
Under construct	ion ····	100%					
Teaching Sty	/le						
Class metho	d		latest literatures related to research p g experiments, and reporting the expe			cting experim	ental designs,
Class objectiv	/es	cooperation	of this Departmental Course is to learn on of cytoskeletons and membranes in dhesion, mitosis, endocytosis, and pol	variou	ıs importaı		
Goals		cooperation	vement target is to understand the reg on between cytoskeleton and membra dhesion, mitosis, endocytosis, and pol	nes in	various im		
Class outlin	e	cooperation motility, and experiment molecules determined membrane achievement scientific jurabove-mental motility.	f this Departmental Course is to learn on of cytoskeletons and membranes in dhesion, mitosis, endocytosis, and polatal design will be constructed to prove regulate these cell functions. Specific dby searching latest literatures related se. Research projects can be modified ent of research. Finally, the experiment ournals in the fields of biochemistry, mitioned processes, which are necessald in this Department Course.	variou arization the mareseard to the and immedical	is importaion. On the nolecular not project e coopera proved de lits should lar biology	nt cell function basis of result nechanisms but to be execution of cytoskepending on the be reported repology.	ns, such as cell Its obtained, further y which the identified Ited should be eletons and he progress and in international All instructions in the
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Understanding the latest knowledge on the regulatory mechanism of cytoskeletons and the cooperation between cytoskeleton and membranes. 2) Novel original findings related to the regulatory mechanism of cytoskeletons and the cooperation between cytoskeleton and membranes.  3) Understanding the latest knowledge on cell motility, adhesion, mitosis, endocytosis, and polarization. 4) Logical/proper experimental design to identify molecules that regulate cytoskeletons and membranes.						related to the eton and membranes. ocytosis, and	

Class numbering code	Sen	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016w	hole year	Graduate School of Medical Sciences(21220)	1,	2, 3, 4	8	other
	Course name(Theme)						uctor
Research Co	nducting	g Program "	Practice"     : Molecular Pharmacology(	١			i, UMEDA KAZUAKI, kamoto Yasuhisa
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	講義					
Class metho	d	Conductin	g experiments and reporting the exper	iment	al results		
Class objectiv	/es	The aim of molecular	this class is to instruct several experime biology, and cell biology.	ienta <b>l</b>	technique	es, inc <b>l</b> uding b	piochemistry,
Goals		The achiev	rement target is to acquire several expe biology, and cell biology.	erimer	ntal techni	ques, inc <b>l</b> udii	ng biochemistry,
Class outlin	e	and identi 2) analysis of cytoskel	tal techniques to be earned in this cou fication of molecules that regulates the of the molecular mechanisms by whic letons and membranes; and 3) analysis mitosis, endocytosis, and polarization.	reorg h iden	ganization ntified mol	of cytoskeleť ecules regula	ons and membranes; te the reorganization
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra		1) Acquisit involved ir 2) Underst biochemic 3) Underst polarizatio	proper experimental design to identify	ods for nd me ion of gical r idhesi	or isolation mbranes. f cytoskele nethod. ion, endoc	n and identific tons and men ytosis, mitosis	nbranes by s, endocytosis, and

Class numbering code	Sen	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016w	hole year	Graduate School of Medical Sciences(20600)	1,	, 2, 3, 4	10	other
		Course			Instr	uctor	
Research Con-	ducting		Practice" I : Pharmacology and Molecul rapeutics()	ar	Mitsuya	ma Shokei, H Nobutaka, Yo	asegawa Yu, Koibuchi rinaka Houichi
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	演習					
Class metho		Program S	r: Shokei Mitsuyama, Yu Hasegawa ,Ho chedule: year 1-4, every Tuesday (6th acilities: seminar room and laboratorie ics	period	d)		
Class objectiv	/es	pharmacol	f this Course is to understand basics of logical action of various cardiovascula s and analyze data obtained by experi	drugs	s and to be	of cardiovasc e ab <b>l</b> e to prop	cular diseases and lose scientific
Goals		diseases a intracellula	se scientific hypothesis and analyze the nd pharmacological action of various of ar signaling molecules, the significance s for the analysis.	cardio	vascular dı	rugs by learni	ng about the
Class outlin		factors, ge to be exec cardiovaso learn abou	arn about the techniques for the analy ne expressions, and analysis of cardio uted should be determined by searchi cular diseases obtained by using the ab It the scientific mechanism for the ben cular drugs with different pharmacolog	/ascula ng late oove m eficial	ar functior est literatu nentioned effects of	n in vivo. Spe res related to techniques.	cific research projects the mechanism of Furthermore, you will
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment methods and criteria/ratios  Assessment methods academic meetings is also taken into consideration. Understand (1) how to analyze intracellular signaling molecules, (2) how to analyze expression, and (3) the significance of geen-engineering animals, and propose 4) a scientific adgenda to elucidate the pharmacological action of various cardiovascular diseases and 5) logical experimental design for the agenda.						nterpretation and laboratory and nalyze gene e 4) adequate	

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21410)	1,	2, 3, 4	8	other	
		Course	name(Theme)			Instr	uctor	
Research Cond	ducting	Program "P The	ar	Mitsuya 1	ma Shokei, H Nobutaka, Yo	asegawa Yu, Koibuchi rinaka Houichi		
			Goals with their ratio					
Under construct	ion · · ·	100%						
Teaching Sty	<b>l</b> e	講義						
Class metho	d	Program S	r: Shokei Mitsuyama, Yu Hasegawa, Ho chedule: year 1-4, every Tuesday (6th- acilities: seminar room and laboratorie ics	7th pe	eriods) <sup>*</sup>		•	
Class objectiv	/es	The aim of this class is learn about the molecular mechanisms of lifestyle diseases, such as hypertension, diabetes, and obesity, and cerebro-cardiovascular diseases, such as heart failure at dementia. Students will also learn in vivo and in vitro about the pharmacological action of drugs, which are already used clinically and developed, and understand the mechanisms and therapies those diseases and their future direction.						
Goals		cardiovaso pharmacol the mecha	d recent research findings about the metalar diseases including heart failure, dlogical action of the drugs for those distributes. Plan appropriate experimentale results obtained.	emen <sup>.</sup> eases	tia, and str in vivo an	oke, etc. Und d acquire tec	erstand the hniques to examine	
Class outlin	e	diseases, a provide re	amine molecular mechanisms of lifesty and dementia at the level of the intrace search guidance to examine the pharm dels of cardiovascular diseases, and ac	llular acolo	signaling r gical actio	nolecules. Fu n of cardiova	ırthermore, we will scular drugs, using	
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
Students will be evaluated based on the acquisition status of experimental techniques are The presentation including discussion at the laboratory and academic meetings is also ta consideration.  1) Understand how to administer drug in animals. 2) Plan appropriate research protocol to examine the pharmacological action of various cardiovascular drugs on cardiovascular disease models. 3) Appropriate experimental designs for the decided research agenda. 4) To find out the novel mechanism of action of cardiovascular drugs.						gs is also taken into		

Class numbering code	Semester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(20480)	1,	2, 3, 4	10	other		
	Course			Instr	uctor			
Research Conduc	ting Program "Prac Program "Prac	cting		SAWA T	omohiro			
Goals with their ratio								
Under constructi	on ····100%							
Teaching Styl	e 講義							
Class method	d Program S	։: Tomohiro Sawa,Yosuke Maeda chedule: year 1-4, every Tuesday (6th բ acilities: seminar room and laboratories	period at De	) epartment	of Microbiolo	ogy		
Class objective	The aim of mechanism	this Departmental Course is to learn hans of molecular pathogenesis of infection	ow to ous dis	propose s sease and	cientific hypo host defense	othesis for the		
Goals	mechanisr	this Departmental Course is to learn hes ns of molecular pathogenesis of infectic scientific reports in information all jou	ous dis					
Class outline	experimen of infection latest liters working hy research, the fields of All instruct	hesis must be proven experimentally. O tal design will be constructed to develous us diseases. Specific research projects of atures related to the microbial pathoge (pothesis can be modified and improve Finally, the experimental results should of microbiology, biochemistry, molecula- tions in the above-mentioned processes, are conducted in this Departmental C	op a no to be onesis a d depo l be re ar biolos, which	ovel appro executed s and host o ending on ported in ogy, cell b ch are nec	pach for prevents of the second secon	ention and treatment termined by searching arch projects and and achievement of scientific journals in or infectious diseases.		
Required Textbo	No textboo lecture.	oks are specified for this lecture series.	Some	instructo	rs may have h	andouts for the		
Reading list	BROCK Blo Internation	OLOGY OF MICROORGANISMS, 14th E nal Inc.	dition	, Michae <b>l</b>	T. Madigan e	t. al, Prentice Hall		
Information concerning enrollment								
Assessment methods and criteria/ratios  Assessment methods and criteria and cr								

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(21290)	1,	2, 3, 4	8	other		
	Cours	e name(Theme)			Instr	uctor		
Research Conduc	ting Program "Pra Program "Pra	ctice" II : Microbiology(Research Condu ctice" II : Microbiology)	cting		SAWA Tomohiro			
		Goals with their ratio						
Under construct	ion · · · · 100%							
Teaching Sty	le 演習							
Class metho	d Program	or: Sawa Tomohiro Yosuke Maeda Schedule: year 1-4, every Thursday (6th Facilities: seminar room and laboratorie:	-7th p s at De	periods) epartment	of Microbiolo	ogy		
Class objectiv	The aim bacteria	of this Jissen II is to acquire the techniquand virus during infections.	es to analyze host responses to various pathogenic					
Goals	bacteria	The aim of this Jissen II is to acquire the techniques to analyze host responses to various patho bacteria and virus during infections.  To acure experimental experimental skills related to Microbiology, Biochemistry, etc.						
Class outline	experime various s emphasis identifica and nitricharacte technique	Ily, experimental techniques to be earned in the control infection models of animals, such a signaling factors and host defense molectives is placed also on safe and proper hand a signal matter analysis of toxins, analytical material materials in the coxide (NO), proteomics/metabolomics in the control infection models with cultured cell esto investigate intracellular signal transartmental Course.	s mice ules p ling of ethods (LC-N s and	e and rats, roduced ir f various p s for reacti IS/MS etc. experimer	and cultured a cells and tis athogens (cul ve oxygen spe a), developme atal animals, a	cells, and analysis of sues. Particular lture methods etc.), ecies, free radicals, nt of well- and advanced		
Required Textbo	ooks No textb lecture.	ooks are specified for this lecture series.	Some	e instructo	rs may have h	andouts for the		
Reading list	BROCK E Internati	BIOLOGY OF MICROORGANISMS, 14th E	ditior	n, Michael	T. Madigan e	t. al, Prentice Hall		
Information conceenrollment								
Assessment met and criteria/ra	hods their exp	erimental skills and techniques acquirec	rse grades and credits based on the course hours completed ues acquired during this course, and reports submitted for an be substituted by the assessment of each student's aboratory and academic meetings.					

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(20290)	1,	2, 3, 4	10	other		
	Course	name(Theme)			Instr	uctor		
Research Conducting Program "Practice" I : Immunology(Research Conducting Program "Practice" I : Immunology)					Oshiumi	Hiroyuki		
Goals with their ratio								
Under construct	ion · · · · 100%							
Teaching Sty	le その他							
Class metho	d Practices	and experiments in laboratory of Immur	ology	/-				
Class objectiv	res immune re	f this class is to lean the roles of the pro- esponses and to conduct the research t activation of immune response causes	o reve	eal the me	chanisms of h	low malfunction or		
Goals	Goals  The achievement targets are to lean the roles of the proteins and genes involved in innate and adaptive immune responses and to conduct the research to reveal the mechanisms of how malfunction or abnormal activation of immune system causes autoimmune disorders and other human diseases.							
Class outline	Recently studies have developed the techniques controlling immune responses, and it is import to reveal underlying mechanism. Lean and discuss the previous results, and then conduct the research to reveal the underlying mechanism of immune regulation techniques. It is also import ounderstand that the immune responses are sometimes harmful to host, and thus the strict confirmation of immune system is required for clinical application of immunomodulation techniques. For this purpose, develop the human cells or knockout mice, in which the proteins and genes involved innate and adaptive immune response, are modified, and conduct the research to reveal the effort of each protein or gene defect on human diseases, including autoimmune disorder. Finally, lead how to present the results and how to write manuscripts.							
Required Textb	ooks							
Reading list	:							
Information conc enrollment								
Assessment methods and criteria/ratios  Students are evaluated based on the following points:  1) Understanding of recent knowledge and achievements of new results about the molecula mechanisms of immune responses.  2) Understanding of recent knowledge and achievements of new results about the molecula mechanisms of human diseases caused by abnormal immune response.  3) Learning of knowledge related to the research, planning of experiments, and achievement results.						the molecular		

Class numbering code	Semester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period
	2016whole year	Graduate School of Medical Sciences(21100)	1,	2, 3, 4	8	other
	Course	e name(Theme)			Instr	uctor
Research Conduc	cting Program "Pra Program "Pra	ctice"    :  mmunology(Research Conduc ctice"    :  mmunology)	ting		Oshiumi	Hiroyuki
Goals with their ratio						
Under construct	ion ····100%					
Teaching Sty	le その他					
Class metho	d Practices	and experiments in laboratory of Immur	nology	/		
Class objectives  The aim of this program is to understand the recent research of immune responses related infection, vaccine administration, autoimmune disorders, and other human diseases cause abnormal immune response. Students are guided to conduct the research of those immune responses.					eases caused by	
Goals	Goals  Understand the recent research of immune responses related to infection, vaccine administration autoimmune disorders, and other human diseases caused by abnormal immune responses.  Achievements of new results by conducting the research related to those immune responses.					ie response.
Class outline	to investi disorders technique antibody	are guided to learn the immunological, leate the immune response related to informand other human diseases related to informate it.  2: (1) Isolation of dendritic cells, T cells class switch recombination in B cells, (3) analysis of cell surface antigens.	ectior nmun , and	n, vaccine e system. I B ce <b>ll</b> s fro	administratio For instance, m mouse tissi	n, autoimmune we teach the following ues, (2) Analysis of
Required Textb	ooks					
Reading list						
Information conceenrollment						
Assessment methods and criteria/ratios  Students are evaluated based on the following points:  1) Achievement of the experimental techniques related to basic molecular biology.  2) Achievement of the experimental techniques to investigate the state of the experimental techniques to investigate the experimental techniques to investigate the experimental techniques the experimental techniques to investigate the experimental techniques the experimental techniques to investigate the experimental techniques the experimental techniques the experimental techniques the experimental technique					e protein func e gene functio	tion in immune ce <b>ll</b> s.

Class numbering code	Seme	ester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016wh	ole year	Graduate School of Medical Sciences(20300)	1,	2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research	n Conducti	ing Progra	am "Practice" I : Immunogenetics()		NISHIMU		, Senjiyuu Satoru, IRIE vai Hirotake
			Goals with their ratio				
Under construct	ion · · · · 10	00%					
Teaching Sty	le そ	その他					
Class metho	d Pi	rogram So	: NISHIMURA Yasuharu, SENJIYUU Sa chedule: year 1-4, every Monday (6th acilities: seminar room and laboratorio	perioc	l)	•	
Class objectiv		Students should learn important discoveries and new methods and study basic and clinical immunology aiming at the treatment of autoimmune diseases or cancer.					
Goals  Students should learn important discoveries and new methods and study basic and clinical immunology aiming at the treatment of autoimmune diseases or cancer and obtain some new findings.							
Students should learn important discoveries in the recent immunological introducing latest articles. They should learn genes encoding for molect immunological function or antigens, examine their pattern of expression collect information on the intra-cellular and intra-tissue localization of t information, experiments should be designed to study the functional sign the immune system and to evaluate the possibility of the application of immune-therapies. Finally, the results of the above-mentioned studies s scientific papers, and the students will also be trained to present their dimeetings.					molecules rel ression, struction of the mole onal significar tion of the moudies should	levant to ture of the genes, and ecules. Based on such nice of the molecules in plecules to clinical be published as	
Required Textb	ooks						
Reading list	t						
Information conc enrollment	erning						
Evaluation will be done based on the following criteria.  1) Acquisition of knowledge on the antigen-processing and antigen-recognition and ne achievements.  2) Acquisition of knowledge on the antigens recognized by immune system, immune refollowing antigen-recognition and new research achievements.  3) Acquisition of knowledge on the basic researches of immune-regulation or its clinical and new research achievements.  4) Acquisition of knowledge regarding their own research themes by learning related lining adequate planning and execution of experiments.					mune responses ts clinical applications		

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(21110)	1,	2, 3, 4	8	other		
	Course	e name(Theme)			Instr	uctor		
Research	Conducting Prog	ram "Practice"     :   Immunogenetics()		NISHIMURA Yasuharu, Senjiyuu Satoru, IRIE Atsushi, Awai Hirotake				
Goals with their ratio								
Under construct	ion · · · · 100%							
Teaching Sty	le その他							
Class metho	d Program S	s: NISHIMURA Yasuharu, SENJIYUU Sat Schedule: year 1-4, every Monday (6th p acilities: seminar room and laboratories	eriod	)				
Class objectiv	es mouse an	Students should obtain experimental techniques for recent immunological investigations of hum mouse and other experimental animals. Based on those skills, students should study immune cel functions aiming at application for cancer immunotherapy.						
Goals	mouse an	Students should obtain experimental techniques for recent immunological investigations of hu mouse and other experimental animals. Based on those skills, students should study immune c functions aiming at application for cancer immunotherapy and obtain some new findings.						
Class outlin	e molecular animals. S immune c interactio analyses o	will be taught to obtain experimental ter biology for the immunological investiga specifically, the following experimental sells, in vivo and in vitro experiments man of antigen presenting cells and T lymp of molecules with immunological function by T lymphocytes and signal transduct	ations kills v inly to hocyt ons an	of human vill be taugo analyze i tes; molect d antigeni	, mouse and of the state of the	other experimental and analysis of onses triggered by ein-chemistry-based nalyses of antigen-		
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
Evaluation will be done based on the following criteria for the research theme of each student of the continuous for isolation and functional analyses of immune cells.  2) Acquisition of techniques for analyses of expression pattern, structure, and function of percentage in immune system.  3) Acquisition of techniques for analyses of structure, expression pattern, and function of generation immune system.  4) Acquisition of techniques for immunological analyses using experimental animals.  5) Adequate planning and execution of experiments for conducting their researches.						ells. function of proteins function of genes nimals.		

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vhole year	Graduate School of Medical Sciences(25070)	1, 2, 3, 4		10	other
		Course	name(Theme)			Instr	uctor
Research Co	Research Conducting Program "Practice" I : Molecular Brain Science()					Kazuya	lwamoto
Goals with their ratio							
Under construct	ion · · ·	100%					
Teaching Sty	·le	講義・演習					
Class metho	d	Practice w	ith mentor and seminar at the Departm	ent o	f Molecula	ır Brain Scien	ce.
Class objectiv	/es	The goal of this course is to understand the current status and the relevant methodologi on molecular and genetic basis of brain function and psychiatric disorders. Students will to conduct a series of experiments based on the research plan.					
Goals		The goal of this course is to understand the current status and the relevant methodologies of on molecular and genetic basis of brain function and psychiatric disorders. Students will be to conduct a series of experiments based on the research plan.					
Class outlin	e	with psych the relevar the mento biomarkers journals. A	this course is to learn how to propose iatric disorders and brain functions by topics from the textbooks and the scr, focusing on the mechanism of somat so Students will also learn how to explain instructions in these processes, whic conducted in this course.	moleo entifi c mu n anc	cular gene c papers, a tations, ep l publish tl	tic approache as we <b>ll</b> as thro ligenetics, and he resu <b>l</b> ts to t	es. Students will learn ough discussion with d development of he peer-reviewed
Required Textb	ooks	not specifi	ed				
Reading list	t						
Information conc							
Assessment methods and criteria/ratios  Evaluation will be made on the following topics:  1) understanding the relevant scientific papers and books, methods and research prot 2) making a research plan.  3) conducting the relevant experiments based on a research plan.  4) making a presentation and publishing the results to the journal.					rch protocols.		

Class numbering code	Seme	ster	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016whc	ole year	Graduate School of Medical Sciences(25080)	1	, 2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research Conducting Program "Practice" II : Molecular Brain Science()						Kazuya	lwamoto
			Goals with their ratio				
Under construct	ion · · · · 10	00%					
Teaching Sty	le 実	習及び実	技				
Class metho	d Pr	ractice wi	th mentor and seminar at the Depart	nent d	of Molecula	ır Brain Scien	ce.
Class objectives  The goal of this course is to understand the current status and the relevant methodologies of on molecular and genetic basis of brain function and psychiatric disorders. Students will be to conduct a series of experiments mainly by molecular biology and bioinfomatic methodologies.					udents wi <b>ll</b> be required		
Goals	or	The goal of this course is to understand the current status and the relevant methodologies of studies on molecular and genetic basis of brain function and psychiatric disorders. Students will be required to conduct a series of experiments mainly by molecular biology and bioinfomatic methodologies.					
Class outline	e of ho to	f psychiat ow to inte exp <b>l</b> ain a	this course is to learn how to conductivitions. Stuberpret the data appropriately through and publish the results to the peer-renecessary to fulfill requirements for P	dents discu: ⁄iewe	will learn tl ssion with r d journals.	he relevant te nentor. Stude All instructior	chniques, and learn ints will also learn how is in these processes,
Required Textbo	ooks no	ot specifi	ed				
Reading list	t						
	formation concerning enro <b>ll</b> ment						
Assessment methods and criteria/ratios  Evaluation will be made on the following topics:  1) making a research plan. 2) conducting the relevant experiments based on a research plan. 3) making a presentation and publishing the results to the journal.							

Class numbering code	Semester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period
	2016whole year	Graduate School of Medical Sciences(22890)	1,	2, 3, 4	10	other
	Course	e name(Theme)			Instr	uctor
Research Conduc	ctice" I : Medical Oncology and Translat lesearch()	ional	Akinob		enji Tamura, Tetsuya Itsura	
		Goals with their ratio				
Under construct	ion ····100%					
Teaching Sty	le 講義					
Class method  Supervisor: Akinobu Hamada, Kenji Tamura, Tetsuya Nakatsura Program Schedule: year 1-4, every Thursday (5th-6th period) Site and Facilities: Conference room at National Cancer Center						
Class objectives  The aim of this program is learn how to make protocol for clinical studiese or translational reto slove current issue against medical oncology.					ranslational research	
Goals		are expected to write original paper to boral or poster presentation in scientific c			internationa <b>l</b> l	y recoginized journals
Class outlin	e to slove c write orig	The aim of this program is learn how to make protocol for clinical studiese or translational research to slove current issue against medical oncology. Based on their findings, students are expected to write original paper to be submitted to internationally recoginized journals and give oral or poster presentation in scientific conferences.				
Required Textb	ooks					
Reading list	t					
Information conc enrollment						
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Proposal of research projects on the basis of understanding medical oncolors research.  2) Understanding of clinical data and regulatory sciences.  3) The accomplishment of research projects.  4) Novel findings obtained by appropriate and proper approaches.					edical oncolo	gy and translational

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vhole year	Graduate School of Medical Sciences(23020)	1,	, 2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research Conducting Program "Practice" II : Medical Oncology and Translational Research()					Akinob		enji Tamura, Tetsuya itsura
			Goals with their ratio				
Under constructi	ion · · · ·	100%					
Teaching Styl	le	講義					
Class method	Supervisor: Akinobu Hamada, Kenji Tamura, Tetsuya Nakatsura d Program Schedule: year 1-4, every Thuesday (5 period) Site and Facilities: Conference room at National Cancer Center						
Class objectiv	es		fthis program is to learn how to diagno and translational reseach.	se, tre	eat, eva <b>l</b> ua	te related to (	exploratory clinical
Goals		Students v	vill learn how to make protocols for clir	ical s	tudies to r	esolve these	clinical issues.
Class outline	e	oncology a	this program is to learn how to diagno and translational reseach. Students will ese clinical issues.	se, tre learn	eat, evalua how to m	te related to e ake protocols	exploratory clinical for clinical studies to
Required Textbo	ooks						
Reading list							
Information conceenrollment	erning						
Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Acquisition of their knowledge of clinical complication and guideline related to explora clinical oncology and translational reseach.  2) Acquisition of their knowledge of how to diagnose and treat related clinical oncology.  3) Their accomplishment of research projects.							

Class numbering code	Semester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period
	2016whole year	Graduate School of Medical Sciences(23060)	1,	2, 3, 4	10	other
	Course	e name(Theme)			Instr	uctor
Research Condu Medicine (epiden Health	ion and	Katoh Taka	Takahiko, We o, Minamoto	ei Changnian, Kitano Keiko, Hisada Aya		
		Goals with their ratio				
Under constructi	on · · · · 100%					
Teaching Styl	e 講義					
Class method	d Meeting, i	ndividual guidance				
Class objectives  Class objectives  Class objectives  Students are evaluated for their course grades and credits based on the course hours countries their understanding and knowledge earned about scientific information on recent programmers are evaluated. The public health, and ability for research planning and interpretation and critic results obtained. The presentation including discussion at the laboratory and academic also taken into consideration to assess the level of achievement in the PhD research.					cent progress in the and criticism of the academic meetings is	
Goals	The prese considera	ntation including discussion at the labo tion to assess the level of achievement i	ratory n the	and acad PhD resea	lemic meeting arch.	gs is also taken into
Class outline	their unde	are evaluated for their course grades an erstanding and knowledge earned about for public health, and ability for research tained.	scier	ntific infor	mation on red	ent progress in the
Required Textbo	ooks Public h	ealth related papers				
Reading list	Epidemio	logy -an introduction (KJ Rothman), Des	igning	g clinical r	esearch (SB H	łulley et al.)
Information concerning enrollment  Information concerning enrollment  The achievement will be evaluated according to the following criteria.  1) Fundamental understanding of how to read a scientific paper, the methodology of epidemic and molecular biology.  2) Acquire the latest knowledge and understand the current conditions of lifestyle-related discentific paper, the methodology of epidemic and molecular biology.  2) Acquire the latest knowledge and understand the current conditions of lifestyle-related discentific paper, the methodology of epidemic and molecular biology.  3) Acquire the latest knowledge and understand the current conditions of lifestyle-related discentific paper, the methodology of epidemic and molecular biology.  2) Acquire the latest knowledge and understand the current conditions of lifestyle-related discentific paper, the methodology of epidemic and molecular biology.  3) Acquire the latest knowledge and understand the current conditions of lifestyle-related discentific paper, the methodology of epidemic and molecular biology.  3) Acquire the latest knowledge about the molecular and environmental epidemiology and ob new results of research in these fields.  4) Acquire established knowledge related to a research theme through a review of the literature of epidemiology research.  3) Acquire the latest knowledge about the molecular and environmental epidemiology and ob new results of research in these fields.  4) Acquire established knowledge related to a research theme through a review of the literature of epidemiology research.						style-related diseases emiology and obtain
Assessment metl		ntation including discussion at the labo tion to assess the level of achievement i				gs is also taken into

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(23070)	1,	2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research Conducting Program "Practice" II : Public Health()							ei Changnian, Kitano Keiko, Hisada Aya
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le	講義					
Class metho	d	Meeting, e	experiment, training				
Class objectives  Students are evaluated for their course grades and credits based on the course hours come their experimental skills and techniques acquired during this course, and reports submitted evaluation. The report assessment can be substituted by the assessment of each student' presentation and discussion at the laboratory and academic meetings.					rts submitted for		
Goals							
Class outline	e	the welfare interaction hypertensi for collecti performing	nts of this class are as follows: 1) acque service and system; and 2) understar between genes and the environment ion, and health disorders like osteoporing questionnaires & genome DNA in the gepidemiological studies, learning howes promotion.	ding r in life- osis. C ne con	molecular style relat Concretely, nmunity ai	epidemiologi ed disease su , this class pro nd occupation	cal studies of the ch as cancer and covides opportunities nal field and then
Required Textb	ooks						
Reading list	t	Epidemiol	ogy -an introduction (KJ Rothman), De	signing	g clinical r	esearch (SB H	łulley et al.)
Information conc enrollment							
Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Proposal of an appropriate research design for the solution of a research theme.  2) Acquisition of basic experimental skills, such as PCR.  3) Revision of working hypothesis depending on the research results and examination of appropriate research design.  4) Acquisition of presentation skills to announce the result of research.  5) Consideration of research findings and the writing of a research paper.							

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21010)	1,	, 2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research Con Con	Research Conducting Program "Practice" I : Forensic Medicine(Research Conducting Program "Practice" I : Forensic Medicine)					hitani Yoko, Y	onemitsu Kousei
			Goals with their ratio				
Under construct	ion · · ·	·100%					
Teaching Sty	'le	講義					
Class metho	d						
Class objectives  Class objectives  The aim of this course is to learn the skill of forensic pathology and biolog as below: (1) mechanisms of alcoholic liver disease, (2) effect of alcomosophila, (3) analysis of affinity between drugs and proteins, (4) dimmunological drug screening. Students are expected to submit the journals.				logical effect alcohol on ne ) developmer	s of drugs and alcohol rvous system in nt of new		
Goals							
Class outline	е						
Required Textb	ooks						
Reading list	t						
	The achievement will be evaluated according to the following criteria.  1) Understanding of the forensic pathology and toxicology. 2) Knowledge about recent problems and arguments in the field. 3) Ability to summarize the background of the research and plan adequate research schedule. 4) Ability to summarize and present their own research results or arguments.					earch schedu <b>le.</b>	
Assessment met and criteria/ra		knowledge presentati	e earned about information on recent p	ndes and credits based on their understanding and ecent progress in the research for forensic pathology, also taken into consideration to assess the level of			

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21820)	1,	2, 3, 4	8	other
	Course name(Theme)						uctor
Research Cond Cond	Research Conducting Program "Practice" II : Forensic Medicine( Research Conducting Program "Practice" II : Forensic Medicine)					hitani Yoko, Y	onemitsu Kousei
			Goals with their ratio				
Under constructi	on · · ·	100%					
Teaching Styl	le	実習及び実	技				
Class method	d						
The aim of this course is to discuss each case of forensic autopsies. Participating students are expected to present research results at the academic meetings and write and publish papers international journals in the relevant fields.					ng students are oublish papers in		
Goals							
Class outline	)						
Required Textbo	ooks						
Reading list							
Information concerning enrollment  Nowledge about recent problems and arguments in the field.  Ability to summarize and present their own research results or arguments.						earch schedu <b>l</b> e.	
Assessment metl and criteria/rat		knowledge presentati	are evaluated for their course grades an e earned about information on recent pr on at the academic meetings is also take ent in the PhD research.	ogre	ss in the re	esearch for fo	rensic pathology. The

Class numbering code	Semes	ster	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016who	le year	Graduate School of Medical Sciences(21020)	1	, 2, 3, 4	10	other	
		Course			Instr	uctor		
Rese	arch Condu	ucting Pr	rogram "Practice" I : Bioethics()			Kadooka	Yasuhiro	
			Goals with their ratio					
Under construct	ion · · · · 10	00%						
Teaching Sty	/le 演	習						
Class metho	d Se	eminars ir	ncluding close reading of relevant art	cles a	nd discussi	on		
Class objectiv	ves Stu	udents b id, then,	ecome acquainted with relavant issue explore and decide subjects of their o	s and wn re	research m search.	nethods in the	e field of bioethics	
Goals	jou Ac Ma Dis	Understanding of major discussions on bioethical issues already published in relevant internatiournals Acquiring important knowledge of issues and arguments in the field Making well thought description of the implications of the results of their own research Discussing and summarizing results of their own research Acquiring ability to present and write bioethics paper(s) in English						
Class outlin	eth qu lite e ed me co pla	hics, poli ualitative eratures Ige medi entioned anduct a an bioeth	wo research methods in the field of be tical philosophy, law, cultural anthrop or quantitative methods. In this subject and analyze ethical issues arising from cal technology, biomedical research two methods, students are expected doctoral research in the field. Studen nical studies, and write and publish the bioethics, applied ethics or philosop	ology ct, pai n medi nd sci to imp s are i eir ow	and the ot rticipating s ical practic ence. By a prove their required to	her is empirion students will e, life and de ttempting to i understandin determine th	cal investigation using read relevant ath of human, cutting-ntegrate foregand learn to leir research themes,	
Required Textb	ooks							
Reading list	t							
	nformation concerning enrollment							
Assessment met and criteria/ra	tios ho	ours compovided build argun	re comprehensively evaluated for the pleted, their understanding and critic y lecturer, ability to plan their own re nents based on bioethical deliberatio consideration to assess the level of ac	al com search n. The	ments on t , interpret presentation	heir research the obtained on at the aca	topic and materials results and develop demic meetings is also	

Class numbering code	Semeste	er	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period	
	2016whole	e year	Graduate School of Medical Sciences(21830)	1	, 2, 3, 4	8	other	
	C	Course		Instr	uctor			
Resea	arch Conduc	cting Pr	ogram "Practice" <b>II</b> : Bioethics()			Kadooka	Yasuhiro	
			Goals with their ratio					
Under construct	ion · · · · 1009	%						
Teaching Sty	le 講義	<u> </u>						
Class metho	d Sem	ninar ar	nd condcut of reseach					
Class objectiv	es Part	ticipatiı pub <b>l</b> is	ng students are expected to set a prop h results of the research.	er res	earch que	stion, conduc	t a sound research	
Goals	to reset to p to co	eview a earch th lan res onduct to disc sent the	n of abilities uppropriate literature, indentify unreso nemes, earch projects, their research projects as planned, cuss the implications of their own rese eir own research results, make a prese icles in international academic journa	arch a	and re <b>l</b> evar	ıt arguments,	summarize and	
Class outline	e bioe	ethical	this course is to learn how to accomp problems. Participating students are i search paper(s) in international journa	equire	ed to condi	uct their own	search regarding major research, write and	
Required Textb	ooks							
Reading list	t							
Information concerning enrollment								
Assessment met and criteria/ra	hods hou tios attri	rs com ibuted	re comprehensively evaluated for the pleted, acquisition of research metho data, deliberate discussion, and prese s also taken into consideration to asse	d(s), c entatic	lose analys on of them.	is and critical The presenta	l interpretation of tion at the academic	

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21040)	1,	2, 3, 4 10		other
		Course			Instr	uctor	
Researc	ch Conc	lucting Prog	gram "Practice"   : Clinical Ethics()			Kadooka	Yasuhiro
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	<b>'l</b> e	講義					
Class metho	d	Seminar in	cluding reading of relevant literatures	and d	iscussions	on them	
Class objectiv	/es	medicine d	ng students are expected to understan or medical practice, to plan and condu rom the research.				
Goals	Understanding of major discussion on relevant literatures Planning and conducting a research on own topic Making ethical disucussion on findngs obtained from the research Writing and publishing research paper(s)						
Class outlin	e	ethics, pri empirical r issues of li After discu	wo theoretical methods of bioethics. On nciples, law, cultural anthropology and researches. In this subject, participating fe and death of human, medical practic issing and understanding these issues, act it. Finally they will publish research f bioethics.	so or g stud ce, cu they v	n. The othe ents will re tting-edge vill determ	er is qualitative ead literature: medicine and iine each owr	e or quantitative s targeted at ethical d clinical research. n research topic, plan
Required Textb	ooks						
Reading lis	t						
Information concerning enrollment							
Assessment met and criteria/ra		hours com provided b va <b>l</b> id argur	re comprehensively evaluated for their pleted, their understanding and critica by lecturer, ability to plan their own reso ments based on bioethical deliberation consideration to assess the level of acl	I com earch, . The	ments on t interpret presentati	their research the obtained on at the aca	results and materials results and develop demic meetings is also

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	Swhole year Graduate School of Medical 1, 2, 3, 4				8	other
	Course name(Theme)						uctor
Researc	h Cond	ucting Prog	gram "Practice" II : Clinical Ethics()			Kadooka	Yasuhiro
			Goals with their ratio				
Under constructi	ion · · ·	100%					
Teaching Styl	le	講義・演習	1				
Class method	d	seminars a	and conduct of research				
Class objectiv	es	Participati findings of	ng students set a appropriate research otained from the research.	ques	tion, cond	uct a sound re	esearch and publish
Goals		to revies re to create a to conduc	n of abilities elevant literatures, identify unsolved iss a research project, t it, and the implication of the research, make a				
Class outline	е	Participati	f this course is to learn how to accompl ng students are required to conduct th a academic journal(s).				
Required Textbo	ooks						
Reading list							
Information concerning enrollment							
Assessment met and criteria/rat		hours com discussion	re comprehensively evaluated for their pleted, acquisition of reseach methods is, and presentation of it. Presentation cion to assess the level of achievement	s, skill at aca	l of analyzi Idemic me	ng attributed etings is a <b>l</b> so	data and deliberate

Class numbering code	Se	mester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22790)	1	, 2, 3, 4	10	other
	Course name(Theme)						uctor
Research C	ing Progran	n "Practice" I : Respiratory Medicine()		Kazuhiko	, Ichiyasu Hic	ROSAKO Susumu, FUJ <b>II</b> Jenori, Kojima Keisuke, amoto Shinichirou	
Goals with their ratio							
Under construct	ion · · ·	·100%					
Teaching Sty	'le	講義					
Class metho	d	Face-to-fa	ce teaching, group learning, e-learning	, activ	e learning	ı	
Class objectiv	/es		e aims to help students understand the gy, physiology, immunology, pathology				ıy, histology,
Goals			the principles of the pathophysiology of the meetings and the manuscripts.	f the	airway and	l pu <b>l</b> monary c	liseases, and present
Class outlin	e	pulmonary progenitor	hould learn inflammatory mechanism a diseases by analyzing the pathophysic cell- and stem cell-death and degene n for treatment should be investigated.	o <mark>l</mark> ogy ation	with immu	nological, infe	ectious, tóxic,
Required Textb	ooks	Journals: N Investigati	Nature, Science, American Journal of Roon, etc.	espira	itory and C	ritical Medici	ne, Journal of Clinical
Reading list	t	Journals: N Investigati	Nature, Science, American Journal of Roon, etc.	espira	itory and C	ritical Medici	ne, Journal of Clinical
Information concerning enrollment  Have basic knowledge concerning what is researched in the course.							
Assessment met and criteria/ra		Respirator	reports, oral presentation in the resear y Society, American Thoracic Society a ts of the research is assessed.				

Class numbering code	Semester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period
	2016who <b>l</b> e year	Graduate School of Medical Sciences(22920)	1,	2, 3, 4	8	other
	Course	name(Theme)			Instr	uctor
Research Co	n "Practice" II : Respiratory Medicine()	Kourogi Hirotsugu, FUJII Kazuhiko, Ichiyasu Hidenori, Kojima Keisuke, Saeki Shiyou, Okamoto Shinichirou				
		Goals with their ratio				
Under construction	on · · · · 100%					
Teaching Style	i講義					
Class method	Face-to-fa	ce teaching, group learning, e-learning,	activ	e learning	•	
Class objective		e aims to help students understand the gy, physiology, immunology, pathology a				
Goals		the principles of the pathophysiology of the meetings and the manuscripts.	f the a	airway and	l pulmonary c	iseases, present the
Class outline	pulmonary progenitor	should learn inflammatory mechanisms a or diseases by analyzing the pathophysio or cell-and stem cell-death and degenera on for treatments should be investigated.	logy v tion.	vith immu	nological, infe	ectious, toxic,
Required Textbo	oks Journals: I Invastigati	Nature, Science, American Journal of Re on, etc.	spirat	tory and C	ritical Medec	ine, Journal of Clinical
Reading list	Journals: I Invastigati	Nature, Science, American Journal of Re on, etc.	spirat	tory and C	ritical Medec	ine, Journal of Clinical
Information concerning enrollment Having basic knowledge concerning what is researched					urse.	
Assessment meth and criteria/rati	Respirator	Research reports, oral presentation in research coferences and annual meetings of Japanese Respiratory Society, American Thoracic Society, and European Respiratory Society. Finally, manuscripts of the research is assessed.				

Class numbering code	Sen	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016w	hole year	Graduate School of Medical Sciences(22800)	1, 2, 3, 4		10	other	
		Course	name(Theme)			Instr	uctor	
Resea	Research Conducting Program "Practice" I : Cardiology()						AWA Hisao, Kaikita ichi	
			Goals with their ratio					
Under construct	ion · · · ·	100%						
Teaching Sty	⁄le	その他						
Class metho	d	experimen of cardiova searching hypothesis Finally, the	ypothesis must be proven experimenta tal design will be constructed to developmental design will be constructed to developmental research projudets literatures related to the cardiovast can be modified and improved dependental results should be reportular medicine.	op a n ects t ascu <b>l</b> a ding d	ovel appro o be execu or diseases on the prop	pach for prevented should be a contracted should be a contracted by the second second ach second sec	ention and treatment e determined by ojects and working ievement of research.	
Class objectiv			The aim of this Departmental Course is to learn how to propose scientific hypothesis for the mechanisms of pathogenesis of cardiovascular diseases.					
Students are evaluated for their course grades and credits based on the course hours contheir understanding and knowledge earned about scientific information on recent progres.  Goals  Goals					ent progress in the cism of the results ic meetings is also			
Class outlin	e	that are re demerits of Japanese p theories ar models of related to mechanism vascular sr hypertroph generate g	nt of this Course is the followings: 1) To lated to the pathogenesis of acute corof the clinical assessment in the platelet oppulation based on prospective studies and methods of the gene analysis by usin experimental myocardial infarction or icardiac remodeling and myocardial isclament in the expression of atherogenic mooth muscle cells; 6) To explore the samp by using the rat neonatal myocardiustenetically altered mice. 8) To learn how using echocardiography and micro cat	nary actives linking the schemia ecules timula m. 7) v to e	syndrome, ation; 2) T ing with cle DNA micronia / reperfuse in culture ating facto To learn the valuate ph	and discuss to learn the clinical practice oarray; 4) To fusion, analyzion, injury; 5) and vascular en rs which caus at theories an	the merits and inical evidences for e; 3) To learn the establish the mouse the molecules. To learn the dothelial cells and e the myocardial d methods to	
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
1) Proposal of appropriate research projects on the basis of understanding the background pathogenesis of cardiovascular diseases. 2) Understanding how to perform the experiment to the basic and clinical cardiovascular researches described in the Course Description. 3) Appropriate experimental design to identify the important factors for the pathogenesis of cardiovascular diseases. 4) Novel findings obtained by appropriate and proper analytical approaches. 5) Original findings that can contribute to better understanding for cardiovascular diseases. 6) Acquisition of knowledge and skills to generate genetically altered mice are evaluate their phenotypes.						experiments related scription, 3) ogenesis of analytical or cardiovascular		

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22930)	1	, 2, 3, 4	8	other
		Course			Instr	uctor	
Resea	rch Cor	nducting Pro	Hokir		SAWA Hisao, Kaikita uichi		
			Goals with their ratio				
Under construct	ion · · ·	·100%					
Teaching Sty	⁄le	その他					
Class metho	d	2. platelet of vascular	o measure the biomarkers of blood coa aggregation by using the optical densi r endothelial and smooth muscle cells, raction, Western blot, and real-time RT	ty cha and r	ange or ligl neonatal ra	nt scáttering. t cardiomyoc	3. isolation and culture ytes. 4. Protein or
Class objectiv	/es		f this class is to acquire the techniques cular diseases.	to an	alyze the p	athogenesis	and mechanism of
Goals		their expe	are evaluated for their course grades ar rimental skills and techniques acquired . The report assessment can be substit on and discussion at the laboratory an	d durii uted	ng this cou by the asse	rse, and repo essment of ea	orts submitted for
Specifically, experimental techniques to be earned in this course include ELISA to measure the biomarkers of blood coagulation and fibrinolysis in ischemic heart diseases. The experimental techniques also include the measurements of platelet aggregation by using the optical density change or light scattering. You learn how to isolate and culture vascular endothelial and smooth muscle cells, and neonatal rat cardiomyocytes. Difference of rat myocyte hypertrophy induced various stimulators is observed in light microscopy. Protein or mRNA extraction, Western blot, real-time RT-PCR analysis by using the samples of cardiovascular tissues and cultured cells are studied in this Departmental Course. You learn the theories and methods how to generate genetically altered mice. Their phenotypes are analyzed by various modalities including echocardiography and micro catheter.						he experimental e optical density chelial and smooth rtrophy induced by n, Western blot, and cultured cells are also to generate	
Required Textb	ooks						
Reading lis	t						
Information conc enrollment	erning	ng					
Assessment met and criteria/ra		blood coas the optica and cultur Acquisition induced b	tion and understanding of skills to perf gulation and fibrinolysis. 2) Understand I density change or light scattering. 3) e vascular endothelial and smooth mu n of experimental skills to observe phe y various stimulators. 5) Understanding RT-PCR analysis from the samples of ca	ding h Acqui scle c notyp	ow to mea sition of ex ells, and no e difference otein or m	sure platelet sperimental te eonatal rat ca e of rat myoc RNA extraction	aggregation by using echniques to isolate irdiomyocytes. 4) yte hypertrophy on, Western blot, and

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(20700)	1	, 2, 3, 4	10	other	
		Course	name(Theme)			Instr	uctor	
Research Metabolism(Endo	Condu crinolo	cting Progr gy and Met	ARAKI Eiichi					
			Goals with their ratio					
Under construct	ion · · · ·	100%						
Teaching Sty	le	その他						
Class metho	d	Practices a	and experiments in laboratory. Present	ation	and group	discussion.		
Class objectiv	⁄es	Learn the molecular biological methods that are used for the analysis on the mechanism action of hormones and the cause of metabolic or endocrinological diseases from literal Learn how these techniques are applied to reveal underlying mechanism and to create to treatment of the metabolic or endocrinological diseases. Discuss concerning the meanism application to diagnosis and to treatment of the obtained results based on experimental the levels of gene, protein, organs and individuals on the mechanisms of the metabolic of endocrinological diseases. Learn how to present the results and make manuscripts.						
Goals	Explain the molecular biological methods that are used for the analysis on the mechanisms of action of hormones and the cause of metabolic or endocrinological diseases from literature Explain how these techniques are applied to reveal underlying mechanism and to create the treatment of the metabolic or endocrinological diseases. Discuss concerning the meaning are						rom literature search . If to create the novel he meaning and perimental analysis at	
Class outline	Select several manuscripts concerning the mechanisms of the action of hormones and the cametabolic or endocrinological diseases, and learn the molecular biological methods that are for the analysis. Moreover, how these techniques are applied to reveal underlying mechanisms of the new latest the new latest the method is a concerning to the method of the method is a concerning to the new latest the method is a concerning to the method of the method is a concerning to the method of the method is a concerning the mechanisms of the action of hormones and the cametabolic or endocrinological methods that are						thods that are used ring mechanism and to be maneuvered by the tein, organs and make discussion	
Required Textbo	ooks							
Reading list	t							
Information conceeding	erning							
Assessment met and criteria/ra			on reports. The presentation techniq meetings is also taken into considerati					

Class numbering code	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016w	/hole year	Graduate School of Medical Sciences(21510)	1,	, 2, 3, 4	8	other
		Course			Instr	uctor	
Research Metabolism(Endoo	Conduc crino <b>l</b> og	cting Progra gy and Meta	am "Practice" <b>II</b> : Endocrinology and abolism, Departmental Course "Jisser	" II)		ARAKI	Eiichi
			Goals with their ratio				
Under constructi	on ····	100%					
Teaching Styl	le	その他					
Class method	b	Practices a	and experiments in laboratory. Present	ation	and group	discussion.	
Class objective	es	endocrine	methods to ana <mark>l</mark> yze the function of the			J	
Goals		introduce molecule,	an expression vector which express ap it into cells, 3) learn methods to analyz 4) learn methods to identify mutations 5) learn methods to analyze the functic s.	e the of the	expressior e genes inv	n and functior olve in metab	of the expressed
Class outline	è	2) constru- of the expi endocrine	oout the followings, 1) design of a expr ct the vector and introduce it into cells ressed molecule, 4) methods to identif diseases, 5) methods to analyze the fu echniques.	, 3) m y muta	ethods to ations of th	analyze the e ne genes invol	xpression and function live in metabolic and
Required Textbo	ooks						
Reading list							
Information concerning enrollment							
Assessment meth and criteria/rat		It depends academic research.	on reports. The presentation techniq meetings is also taken into considerati	ue inc on to	luding disc assess the	cussion at the level of achie	laboratory and evement in the PhD

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(20720)	1, 2, 3, 4		10	other
	Course name(Theme)						uctor
Research Co	g Program ' epartmental	"Practice" I : Nephrology(Nephrology   Course "Jissen" I)		Mukouyama Masashi, Nakayama Yuushi			
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	演習					
Class metho	d	group lear	ning				
Class objectiv	jectives The aim of this Departmental Course is to learn how to propose scientific hypothesis for the elucidation of the molecular pathophysiology of the kidney diseases.						othesis for the
Goals		2) Underst along the i 3) Underst	canding the functional heterogeneity of canding the distribution of the ion chain ephron segment. Canding the pathophysiology of the kidennel/transporters and the hormonal is	ine <b>l</b> s, nev di	ion transp	orters, and ho	·
Class outlin	e	nephron seech neph	on is composed of a variety of differen egment is completely different from th ron segment function and the diversit er of a single nephron segment.	e othe	rs. Studen	ts should lear	n the heterogeneity of
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra		1) Student 2) Underst 3) Underst along the I 4) Underst	vement will be evaluated according to as should complete more than 75% of the carding the functional heterogeneity of the carding the distribution of the ion chain ephron segment.  I the pathophysiology of the kide annel/transporters and the hormonal is the pathophysiology.	he tot the r ine <b>l</b> s, ney di	al course lephron se ion transp	nours. gment. orters, and ho	·

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(21530)	1,	2, 3, 4	8	other		
	Cours			Instr	uctor			
Research Cor	nducting Program Departmenta		Mukouyama Masashi, Nakayama Yuushi					
Goals with their ratio								
Under construct	ion · · · · 100%							
Teaching Sty	le 実習							
Class metho	d group lea	rning						
Class objectiv		of this class is to acquire the techniques eins from the isolated kidneys from rats	to and and m	alyze the e ice as well	expression level as from the o	rels of specific genes cultured mammalian		
Goals	sequence 2) Under function. 3) Under	Understanding the techniques to isolate and analyze the expression levels of mRNA and the DNA sequences.     Understanding the techniques to isolate and analyze the expression levels of protein and its function.     Understanding the techniques to culture mammalian cells.     Understanding the intracellular communications and function of various proteins.						
Class outlin	from the Specifica measurin students	Students should learn the techniques to analyze the expression levels of specific genes and proteins from the isolated kidneys from rats and mice as well as from the cultured mammalian cells. Specifically, students are required to learn the regulatory mechanisms of gene expression by measuring the expression levels of ion channels/transporters in the animal disease model. Also, students are required to learn the molecular pathophysiology of the "ion channelopathies" by investigating the structure-function relationships of the ion channel/transporters.						
Required Textb	ooks							
Reading list	t							
	nation concerning enrollment							
Assessment met and criteria/ra	thods tios 1) Studer 2) Under sequence 3) Under function. 4) Under	The achievement will be evaluated according to the following criteria.  1) Students should complete more than 75% of the total course hours.  2) Understanding the techniques to isolate and analyze the expression levels of mRNA and the DNA sequences.  3) Understanding the techniques to isolate and analyze the expression levels of protein and its function.  4) Understanding the techniques to culture mammalian cells.  5) Understanding the intracellular communications and function of various proteins.						

Class numbering code	Sem	nester	Course belonging/Course code	,	Year/	/Grade	Credit	Day,Period
	2016w	ho <b>l</b> e year	Graduate School of Medical Sciences(20690)		1, 2	2, 3, 4	10	other
		Course	name(Theme)				Instr	uctor
Research Conducting Program "Practice" I : Gastroenterology and Hepatolog					Yutaka SASAKI, Motohiko TANAKA, Hideaki Naoe, Takashi SHONO, Takehisa WATANABE, Masakuni TATEYAMA, Junpei HASHIGO			
			Goals with their ra	tio				
Under construct	ion · · · ·	100%						
Teaching Sty	le	講義・演習						
Class metho	d	Face-to-fa	ce class lesson and group learning	would	be pı	rovided.		
Class objectiv	/es	To analyze gastorintes	the molecular mechanisms under stinal tract, liver, pancreas, and bili	ying in ary trac	nflamr ct.	mation-a	ssociated car	cinogenesis of
Goals  To comprehend the molecular mechan gastorintestinal tract, liver, pancreas, a propose a therapeutic strategy to pervenue.								
Class outline	e	Recent progress in medicine has identified molecular mechanisms underlying gastrointestinal, hepatic, pnacreatic and biliary diseases, leading to the development and application of new therapies. Aim of this course is 1) to learn molecular mechanisms underlying inflammation and carcinogenesis in the gastrointestinal tract, liver, pancreas and biliary tract 2) to comprehend how molecular mechanisms would be modulated and regulated for the purpose of treatment on gastrointestinal and liver diseases.						cation of new nflammation and to comprehend how
Required Textb	ooks							
Reading list	t							
Information conc enrollment	Information concerning enrollment  To obtain basical information related to carcinogenesis							
Assessment methods and criteria/ratios  Students are evaluated for their course grades and credits based on the course. The students, who have completed more than 75% of the whole course, a report regarding the course lectures. The report will be evaluated regardelow.  1) Comprehension on variety of gastrointestinal and liver cancers and the 2) Comprehension on the relation between inflammation and carcinoger					oort regarding course, would ed regarding t and their inc ad liver cance	contents in the  I be required to submit the criteria listed		

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016whole yea	r Graduate School of Medical Sciences(21500)	1.	, 2, 3, 4	8	other	
	Cour			Instr	uctor		
Research Conduc	ting Program "P	Yutaka SASAKI, Motohiko TANAKA, Hideaki Naoe, Takashi SHONO, Takehisa WATANABE, Masakuni TATEYAMA, Junpei HASHIGO					
		Goals with their ratio					
Under construct	ion · · · · 100%						
Teaching Sty	le 講義						
Class metho	d Face-to	face class lesson and group learning wo	uld be	provided.			
Class objectives  To learn the basic theory of molecular biological approach to analyse the mechanism of carcinogenesis, and to obtain molecular biological techniques.						hanism of	
Goals	To com carcino	To comprehend the basic theory of molecular biological approach to analyse the mechanism of carcinogenesis, and to be able to handle molecular biological techniques.					
Class outline	future o	Aim of this course is 1) to read papers by turns regarding diagnosis and treatments in order to comprehend the pathogenesis of gastrointestinal and liver diseases 2) to discuss the present and the future of diagnosis and treatments, 3) to understand the basic information of molecular biological approach, 4) to obatin molecular biological techiniques.					
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra	s are evaluated for their course grades a derstanding and knowledge earned in t lents, who have completed more than 7 regarding the course lectures. The repo prehension on current diagnosis of gast prehension on future progress in therap	ie coui 5% of rt wi <b>ll</b> ointest trointe	rse, the rep the whole be evaluate cinal and lings stinal and	oort regarding course, would ed regarding ver cancers liver cancers	contents in the I be required to submit the criteria listed		

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period	
20710	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(20710)	1, 2, 3, 4		10	other	
	Course	name(Theme)			Instr	uctor		
Research Conducting Program "Practice" I : Hematology(Hematology Departmental Course "Jissen" I)					OKUNO Yutaka			
			Goals with their ratio					
Under construct	ion · · ·	100%						
Teaching Sty	le	実習						
Class metho	d							
Class objectiv	/es							
Goals								
Class outline		emergence processes and difference new molec	f this course is to advance the knowledge e mechanism of leukemia, malignant ly on the emergence and to help the atte entiation of stem cells and molecular ba cular targeted drugs will be discussed a rted at the international conferences a	nphoi ndees isis of nd ex	ma, and m learn mol hematolo amined. F	ultiple myelo lecular mecha gical maligna inally, the exp	ma and historical anisms of ontogeny ncies. Identification of perimental results are	
Required Textb	ooks							
Reading list	t							
Information concerning enrollment								
Assessment met and criteria/ra		1) Underst 2) Underst 3) Underst	vement will be evaluated according to t tanding of ontogeny and differentiation tanding of emergence of hematological tanding of basic and clinical research a g and execution of experiments on the	of he malig ming	matopoiet gnancies at deve <b>l</b> og	tic stem ce <b>ll</b> s oment of new	therapeutic drugs	

Class numbering code	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
21520	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21520)	1,	2, 3, 4	8	other	
	Course	name(Theme)			Instr	uctor		
Research Conducting Program "Practice" II : Hematology(Hematology Departmental Course "Jissen" II)					MITSUYA Hiroaki, OKUNO Yutaka			
Goals with their ratio								
Under construction ····100%								
Teaching Style 実習								
Class metho	d							
Class objectiv	es							
Goals								
Class outline	е	hematolog	this class is to learn the basis of classi fical malignancies. Understanding of m ts is also aimed.					
Required Textb	ooks							
Reading list								
Information conc enrollment	erning							
Assessment methods and criteria/ratios  The achievement will be evaluated according 1) Understanding of classification and charac 2) Understanding of molecular targeted drugs 3) Understanding of in vivo and in vitro evaluations.					of hematol tological n	ogical malign nalignancies	ancies	

Course Coding		ar and mester	Faculty Offering Course		Eligible udent Year	Credits	Weekday and Period	
20770	2016v	vhole year	Graduate School of Medical Sciences(20770)	1	1, 2, 3, 4	10	others	
		Course	e Title(Theme)			Instru	ctor(s)	
esearch Cond	lucting I De	Program "Pr epartmental	ractice" I : Rheumatology(Rheumatolo Course "Jissen" I)	gy		Hirata Shinya		
			Goals with their ratio					
Under construct	ion · · ·	100%						
Type of Clas	SS	Practice						
Teaching Meth	nod							
Course Goal	ls							
Course Achieve Targets	ment							
Outline		the investi diseases. I mechanism hypothesismolecular measurem In addition	the several novel findings of immune rigation of pathogenesis and developm he aim of this course is the understar ns of autoimmune diseases and contributions formulation and verification. The clingenetic approaches including cell properties of cytokines, analysis of cell surfact, disease-animal models are used. Explact in scientific journals.	ent of ding of of in ical sa lifera ce ma	treatments of immune s mmune read amples are tion assay, i rker, cytoto	is performed system, immu- ction, and the analyzed by c nduction of a xic assay, PC	I in autoimmune ine tolerance, practicing of cell biologic and poptosis, R and genetic analysis.	
Textbooks/Mate	erials							
Reading Lis	t							
Enrollment Prerec								
Assessment Met and Criteria		1) Acquisit 2) Acquisit 3) Acquisit 4) Acquisit	rement will be evaluated according to cion of the newest information on med cion of the newest information on anti- cion of the newest issues on clinical cion of analysis of clinical samples and g and execution of experiments of the n	hanis gen re plica anim	ms of emerge ecognition be tion of cont al models	gence of auto by immune sy: rol of immun	stem e reactions	

Class numbering code	Seme	ester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period			
21580	2016wh	ole year	Graduate School of Medical Sciences(21580)	1	, 2, 3, 4	8	other			
Course name(Theme)						Instr	uctor			
Research Conducting Program "Practice" II : Rheumatology(Rheumatology Departmental Course "Jissen" II)						Hirata Shinya				
			Goals with their ratio							
Under construct	ion · · · · 10	00%								
Teaching Sty	rle 実	图								
Class metho	d									
Class objectiv	/es									
Goals										
Class outlin	e d in co u:	liseases. H mmunosu omplications sing cell b	ess of immunology develops the novel dowever, cases with several complicat ppressive therapies increase. The aim ons or side effects in case with rheum piologic and molecular genetic approa es and published in scientific journals.	ons o of this atoid	r side effec s course is disease, an	cts caused by to the praction and analysis of	strong ling statistic analysis of clinical samples by			
Required Textb	ooks									
Reading list	t									
Information conc enrollment										
Assessment met and criteria/ra	thods 2 tios 3	) Acquisit ntigen-an () Acquisit () Planning cientific ir () Acquisit	rement will be evaluated according to ion of experimental skills of detection tibody reactions ion of update information on control og and execution of the experiment on formation ion of the newest information on factone diseases	of aut of imm re <b>l</b> eva	to antibodi nune reacti int researcl	es, and under ons and its cl n projects bas	inical applications sed on the newest			

Class numbering code	Sen	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
20580	2016w	ho <b>l</b> e year	Graduate School of Medical Sciences(20580)	1,	, 2, 3, 4	10	other
	Course name(Theme)						uctor
Research Cond	Research Conducting Program "Practice" I : Infectious Diseases(Infectious diseases Departmental Course "Jissen" I)						MIYAKAWA Toshikazu, Horotomo
			Goals with their ratio				
Under construct	ion	100%					
Teaching Sty	'le	実習					
Class metho	d						
Class objectiv	/es						
Goals							
The aim of this course is to advance the knowledge and issues of development of anti-human immunodeficience of such drugs, and the mechanisms of drug resistance of methods of drug design for overcoming the resistance of development of new drugs. Experiments for elucidation resistance are also planned and practiced. The results international conferences, and published on international					cy virus (HI of the virus and explos n of the res should be	V) drugs, the s and further ration of new sistance and s summarized,	mechanisms of action to learn selected molecular targets for screening for the drug
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Understanding of life cycle of HIV through invasion to liberation from host cells the infected host  2) Understanding of structures and functions of HIV genes  3) Understanding of characteristics of anti-HIV drugs and mechanisms of drug res  4) Understanding and practice of methods of cell culture, isolation of virus, gene  5) Planning and execution of experiments along the research themes						resistance	

Class numbering code	Ser	nester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
2190	2016w	/hole year	Graduate School of Medical Sciences(21390)	1	, 2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research Conc	lucting I disease	Program "Pi s Departme	ractice" II : Infectious Diseases(Infection ental Course "Jissen" II)	us	KAWAGU		MIYAKAWA Toshikazu, Hirotomo
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	実習					
Class metho	d						
Class objectiv	es es						
Goals							
Class outlin	e	infections	f this class is to learn experimental met and further to learn usage of clinical s ogical research methods, tissue cultur biology.	ample	s in safe, is	solation of viri	us and immune ce <b>ll</b> s,
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra		1) Underst	vement will be evaluated according to tanding of emergence, re-emergence, tanding of epidemiological methods fo	and o	pportunisti	c infections.	

Class numbering code	Semester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period	
	2016whole year	Graduate School of Medical Sciences(20750)	1,	2, 3, 4	10	other	
	Course	name(Theme)			Instr	uctor	
Resea	arch Conducting Pi		An	dou Yukio, Ya	amashita Satoshi		
Under construct	ion ····100%						
Teaching Sty	le 実験						
	Superviso	r: Yukio Ando, Satoshi Yamashita					
Class metho	Program S	chedule: year 1-4, every Tuesday(6th pacilities: seminar room and laboratories	eriod) at De	) epartment	of Neurology	,	
Class objectiv	es understan	The aim of this lecture is acquisition of molecular biological techniques and ideas towards understanding the pathogenesis of intractable diseases of neurology area and developing nove treatment for them.					
Goals	plan the e	students must understand and criticize xperiments of their own. Moreover, the the experiments.	the ar	rticles rega t interpret	arding researd , orally preser	ch theme, as we <b>ll</b> as nt and report the	
The aim of this Departmental Coarse is to learn the achievement of modern neurology regetiology, and pathologic elucidation of hereditary neurodegenerative diseases. Students a required to practice on several disease models and evaluate likelihoodof clinical applicate future prospects of gene therapy as well as regenerative therapy on such diseases. Further characteristics of various viral vectors to be used in gene therapies, problems in exon skip possibility of regenerative therapy to use iPS and stem cells for advanced cases (usually efform gene therapy nor exon skipping therapy), are studied during the coarse. All research mentioned above are summarized in a thesis, and a guidance will be provided to give an opresentation.					. Students are cal application and lises. Furthermore, in exon skipping, and is (usually excluded libresarch results		
Required Textb	ooks						
Reading list							
Information conc enrollment							
Assessment methods and criteria/ratios  Graduate students will be evaluated according to the following criteria.  1) Learning the latest knowledge about neuroscience, and obtaining a novel knowledge fro own experiments.  2) Learning the latest knowledge about the basic and clinical research in gene therapy, exo skipping and regenerative medicine and obtaining a novel knowledge from their own experiments.  3) Proposal of appropriate research projects and performing original and innovative experiments.						therapy, exon eir own experiments. vative experimental	

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21560)	1,	2, 3, 4	8	other	
		Course			Instr	uctor		
Resea	rch Cor	nducting Pr		А	ndou Yukio, l	Jeda Mitsuharu		
			Goals with their ratio					
Under construct	ion ····	100%						
Teaching Sty	le	実験						
Class metho	d	Program S	r: Yukio Ando, Mitsuharu Ueda chedule: year 1-4, every Thursday (6th ascilities: seminar room and laboratori	-7th p	periods) Departmen	t of Neuro <b>l</b> og	у	
Class objectiv	es/es	understan	The aim of this lecture is acquisition of molecular biological techniques and ideas towards understanding the pathogenesis of intractable diseases of neurology area and developing novel treatment for them.					
Goals		plan the ex	students must understand and criticize xperiments of their own. Moreover, the he experiments.					
Class outline	e	regenerati histochem need for th	this class is to acquire the basic techrowe therapy for laboratory mice as well istry, Western blotting, and molecular neir own projects, training about obsere, a viral vector making, and cell culture.	as hun biolog vation	nan subjec ic experim of immun	cts, such as ce nental maneuv ostaining spe	ell culture, immuno- vers. Depending on	
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
Assessment methods and criteria/ratios  Graduate students will be evaluated according to the following criteria.  1) Learning the latest knowledge about neuroscience, and obtaining a novel knowledge own experiments.  2) Learning the latest knowledge about the basic and clinical research in gene therapy, skipping and regenerative medicine and obtaining a novel knowledge from their own experiments.  3) Proposal of appropriate research projects and performing original and innovative experiments.						therapy, exon eir own experiments. vative experimental		

Class numbering code	Sem	ester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016wh	nole year	Graduate School of Medical Sciences(20740)	1	, 2, 3, 4	10	other
		Course			Instr	uctor	
Resea	rch Cond	ducting Pr	rogram "Practice" I : Pediatrics()			NAKAMUR	A Kimitoshi
			Goals with their ratio				
Under constructi	on ····1	100%					
Teaching Styl	le 🖡	講義					
Class method	d						
Class objectives  Study of Pediatrics covers various diseases. It is important to develop an analysis of the clinic condition, diagnosis and therapy with the latest knowledge. In this course, students should for genetic diseases, gene therapy and regenerative medicine related to these diseases. We disc exchange the basic information and a research task of pediatric diseases.							dents should focus on
Goals	1 2 3	1) the out <b>l</b> 2) stem ce 3) gene the					
Class outline	e   C	diseases. V The basic a childhood.	e focuses on genetic diseases, gene tl We discuss and exchange the basic in analysis method is learned about the . A gene therapy and regenerative me elated to childhood disease is also im	ormat neredi dicine	ion and a r tary disord are hopefu	esearch task er and the ma	of pediatric diseases. alignant tumor during
Required Textbo	ooks						
Reading list							
Information conce enrollment							
Assessment meth and criteria/rat	hods tios	1) the out <b>l</b> 2) stem ce 3) gene the		rts.			

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21550)	1,	, 2, 3, 4	8	other
		Course			Instr	uctor	
Resea	Research Conducting Program "Practice"   I : Pediatrics()						A Kimitoshi
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le	その他					
Class metho	d						
Class objectiv	es/es	students s	imal models are created and used for hould focus on genetic diseases, gene discuss and exchange the basic infor	thera	py and reg	enerative me	dicine using an animal
Goals		The following contents should be explained.  1) the outline of genetic diseases 2) stem cell 3) animal model 4) regenerative medicine					
Class outline	e	animal mo incurable neurologio therapy ar informatio	condition analysis of hereditary disord del are studied. It's done with a target disease treatment. A model animal for cal disorders are the target for study. T di regenerative medicine using an ani n and a research task of pediatric dise ns, improvement of clinical condition	in det hered his co nal mo ases. l	ail to ment itary liver o urse focus odel. We di Jnderstand	tion an experi disorders, enc es on genetic iscuss and ex ding of patho	mental outcome of locrine disorders and diseases, gene change the basic physiological
Required Textb	ooks						
Reading list	t						
Information concerning enrollment							
Assessment met and criteria/ra		1) the outl 2) stem ce 3) animal		rts.			

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016whole yea	Graduate School of Medical Sciences(23080)	1,	2, 3, 4	10	other
	Cours	e name(Theme)			Instr	uctor
Research Cond	ucting Program "I	stic		Matsui	Hirotaka	
		Goals with their ratio				
Under construct	ion · · · · 100%					
Teaching Sty	le その他					
Class metho	d seminar	room and laboratories at the Departmer	it of M	olecular L	aboratory Me	dicine
Class objectiv		of this course is to learn the process of s y medicine, and how to verify the worki s.				
Goals		ne research progresses in the above-me ents for PhD thesis, and reported by ora			es are necess	ary to fulfill
Class outlin	laborato example diagnost clinical r molecula medicine investiga	of this course is to learn the process of sy medicine, and how to verify the working. Especially, we will focus on collecting ic medicine required for "translational esearches. Research projects should be in genetics, cell biology, molecular biology. Human samples (bloods, tissues, spinated for research projects. On the basis of iagnosis and the analysis of the pathology.	ng hyp inform resear propo gy, de al and of labo	ootheses for nation aboonself", which ised and enter a velopment other varions ratory med	or its pathoge ut laboratory ch links basic xamined by u cal engineerin bus fluids) wil dicine, new m	nesis by giving actual procedure and medical sciences and sing the methods of g, and laboratory leuchdold be used and ethods which can
Required Textb	ooks Not spec	ified.				
Reading list	t Papers w	i <b>ll</b> be informed on site.				
Information conc enrollment						
Assessment methods and criteria/ratios  1) Acquisition of experimental skills for laboratory medicine of various diseases and obtaining findings. 2) Understanding how to perform the experimental procedures in laboratory medicine and m research progress. 3) Acquisition of experimental skills for basic medical sciences associated with development brand-new methods or clinical applications and obtaining new results. 4) Logical/proper experimental design for specific research project by appropriate and proper analytical approaches.						nedicine and making n development of

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016whole yea	Graduate School of Medical Sciences(23090)	1,	, 2, 3, 4	8	other	
	Cour	se name(Theme)			Instr	uctor	
Research Condu	cting Program "	ostic		Matsui	Hirotaka		
		Goals with their ratio					
Under construction	on · · · · 100%						
Teaching Styl	e その他						
Class method	d seminar	room and laboratories at the Departme	nt of M	lolecular L	aboratory Me	dicine	
Class objective		cation is aimed at the development of s be necessary to settle unresolved issue				d execute experiments	
Goals	analysis	The experiments in this course include gene mutation searching, cDNA cloning and functional analysis of mutant proteins. Students are expected to learn the process through which research objectives are attained by the students themselves.					
Class outline	Recent advance in comprehensive genome analysis led to the identification of many somatic as we as germ-line gene mutations that are involved in the development of malignancies. Therefore, it is expected that malignancies will be able to be diagnosed at a high sensitivity in the department of diagnostic medicine in the near future. Meanwhile, oncologists engaged in diagnostic medicine ar required to understand molecular pathogenesis of malignancies. With these backgrounds, the experiments in this course include gene mutation searching, cDNA cloning and functional analysis mutant proteins. The education is aimed at the development of students' faculties to plan and execute experiments that will be necessary to settle unresolved issues by the students themselves addition, newly-introduced analytical techniques in laboratory medicine including mass-spectrometry will be introduced to the students.						
Required Textbo	oks Not spe	ified.					
Reading list	Papers	/ill be informed on site.					
Information concerning enrollment							
Assessment meth and criteria/rat	nods their explored their explored the control of t	s are evaluated for their course grades a erimental skills and techniques acquire on. The report assessment can be subst tion and discussion at the laboratory a	d durii tuted l	ng this cou by the asse	rse, and repo essment of ea	orts submitted for	

Class numbering code	Ser	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016w	/hole year	Graduate School of Medical Sciences(20630)	1,	2, 3, 4	10	other
		Course			Instr	uctor	
Research Conducting Program "Practice" I : Diagnostic Radiology("Practice" I : Diagnostic Radiology)						ASH <b>I</b> TA Yasuy	yuki, IKEDA Osamu
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	実習					
Class metho	d	Conference	е				
Class objectiv	es es	Understan	ding on imaging studies				
Goals		Understan	ding on imaging studies				
Update of knowledge of CT, MR and PET, Presentation of imaging studies. Followi will be given; Program Schedule: year 1-4, every Tuesday 7:00 (A total of 15 studies); Neuroradiology Conference; Head&Neck-Radiology Conference; Oral and Maxillot Radiology Conference; Gastroenterological Surgery-Pathology-Radiology Conference; Thorac Pathology-Radiology Conference; Obstetrics and Gynecology-Radiology Conference Site and Facilities: Diagnostic Radiology Conference Room 6F; Each Conference						xillofacial Surgery- noracic Surgery-	
Required Textb	ooks						
Reading list	t				_		
Information concerning enrollment  Students are evaluated for their course grades and credits based on the course hours completed their understanding and knowledge earned about scientific information on recent progress in the research for diagnostic radiology, and ability for experimental and clinical study planning and interpretation and criticism of the results obtained. The presentation including discussion at the laboratory and academic meetings is also taken into consideration.							cent progress in the ly planning and
Assessment met and criteria/ra		1) Underst radiologica 2) Proposa	vement will be evaluated according to to anding and knowledge of the principle al anatomy. Il and execution of appropriate research al and execution of appropriate research	and r h proj	method of jects in im	diagnostic ra aging studies	

Class numbering code	Sem	ester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period
	2016wh	nole year	Graduate School of Medical Sciences(21440)	1, 2, 3, 4		8	other
		Course	name(Theme)			Instr	uctor
Research Conduc	Research Conducting Program "Practice" II : Diagnostic Radiology("Practice" Diagnostic Radiology)						yuki, IKEDA Osamu
			Goals with their ratio				
Under constructi	ion · · · · 1	100%					
Teaching Styl	le §	実習					
Class method	d (	Conferenc	e				
Class objectiv	es l	Understan	ding on imaging studies				
Goals	Ų	Understan	ding on imaging studies				
Class outline	P F P F F	will be give Program S Neuroradio Radiology Conferenc Pathology Radiology	chedule: year 1-4, every Tuesday 7:00 ology Conference; Head&Neck-Radiolo e; Gastroenterological Surgery-Patholo	(A totogy Co	tal of 15 si inference; diology Co	tudies); Oral and Ma onference; Th	xillofacial Surgery- noracic Surgery-
Required Textbo	ooks						
Reading list							
Information concerning enrollment  Students are evaluated for their course grades and credits based on the course hours complete the degree of understanding of diagnostic radiology acquired during the course and reports submitted for evaluation.						e hours completed, se and reports	
Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Understanding and knowledge of the principle and method of diagnostic radiology and 3-linaging.  2) Proposal and execution of appropriate research projects in 3-D imaging.  3) Proposal and execution of appropriate research projects in other imaging techniques.							

Class numbering code	Sem	ıester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016wł	hole year	Graduate School of Medical Sciences(20620)	1	, 2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research	Conducti		AYO	Vatsuo			
Under construct	ion 1	100%					
Teaching Sty	le i	講義					
Class metho	d [	Program S	: Natsuo Oya chedule: year 1-4, every Friday (6th po acilities: Radiotherapy Planning Room	eriod) , Nev	v Clinical La	aboratory and	Examination Center
Class objectiv	es l		this Departmental Course is to learn ed to cancer radiotherapy and how it outcome.				
Goals	The aim of this Departmental Course is to learn how biological and technological development been applied to cancer radiotherapy and how it has contributed to the improvement of cancer treatment outcome.						
Class outlin	The aim of this Departmental Course is to learn how biological and technological developmer been applied to cancer radiotherapy and how it has contributed to the improvement of cancer treatment outcome. By patients undergoing radiotherapy, practical knowledge of radiation or and radiotherapy, including the role of radiotherapy in cancer treatment, the procedure of eli decision, the technique of radiotherapy field setting and dose fractionation planning, the technological tradiation, will be discussed. In addition, the principle and method of high-precision 3-D conformal external beam radiotherapy, including stereotactic radiotherapy, intensity modulat radiotherapy and functional image-incorporating radiotherapy, will be also discussed by participating in treatment planning or phantom experiments. The experimental or clinical results should be reported in international scientific journals in the fields of radiation oncology.						ement of cancer of radiation oncology procedure of eligibility anning, the technique precision 3-D tensity modulated cussed by I or clinical results
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Students are evaluated for their course grades and credits based on the course hours comp their understanding and knowledge earned about scientific information on recent progress research for radiation oncology, and ability for study planning and interpretation of the result obtained. The achievement criteria.  1) Understanding and knowledge of the principle and method of radiation oncology and high precision 3-D conformal external beam radiotherapy.  2) Proposal and execution of appropriate research projects in high-precision 3-D conformal beam radiotherapy.						ent progress in the ion of the results cology and high-	

Class numbering code	Semes	ster	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016who	ole year	Graduate School of Medical Sciences(21430)	1,	2, 3, 4	8	other		
		Course			Instr	uctor			
Research (	Conducting	g Prograr	n "Practice" <b>II</b> : Radiation Onco <b>l</b> ogy()			OYA N	latsuo		
Goals with their ratio									
Under construct	ion ····10	00%							
Teaching Sty	le 講	義							
Class metho	ا Pr	rogram So ite and Fa	: Natsuo Oya chedule: year 1-4, every Tuesday (6th- acilities: Radiotherapy Planning Room	7th pe , New	eriods) · Clinical L	aboratory and	l Examination Center		
Class objectiv	es inc	By patients undergoing radiotherapy, practical knowledge of radiation oncology and radiothera including the role of radiotherapy in cancer treatment, the procedure of eligibility decision, the technique of radiotherapy field setting and dose fractionation planning, the technique of irradia will be discussed.							
Goals	By patients undergoing radiotherapy, practical knowledge of radiation oncology and radiother including the role of radiotherapy in cancer treatment, the procedure of eligibility decision, the technique of radiotherapy field setting and dose fractionation planning, the technique of irradivillabe discussed.						lity decision, the		
Class outlin	e ind te wi sy pl un	icluding technique ill be disc stem, to lans expe	s undergoing radiotherapy, practical kn he role of radiotherapy in cancer treati of radiotherapy field setting and dose to ussed. Students are encouraged to les designate adequate radiotherapy plans rimentally. They are also encouraged to d the role of radiation oncology as an in	ment, raction rn ho s for v	the proce mation pla w to opera arious clin icipate in	dure of eligib anning, the te ate the radiot iical cases, ar the clinical co	ility decision, the chnique of irradiation, herapy planning d to evaluate the onferences to		
Required Textb	ooks								
Reading lis	t								
Information conc enrollment									
Assessment methods and criteria/ratios  Students are evaluated for their course grades and credits based on the course hours complete the degree of understanding of radiation oncology, their radiotherapy planning techniques and during the course and reports submitted for evaluation.  The achievement criteria.  1) Understanding and knowledge of the principle and method of radiation oncology and the treatment procedure of radiotherapy.  2) Acquisition of radiotherapy planning techniques.  3) Proposal and execution of appropriate experimental radiotherapy planning.  4) Understanding of the practice of clinical radiotherapy.							g techniques acquired		

Class numbering code	Sei	nester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016v	/hole year	Graduate School of Medical Sciences(22810)	1	, 2, 3, 4	10	other
		Course			Instr	uctor	
Research Conducting Program "Practice" I : Neuropsychiatry()							FUJISE Noboru, SHIMOTO Mamoru
Goals with their ratio							
Under construct	ion · · · ·	100%					
Teaching Sty	le	講義					
Class metho	d	Group lear	rning, presentation, discussion				
Class objectiv	The aim of this Departmental Course is to learn about procedure to evaluate psychiatric and behavioral symptoms of clinical cases of dementia and related disorders such as Alzheimer' disease, neurosyphilis, carbon monoxide poisoning, encephalitis, Korsakoff syndrome and o organic psychiatric diseases. Further aim is to investigate procedure of research about relative between psychiatric symptoms and cognitive impairments using neuropsychological technic investigate appropriate method to identify neuronal bases of psychiatric and behavioral symusing neuroimaging techniques. All instructions in the above-mentioned processes, which a necessary to fulfill requirements for PhD thesis and to present orally, are conducted in this Departmental Course.					aś Alzheimer's ndrome and other ch about relationship ogical techniques, to oehavioral symptoms esses, which are	
Goals							
Class outline	е						
Required Textbo	ooks						
Reading list	t						
Information conceeding	erning						
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Acquisition of basic knowledge and being able to diagnose exactly and to evaluate symptoms organic psychiatric disorders. 2) Acquisition of the newest knowledge and getting novel research theme about psychiatric and behavioral symptoms in organic psychiatric disorder acquisition of the newest knowledge and getting novel result in clinical research by means neuropsychological techniques and neuroimaging techniques. Acquisition of former knowledge and getting novel result in clinical research by means neuropsychological techniques and neuroimaging techniques. Acquisition of former knowledge and getting novel result in clinical research by means neuropsychological techniques and neuroimaging techniques. Acquisition of former knowledge and getting novel research by means neuropsychological techniques and neuroimaging techniques. Acquisition of former knowledge and getting novel research by means neuropsychological techniques and neuroimaging techniques. Acquisition of former knowledge and getting novel research by means neuropsychological techniques and neuroimaging techniques. Acquisition of former knowledge and getting novel result in clinical research by means neuropsychological techniques and neuroimaging techniques.						cing novel result in atric disorders. 3) ch by means of	

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22940)	1,	2, 3, 4	8	other
		Course			Instr	uctor	
Research Conducting Program "Practice" II : Neuropsychiatry()							IISE Noboru, Jiyouno IMOTO Mamoru
Goals with their ratio							
Under construct	ion · · ·	·100%					
Teaching Sty	le	講義					
Class metho	d	Group lear	rning, presentation, discussion				
Class objectiv	The aim of this Departmental Course is to learn about procedure to evaluate psychiatric and behavioral symptoms of clinical cases of dementia and related disorders such as Alzheimer' disease, neurosyphilis, carbon monoxide poisoning, encephalitis, Korsakoff syndrome and ot organic psychiatric diseases. Further aim is to investigate procedure of research about relative between psychiatric symptoms and cognitive impairments using neuropsychological techniq investigate appropriate method to identify neuronal bases of psychiatric and behavioral symusing neuroimaging techniques. All instructions in the above-mentioned processes, which are necessary to fulfill requirements for PhD thesis and to present orally, are conducted in this Departmental Course.					as Alzheimer's ndrome and other ch about relationship logical techniques, to loghavioral symptoms esses, which are	
Goals							
Class outline	е						
Required Textb	ooks						
Reading list	t						
Information conc enrollment	erning						
The achievement will be evaluated according to the following criteria.  1) Acquisition of basic knowledge and being able to diagnose exactly and to evaluate symporganic psychiatric disorders. 2) Acquisition of the newest knowledge and getting novel research theme about psychiatric and behavioral symptoms in organic psychiatric disorders. Acquisition of the newest knowledge and getting novel result in clinical research by means neuropsychological techniques and neuroimaging techniques. Acquisition of former know reference to research theme by learning about literatures, and making up and execution a research plan.					cing novel result in atric disorders. 3) ch by means of		

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(25090)	1,	2, 3, 4	10	other
Course name(Theme)						Instr	uctor
Research Conducting Program "Practice" I : Emergency and General Medicine(Emergency and General Medicine Departmental Course "Jissen" I)						Kasaok	a Shunji
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	⁄le	講義					
Class metho	d	Face-to-fa	ce class lesson, Group learning				
Class objectiv	/es	The aim of this Departmental Course is to learn how to practice emergency medicine and gener medicine. In addition, students should learn the effective teaching methods of basic medical competence.					
Goals		their unde research fo of the resu	re evaluated for their course grades an rstanding and knowledge earned abou or emergency medicine and general me lts obtained. The presentation includi s also taken into consideration to asses	t sciei edicin ng dis	ntific infor e, and abil cussion at	mation on rec lity for interpr : the laborato	ent progress in the etation and criticism ry and academic
Class outline	е	All instruct PhD thesis	cions in the above-mentioned processes and to present orally, are conducted i	s, whi n this	ch are nec Departme	essary to fulf ental Course.	ill requirements for
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Acquisition of basic knowledge and teaching methods of emergency medicine medicine.  2) Acquisition of the newest knowledge and getting novel result in research them medicine and general medicine.  3) Acquisition of former knowledge with reference to research theme by learning and making up and execution appropriate research plan.					eme about emergency		

Class numbering code	Sem	ester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016wh	no <b>l</b> e year	Graduate School of Medical Sciences(25100)	1,	2, 3, 4	8	other
	Course name(Theme)						uctor
Research Conducting Program "Practice" II: Emergency and General Medicine(Emergency and General Medicine Departmental Course "Jissen" I						Kasaok	a Shunji
			Goals with their ratio				
Under construct	ion ····1	100%					
Teaching Sty	'le i	講義					
Class metho	d F	Face-to-fa	ce class lesson, Group learning				
Class objectiv			this Departmental Course is to learn h and to learn the effective teaching met			emergency me	edicine and general
Goals	t	their expei eva <b>l</b> uation	re evaluated for their course grades an rimental skills and techniques acquired . The report assessment can be substit on and discussion at the department ar	durir :uted	ng this cou by the ass	rse, and repo essment of ea	rts submitted for
Class outline			ions in the above-mentioned processe and to present orally, are conducted i				ill requirements for
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra	thods tios 2	1) Acquisit 2) Acquisit	rement will be evaluated according to to ion of basic knowledge of emergency r ion of the newest knowledge and getti and general medicine.	nedic	ine and ge	neral medicir	ne. eme about emergency

Class numbering code	Sen	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016w	hole year	Graduate School of Medical Sciences(21000)	1,	, 2, 3, 4	10	other	
		Course	name(Theme)			Instr	uctor	
Research (	Conduct	ing Progra			SOEJIMA	Hirofumi		
Goals with their ratio								
Under construction ····100%								
Teaching Sty	/le	講義						
Class metho	od	Hirofumi S Site and F	oejima Program Schedule: year 1-4 acilities: Health Care Center at Kuroka			(6th period)		
Class objectiv			f this course is to learn the receptivity c ical analysis to reveal response pattern			ness and to le	earn mental	
Goals	Students are evaluated for their course grades and credits based on the course hours completed their understanding and knowledge earned about scientific information on recent progress in the research for health care science, and ability for study planning and interpretation and criticism of the results obtained. The presentation including discussion at the laboratory and academic meetings is also taken into consideration to assess the level of achievement in the PhD research.						cent progress in the ion and criticism of and academic	
Class outlin	It is well-known that lifestyle-related disease is caused by the changes of life environment factors such as aging, food, exercise, sleep, and stress. In this departmental course, students learn how the life environment factors including food, exercise, sleep, and stress is associated with lifestyle-related disease such as obesity, diabetes mellitus, hypertension, and hyperlipidemia. Then, students learn the receptivity of salt and sweetness that influence feeding, learn cardiopulmonary function or blo coagulation in case of decreased exercise function, and learn mental psychological analysis to reversion response pattern for stress to examine the fluctuation of physiology function and exercise function through life cycle.							
Required Textb	ooks							
Reading list	t							
Information concerning enrollment								
Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Acquisition of the latest knowledge about lifestyle-related disease and disease in youth.  2) Proposal of appropriate research projects on the basis of understanding the background on health care science and execution of the study.								

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period
	2016v	vhole year	Graduate School of Medical Sciences(21810)	1, 2, 3, 4		8	other
	Course name(Theme)						uctor
Research C	Research Conducting Program "Practice" II : Health Care Science()					SOEJIMA	Hirofumi
			Goals with their ratio				
Under constructi	ion · · · ·	100%					
Teaching Styl	le	講義					
Class method	d	Hirofumi S Site and F	oejima Program Schedule: year 1-4, acilities: Health Care Center at Kurokar			(6th - 7th pe	riod)
Class objectiv	es	students n	neasure the receptivity of salt and swee	tness			
Goals							
Class outline	e	feeding, m function, p fluctuation projects to medicine.	partmental course, students measure the easure cardiopulmonary function or bloerform mental psychological analysis to a of physiology function and exercise fullower by the executed should be determined by Research projects and working hypothess and achievement of research.	ood c o reve nction sear	oagulatior al respons n through ching lates	n in case of de se pattern for life cycle. Sp st literatures r	ecreased exercise stress to examine the ecific research elated to the health
Required Textbo	ooks						
Reading list							
Information conce enrollment	erning						
	Assessment methods and criteria/ratios  The achievement will be evaluated according to to 1) Acquisition of the latest knowledge about life so 2) Logical/proper study design to prove the hypo 3) Novel findings obtained by appropriate analytic					ease and dise alth care scie	

Class numbering code	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(20640)	1,	, 2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research Conduc	ting Pro	ogram "Prac	tice" I : Clinical Chemistry and Informa	tics()	IR	IE Tetsumi, Is	hitsuka Youichi
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le	講義					
Class metho	d	Program S	r: Tetsumi Irie, Yoichi Ishitsuka chedule: year 1-4, every Friday (1st pe facilities: seminar room and laboratorie s	riod) s at D	epartmen	t of Clinical C	hemistry and
Class objectiv	es es	mode of d	f this Departmental Course is to learn h rug administration based upon the dru ent of pharmaceuticals.				
Goals							
Class outline	e	mode of d developme analysis ar medicine of medicine of be used for overcome be modified experiment sciences, p chemistry	f this Departmental Course is to learn hrug administration based upon the drugent of pharmaceuticals. In addition, the acquired during this Course. Since to used by the newborn baby and the infactan be determined based on the theraper designing individualized dosage reging the problem of "therapeutic orphans" and improved depending on the problem of	g info e tech ne the nt, po eutic nen fo ' . Re gress ific jo ery sys the ak	rmation ac iniques for erapeutic v opulation p c drug mon or the neor esearch pro and achie urnals in t stem, thera	ccumúlated dibiostatistics window is quit wharmacokine itoring data. nate in clinicabjects and wo wement of reshe fields of planetic drug rioned process	uring the research and and computer-based the narrow in the tic parameters for the These parameters can I practice in order to rking hypothesis can earch. Finally, the narmaceutical monitoring, clinical ses, which are
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
1) Proposal of appropriate research projects on the basis of understanding the background of pharmaceutical sciences, clinical chemistry and informatics. 2) Understanding how to analyze pharmacokinetic/pharmacodynamic data and design the individualized dosage regimen for patients. 3) Logical/proper experimental design to optimal drug delivery system. 4) Novel findings obtained by appropriate and proper analytical approaches. 5) Original and innovative findings that can contribute not only to pharmaceutical sciences for research and development of pharmaceutics but also to the optimal individualized dosage refor patients in clinical practices.						nd design the	

Class numbering code	Semester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period	
	2016whole year	Graduate School of Medical Sciences(21450)	1,	2, 3, 4	8	other	
	Course	name(Theme)			Instr	uctor	
Research Conduc	ting Program "Prac	tice" <b>II</b> : Clinical Chemistry and Informa	tics()	IR	IE Tetsumi, Is	hitsuka Youichi	
		Goals with their ratio					
Under construct	ion ····100%						
Teaching Sty							
Class metho	d Superviso Program S Site and I	r: Tetsumi Irie, Yoichi Ishitsuka chedule: year 1-4, every Thursday (3rd- acilities: seminar room and laboratorie:	-4th p s at D	eriods) epartmen	t of Microbio <b>l</b>	ogy	
Class objectiv	ves metabolit	The aim of this class is to acquire the techniques to analyze the concentrations of drugs and the metabolites and various biomarkers in the biophases such as saliva, blood, urine, cerebrospinal bronchoalveolar lavage fluid, and various tissues.					
Goals							
The aim of this class is to acquire the techniques to analyze the concentrations of drugs an metabolites and various biomarkers in the biophases such as saliva, blood, urine, cerebrosy bronchoalveolar lavage fluid, and various tissues. Based on such quantitative and/or qualitinformation, population pharmacokinetic parameters of the drugs can be determined and to parameters can be used for the designing of optimal and individualized drug dosage regime patients. In particular, experimental techniques to be earned in this course include establic experimental hypoxia models of animals, such as guinea-pigs and rats, and cultured cells, a analysis of various inflammatory mediators and signaling factors produced in cells and tissue Particular emphasis is placed also on safe and proper use of drugs such as xanthines and dadministered to neonates with appea.					ne, cerebrospinal fluid, and/or qualitative rmined and these losage regimen in clude establishment of ltured cells, and tissues.		
Required Textb	ooks						
Reading list	t						
Information conc enrollment	erning						
Assessment methods and criteria/ratios  Assessment methods and criteria-ratios  Assessment methods and criteria-ratios  Assessment methods and criteria-ratios  Assess					signaling factors, and rugs and their lication.		

Class numbering code	Semester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period
	2016whole year	Graduate School of Medical Sciences(20660)	1,	2, 3, 4	10	other
	Course	e name(Theme)			Instr	uctor
Research Sciences(Medical	Conducting Progra Information Scien Thes	PhD	USUKU Koichiro, Hirose Jiyun			
		Goals with their ratio				
Under construct	ion ····100%					
Teaching Sty	le 講義・演習	21 1				
Class metho	d Small grou	up discussion and course reading.				
Class objectiv	es communic	f this Departmental Course is to learn he cation technology in the medical field, d s of alternative medicine.	ow to leve <b>l</b> o	use the p p talented	rogress of info I medical pra	ormation ctitioners and find the
Goals	their unde research f planning a discussion	are evaluated for their course grades an erstanding and knowledge earned about for medical informatics and communicated interpretation and criticism of the real at the department and academic meet the venture in the PhD research.	t scier tion te esu <b>l</b> ts	ntific infor echnology obtained.	mation on red , and ability fo The presenta	cent progress in the or experimental ation including
Class outlin	electronic suitable s technolog effectiven practition	projects are mainly focused on learning medical record system that has various ystem for given disease susceptibility an y, and eXtensible Markup Language and ess of alternative medicine and impleme ers and alternative medicine. All instruc to fulfill requirements for PhD thesis, an	interialysis, d 4) a ent e-l tions i	faces for 6 , 3) datab system th Learning s in the abo	entering medi ase technolog at can evalua system for edu ve-mentioned	cal records, 2) an gy, internet te clinical skills, ucating medical d processes, which are
Required Textb	ooks Informatio	on is provided in the class.				
Reading list	Informatio	on is provided in the class.				
Information conc enrollment		uisite.				
The achievement will be evaluated according to the following criteria.  1) Proposal of appropriate research projects on the basis of understanding the background or medical informatics  2) Logical/proper experimental design to identify the factors for progress in alternative medical 3) Novel findings obtained by appropriate analytical approaches for educating medical practite 4) Innovative findings that can contribute not only to better understanding for medical information but to successful development of EHR system that is useful for education, research and medical practice						ternative medicine g medical practitioners medical informatics

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016whole year	Graduate School of Medical Sciences(21470)	1,	2, 3, 4	8	other
	Course	e name(Theme)			Instr	uctor
Research ( Sciences(Medi	II	USUKU Koichiro, Hirose Jiyun				
		Goals with their ratio				
Under construct	ion ····100%					
Teaching Sty	le 講義・演習	E E				
Class metho	d Experime	ntal course to handle programs for med	cal in	formatics.		
Class objectiv	Students are evaluated for their course grades and credits based on the course hours completed their experimental skills and techniques acquired during this course, and reports submitted for evaluation. The report assessment can be substituted by the assessment of each student's presentation and discussion at the department and academic meetings.					
Goals	To be able appropria	e to properly handle information in the f te program for medical practice.	iled o	of medicine	e and to have	ability to propose
Class outline	their unde research f planning a discussion	are evaluated for their course grades an erstanding and knowledge earned abour for medical informatics and communica and interpretation and criticism of the re a at the department and academic meet thievement in the PhD research.	scier ion te esu <b>l</b> ts	ntific infor echnology obtained.	mation on rec , and ability fo The presenta	ent progress in the or experimental ation including
Required Textb	ooks Informatio	on is provided in the class.				
Reading list	: Information	on is provided in the class.				
Information conc enrollment	erning No prerec	uisite.				
Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Acquisition of experimental skills to produce electronic health record systems  2) Understanding how to investigate problems in the field of disease susceptibility analysis  3) Acquisition of experimental techniques to identify the factors for progress in alternative med.  4) Understanding of technique that is useful for developing databases and internet communic for alternative medical practitioner alternative medicine and medical economy						oility analysis n alternative medicine ernet communication

Class numbering code	Sei	mester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016v	vhole year	Graduate School of Medical Sciences(22230)	1	, 2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research Conduc	ting Pro	gram "Prac	tice" I : Physiological Function Assess	ment()	Nakaı	mura Masaak	i, sakamoto mineshi
Under construct	ion · · · ·	100%					
Teaching Sty	le l	その他					
Class metho	d						
Class objectiv	/es	Students are evaluated for their course grades and credits based on the course hours complete their understanding and knowledge regarding scientific information on recent progress in the research field, and their ability in experimental planning and interpretation of the results obtain. The presentation including discussion in the laboratory and academic meetings is also taken in consideration to assess the level of achievement in PhD research.					
Goals							
Class outlin	e	to underst especially The risk o mechanisr neuronal o	development of brain imaging metho and the brain function better. The air using magnetoencephalography (ME fremethylmercury exposure of the devence of methylmercury (MeHg) transfer the developing brain hich provide important knowledge to	n of th G). Hoping the fexpose	is course is g fetus brain etus via pla ed to MeHg	to learn aboun is very high. centa, as wel at various br	ut brain function,  We lecture about the last distinct pattern of
Required Textb	ooks						
Reading list	t						
Information conc enrollment	erning						
Achievement will be evaluated according to the following criteria.  Understanding and knowledge of the principles and approach of several brain imaging me along with newer results of research. Understanding of logical and proper experimental design to investigate use of brain imaging methods such as MEG. Understanding of MeHg transfer to fetus via placenta, and distinct pattern of neuronal deging in the developing brain exposes to methylmercury at various brain development phases. Understanding of the appropriate analysis method of the effects of methylmercury on brain development brain development phases and conducting the appropriate experimental design						brain imaging neuronal degeneration nt phases. rcury on brain function	

Class numbering code	Sen	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016w	hole year	Graduate School of Medical Sciences(22240)	1	, 2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research Conducting Program "Practice" II : Physiological Function Assessment()					Nakar	nura Masaaki	, Sakamoto mineshi
	Goals with their ratio						
Under construct	ion	100%					
Teaching Sty	'le	その他					
Class metho	d						
Class objectiv	Class objectives  Class objectives  Students are evaluated for their course grades and credits based on the course hours complete their understanding and knowledge regarding scientific information on recent progress in the research field, and their ability in experimental planning and interpretation of the results obtain The presentation including discussion in the laboratory and academic meetings is also taken consideration to assess the level of achievement in PhD research.						progress in the the results obtained.
Goals							
Class outlin	e	brain by an We also le neuronal o	this course is to learn the process of nalyzing sensory function by a practic cture on methylmercury (MeHg) trans degeneration in the developing expos important to evaluate the brain functi	al case fer to f ure to l	study usir etus via pla MeHg at va	ng magnetoer acenta, and tl arious brain d	ncephalography (MEG). In distinct pattern of evelopment phases,
Required Textb	ooks						
Reading lis	t						
Information conc enrollment							
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Assessment methods and knowledge of the principles and approach of several brain imaging methods with newer research results written in English.  Understanding of logical and proper experimental design to investigate use of brain imaging methods such as MEG.  Understanding of the appropriate analysis method on the effects of methylmercury on brain function at different brain development phases and conducting the appropriate experimental design.						brain imaging	

Class numbering code	Semester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period
	2016whole year	Graduate School of Medical Sciences(22730)	1,	2, 3, 4	10	other
	Course	name(Theme)			Instr	uctor
Research Con	ducting Program N	"Practice" I : Advanced Cardiovascular ledicine()		Yasuda		ai Toshihisa, Kusano ngo
		Goals with their ratio				
Under constructi	on · · · · 100%					
Teaching Styl	e その他					
Class method	d					
Class objective	es their under research, Presentation of achieve	are evaluated for their course grades and standing and knowledge earned about and the ability to design the study and it on at the internal meetings and the reportment in the PhD research. Presentation ournals are also evaluated as the PhD re	scier nterp ort are at the	ntific inform retation and taken inf e scientific	mation on rec nd criticism o to considerati	ent progress in the f the results obtained on to assess the level
Goals						
Class outline	coronary s MRI findin Furthermo remodelin response establishe	f this course is to learn how to propose syndrome (ACS). The clinical database or gs, will be analyzed to investigate the nore, significant determinants of the postig will be clarified. Especially, the role of in LV remodeling will be investigated by d in NCVC. Instruction for presentation wed journals will be provided.	of NC\ ovel p infarc post- colla	/C, such a predictors ction comping in farction boration v	s patients bad of the develo plications and inflammation vith the Natio	ckgrounds, MDCT and pment of ACS. I left ventricular (LV) and immune nal Bio bank
Required Textbo	ooks					
Reading list						
Information concerning enrollment						
Assessment meth and criteria/rat	nods 1) Unders 2) Proposinfarction	vement will be evaluated according to t tanding the pathogenesis of ACS in rela al of appropriate research projects rega complications. ndings, regarding the determinants of L	tion to rding	patients the predic	backgrounds ctors and path	nophysiology of post-

Class numbering code	Semester	Course belonging/Course code	Ye	ear/Grade	Credit	Day,Period
	2016whole yea	r Graduate School of Medical Sciences(22750)	1	, 2, 3, 4	8	other
	Cou	se name(Theme)			Instr	uctor
Research Cor	nducting Progran	ular	Yasuda		zai Toshihisa, Kusano ngo	
		Goals with their rat	io			
Under construct	ion · · · · 100%					
Teaching Sty	le その他					
Class metho	d					
Class objectiv	researc Present of achie	s are evaluated for their course grade: derstanding and knowledge earned al a, and the ability to design the study a ation at the internal meetings and the vement in the PhD research. Presenta c journals are also evaluated as the Ph	out sciend interprepart a report a tion at t	entific infor pretation ar re taken in the scientifi	mation on red nd criticism o to considerat	cent progress in the of the results obtained. ion to assess the level
Goals						
Class outlin	e congen catecho phenoty elucida mutant studied	of this course is to learn molecular di tal long QT syndrome, Brugada syndro laminergic polymorphic ventricular ta pe correlation will be analyzed using e the genotype-specific pathogenesis channel using the whole-cell patch cla in this Departmental Course. Whole a te genes or modifier genes using next	ome, pro chycardi nulticen manage mp tech enome	ogressive ca ia, and sho iter databa ement and inique or ti studies inc	ordiac conduct ort QT syndror se of those in therapy. Fur ransgenic mo luding exome	ction defect, ne. The genotype- herited arrhythmias to nctional analysis of the use model will be to identify new
Required Textb	ooks					
Reading list						
Information conc enrollment	erning					
Assessment methods and criteria/ratios  1) Understanding of molecular diagnosis for inherited arrhythmia syndromes, such as collong QT syndrome, Brugada syndrome, progressive cardiac conduction defect, catecholic polymorphic ventricular tachycardia.  2) Proposal of the genotype-specific pathogenesis, management and therapy by analyzing genotype-phenotype correlation using multicenter database of those inherited arrhythm 3) Understanding of the functional analysis of the mutant channel using the whole-cell performance of the condition of the whole genome studies including exome to identify new candidation modifier genes using next generation sequencer.						

Class numbering code	Sen	nester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period	
	2016w	hole year	Graduate School of Medical Sciences(20870)	1	, 2, 3, 4	10	other	
		Course	name(Theme)			Instr	uctor	
Research Surgery(Resea	Conduc arch Cor	ting Progra	am "Practice" I : Gastroenterological rogram "Practice" I : Gastroenterologic	al	BA	NBA Hideo, Ya	mashita Youichi	
			Goals with their ratio					
Under construct	ion · · · ·	100%						
Teaching Sty	le	演習						
Class metho	d	Site and Fa	acilities: seminar room and laboratori	s at D	epartment	of Gastroent	erogical Surgery	
Class objectiv	res .	digestive disease an	ne mechanisms of the disease caused organ. Furthermore, advanced surgica d muti-modal treatment (surgery, che in this program.	care:	such as mii	nima <b>ll</b> y invasi	ve surgery for benign	
Goals		1. To unde	Description] erstand the mechanisms of the disease e organ. 2. To understand advanced ease and muti-modal treatment for ca	surgic				
Class outline	е	organ will invasive su		more, da <b>l</b> tre	nal and morphologic disorder in digestive , advanced surgical care such as minimally eatment (surgery, chemotherapy and s program.			
Required Textb	ooks							
Reading list	t							
Information concentrollment	erning							
Assessment met and criteria/ra		Students a gastroente results obt (Evaluation 1) Integrat	on for Grades and Credits] are evaluated for credits based on the crological surgery, and ability for expe- ained. on Criteria] ed knowledge of each disease of dige ed knowledge of digestive surgery tre	iment stive s	al planning urgery	g, interpretation		

Class numbering code	Sen	mester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016w	hole year	Graduate School of Medical Sciences(21680)	1	, 2, 3, 4	8	other
		Course			Instr	uctor	
Research Surgery(Resea	Conduc arch Con	ting Progra ducting Pr	al	BA	NBA Hideo, Ya	mashita Youichi	
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	演習					
Class metho	d	Site and Fa	acilities: seminar room and laboratorie	s at D	epartment	of Gastroent	erogical Surgery
Class objectiv	es/es	developme biological experimen identify the	odology for analysis of the factors relat ent will be addressed in this program. response to surgical invasiveness and tal skill to analyze the genes alternatic e cancer stem cells, investigate the ex n of resistance of chemotherapy will b	Furthe inflan n in c oressi	ermore, the nmation wil cancer tissu on of micro	e methodolog II be shed ligh ues, develop t DRNA in cance	y for analysis of nt on. Specifically, the he gene therapy.
Goals		1. To under cancer dev surgical in alternation	Description] Perstand the methodology for analysis of velopment. 2. To understand the met vasiveness and inflammation. 3. To understand the met vasiveness and inflammation. 4. To understand cancer, develop the gene therapy, and microRNA in cancer and clarify the	hodol nders ident	logy for ana tand the ex ify the can	alysis of biolog operimental sl cer stem cells	gical response to kill to analyze the gene , investigate the
Class outline	e	cancer lea Furthermo inflammati of cancer,	odology for analysis of the factors relat ding to the development of novel trea re, the methodology for analysis of bic on will be shed light on. Specifically, t develop the gene therapy, identify the in cancer and clarify the mechanism of the.	ment logica ne exp canc	s will be ac al response perimental er stem cel	ldressed in the to surgical in skill to analyz lls, investigate	is program.  nvasiveness and te the gene alternation te the expression of
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
[Evaluation for Grades and Credits] Students are evaluated for credits based on their understanding and knowledge of gastroenterological surgery, and ability for experimental planning, interpretation and critic results obtained.  [Evaluation Criteria] 1) Acquisition of experimental skills to analyze the factor related to carcinogenesis and deforming the factor related to carcinogenesis.							on and criticism of the

Class numbering code	Semester		Course belonging/Course code	١	Year,	/Grade	Credit	Day,Period
	2016whole y	ear	Graduate School of Medical Sciences(20890)		1, 2	2, 3, 4	10	other
	Со	urse i			Instr	uctor		
Research	Conducting F	rogra	m "Practice" I : Thoracic Surgery()				Suzuki	Makoto
			Goals with their rati	0				
Under construct	ion · · · · 100%							
Teaching Sty	le 講義							
Class metho	d Powe Extra reaso	classe	will be used in the lectures, and ac es or video lectures are considered	tive p	oartic ose v	cipation i who are r	n the discuss egularly abse	ion is encouraged. nt for unavoidable
Class objectiv	Recer	t adv	ances of thoracic surgery depends	on the	e fo <b>ll</b>	lowing fa	ctors	
Goals	1) U 2) N	nders ove <b>l</b> f	ement will be evaluated according t standing of state of art thoracic surg indings obtained by appropriate an ng new therapy or diagnostic techn	ery. d pro	per a	ana <b>l</b> ytica	l approaches.	
Class outline	3) evo thorac projec journa	lving ic su t. Fin Is. All	on of diagnostic imaging, 2) develor techniques for segmentectomy. Sur rgery. Second, Search literatures re ally, the experimental results or clir I instructions in the above-mention tts for PhD thesis, are conducted in	mmari lated lical tr ed pro	rize tl to th rials ocess	hese adv ne issue a should b ses, whic	ances and exi and determine be reported in h are necessa	tract issues with e specific research international specific
Required Textbo	ooks							
Reading list								
Information concerning enrollment								
Assessment met and criteria/rai	their under their	nder ch fo resul	e evaluated for their course grades standing and knowledge earned ab r thoracic surgery, and ability for ex ts obtained. The presentation inclu also taken into consideration to as	out so perim	cient nenta disci	ific infori al plannir ussion at	mation on rec ng and interpr the laborator	ent progress in the etation and criticism by and academic

Class numbering code	Semes	ster	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016whol	le year	Graduate School of Medical Sciences(21700)	1,	2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research	Conductin	ng Progra	am "Practice" <b>II</b> : Thoracic Surgery()			Suzuki	Makoto
			Goals with their ratio				
Under construct	ion · · · · 100	0%					
Teaching Sty	le 講	義					
Class method	d Ext		t will be used in the lectures, and actives or video lectures are considered fo				
Class objectiv	es the	udents a eir exper aluation.	re evaluated for their course grades ar imental skills and techniques acquired	nd cre d durir	dits based ng this cou	on the cours rse, and repo	e hours completed, rts submitted for
Goals	the	eir exper aluation.	re evaluated for their course grades an imental skills and techniques acquired . The report assessment can be substi on and discussion at the laboratory an	d durir tuted	ng this cou by the ass	rse, and repo essment of ea	rts submitted for
Class outline	e lite	erature. l	e advances of thoracic surgery and ext Understand the meaning of statistics in n experiments.				
Required Textbo	ooks						
Reading list							
Information conceenrollment	erning						
			rement will be evaluated according to standing state of art thoracic surgery.	the fol	llowing crit	eria.	
Assessment met		) Acquis	sition of literature search skill.				
and criteria/rat		) Under	standing the statistical meaning in you	ır data	l.		
	4)	) Acquis	sition of elementary skills of gene and	orotei	n experime	ents.	
	5)	) Contri	ving logical/proper experimental desig	gn.			

Class numbering code	Semester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period	
	2016whole year	Graduate School of Medical Sciences(20860)	1,	2, 3, 4	10	other	
	Course			Instr	uctor		
Resear	ch Conducting Pro Surgery(Car	ogram "Practice" I : Cardiovascular diovascular Surgery)		F	ukui Toshihiro	o, Okamoto Ken	
		Goals with their ratio					
Under construct	ion · · · · 100%						
Teaching Sty	le その他						
Class metho	d seminar r	oom and laboratories at Department of	Cardio	ovascular	Surgery		
Class objectiv	es cardiovas	of this Departmental Course is to learn 1 cular system, 2) recent surgical procedu a new surgical procedure for cardiovascu	res fo	r cardiova			
Goals		e research progresses in the above-mer ents for PhD thesis, and reported by ora			es are necess	ary to fulfill	
The aim of this Departmental Course is to learn 1) new knowledge regarding diseases of cardiovascular system, 2) recent surgical procedures for cardiovascular disease and 3) h propose a new surgical procedure for cardiovascular disease. The hypothesis must then experimentally. Latest literatures, for example, regarding blood flow disturvance, cardiac dysfunction, angiogenesis, and tissue regeneration are searched. Experimental design w constructed to develop a novel approach for therapeutic angiogenesis and myocardial r using angiogenic growth factors and various stem cells. Finally, the experimental results reported in international scientific journals in the fields of cardiovascular medicine, card surgery, regenerative medicine. All instructions in the above-mentioned processes, which necessary to fulfill requirements for PhD thesis, are conducted in this Departmental Cou						e and 3) how to must then be proven ce, cardiac I design will be rocardial regeneration tal results should be icine, cardiovascular sses, which are	
Required Textb	ooks						
Reading lis	t						
Information conc enrollment	on concerning rollment						
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Understanding of latest knowledge regarding cardiovascular system and disease.  2) Understanding of physiological and molecular mechanisms for angiogenesis or tiss regeneration in cardiovascular system.  3) Proposal of appropriate research projects on the basis of understanding the cardiovascular system.  4) Novel findings obtained by appropriate and proper analytical approaches.							

Class numbering code	Sem	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016wł	ho <b>l</b> e year	Graduate School of Medical Sciences(21670)	1, 2, 3, 4		8	other
		Course			Instr	uctor	
Researc			gram "Practice" II : Cardiovascular diovascular Surgery)		Fu	ukui Toshihiro	o, Okamoto Ken
			Goals with their ratio				
Under construct	ion · · · · 1	100%					
Teaching Sty	'le	その他					
Class metho	d	seminar ro	om and laboratories at Department of	Cardi	ovascular	Surgery	
Class objectiv		The aim of abnorma <b>l</b> it	this class is to acquire the techniques ties.	to an	a <b>l</b> yze cardi	iovascu <b>l</b> ar sys	tem and
Goals			e research progresses in the above-mer nts for PhD thesis, and reported by ora			es are necess	ary to fu <b>l</b> fi <b>ll</b>
Class outlin	e a	abnormalit establishm anastomos to investig	this class is to acquire the techniques ties. Specifically, experimental techniq tent of experimental models of animals sis technique, angiogenic therapy and a ate angiogenesis or myocardial regene tral Course.	ies to inclue inalys	be earned ding rat, m is of mo <b>l</b> ed	d in this cours louse and dog cular markers	se include g, vascular . Advanced techniques
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra	thods tios	1) Acquisit ischemia. 2) Acquisit 3) Acquisit 4) Underst	vement will be evaluated according to to to the common of experimental skills to produce a common of experimental skills to anastomostion of experimental techniques to culto the common of experimental techniques to culto and ing of physiological and molecular tental protocol for angiogenesis or mycontal protocol for angiogenesis or my	nimal se ves ure pr mech	models fo sels and to ogenitor o anism of a	r myocardial i o produce ang cells for angio	giogenesis. genesis or myogenesis.

Class numbering code	Sem	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016wl	hole year	Graduate School of Medical Sciences(20910)	1,	, 2, 3, 4	10	other		
		Course	name(Theme)		Instructor				
Stud	locrine res	actice" I : Breast and Endocrine Surger ponsiveness in breast cancer, ostic factors in breast cancer)	y(1.	IWASE Hirotaka, YAMAMOTO Yutaka					
Goals with their ratio									
Under construct	ion · · · · ·	100%							
Teaching Sty	le	実習及び実	技						
Class metho	d ·	face-to-fac	e class lesson, group learning, e-learn	ing					
Class objectiv	es :	1. The clin for advanc outcome. 2. The sigr discussed 3. The cor	ation of each person will be supported ical usefulness of prognostic and pred ed/recurrent breast cancer will be dis nal transduction of breast cancer grow and the new treatment strategies for a nventional knowledge related to the stesearch work. Appropriate experiment	ictive cussed th, esp dvanc udy th	factors for d accordin becially en- ced breast neme will b	breast cance g to clinical re docrine-depe will be analyz de discussed i	or treatment, especially esearch of patient's ndent growth, will be ed. In the literature and		
Goals		1. The clin for advance outcome. 2. The sigred discussed 3. The conpractical reaction will be rep 5. About the action the section the action the section that the section the section the section that the secti	ation of each person will be supported ical usefulness of prognostic and pred ed/recurrent breast cancer will be dis all transduction of breast cancer grow and the new treatment strategies for a ventional knowledge related to the stressearch work. Appropriate experiment on and dysfunction of the endocrine corted.  The fundamental knowledge and the acs will be published in English Journals.	ictive cussed th, esp dvanc idy the al plar rgans	factors for d accordin pecially en- ced breast eme will be n will be gi , such as tl	breast cance g to clinical re docrine-depe will be analy ir e discussed ir ven to carry c hyroid, parath	or treatment, especially esearch of patient's ndent growth, will be ed. In the literature and out the theme. Invroid, adrenal grand		
Class outline	Surgical management and muti-modal treatment for the endocrine-related cancers or tumors, so as breast cancer, thyroid cancer, and other functional tumors, such as, parathyroid adenoma or hyperplasia with MEN (multiple endocrine neoplasia) and the functional tumors of adrenal gland be addressed in this practical series. Furthermore, the multimodal management of advanced cancer/recurrence breast cancer including chemotherapy, endocrine therapy and molecular targeting therapy will be discussed. In addition, the fundamental research works, such as the analyses of machanism of breast cancer growth, especially estrogen dependent growth, and oth genetic or serum markers for monitoring or predicting factors of breast cancer treatment, will be conducted by the instructors. The above-mentioned results of research will be published in an article and presented.								
Required Textbo	ooks								
Reading list									
Information conceeding	erning	Have earn	ed credits in Research Conducting Pro	ogram	"Practice"	I : Breast and	l Endocrine Surgery		
Assessment met and criteria/ra		Grading w	ill be based on active class participation	n, pa	per summa	aries or the fir	al reports.		

Class numbering code	Se	mester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period		
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21720)	1	, 2, 3, 4	8	other		
		Course	name(Theme)		Instructor				
Research ( Surgery(Resear	Conductrch Con	ducting Pro	m "Practice" <b>II</b> : Breast and Endocrine gram "Practice" <b>II</b> : Breast and Endocri Surgery	ne	e IWASE Hirotaka, YAMAMOTO Yutaka				
1. Study of endocrine responsiveness in breast cancer,									
			Goals with their ratio						
Under construct									
Teaching Sty	de	講義							
Class metho	d	face-to-fac	ce class lesson, group learning, e-learn	ing					
Class objectiv	/es	The evaluation of each person will be supported by each theme according to below points.  1. The clinical usefulness of prognostic and predictive factors for breast cancer treatment, esp for advanced/recurrent breast cancer will be discussed according to clinical research of patie outcome.  2. The signal transduction of breast cancer growth, especially endocrine-dependent growth, v discussed and the new treatment strategies for advanced breast will be analyzed.  3. The conventional knowledge related to the study theme will be discussed in the literature appractical research work. Appropriate experimental plan will be given to carry out the theme.							
Goals		1. The clin for advance outcome. 2. The sign discussed 3. The con practical r4. The activill be rep 5. About tl	ation of each person will be supported ical usefulness of prognostic and prediced/recurrent breast cancer will be dismal transduction of breast cancer grow and the new treatment strategies for a prentional knowledge related to the stressearch work. Appropriate experiment ion and dysfunction of the endocrine conted.  The fundamental knowledge and the acs will be published in English Journals.	ictive cusse th, esp dvance idy the al plan organs hiever	factors for d accordin pecially en- ced breast eme will be n will be gi s, such as the	breast cance g to clinical re docrine-depe will be analyz e discussed in ven to carry o hyroid, parath	r treatment, especially esearch of patient's ndent growth, will be ed. the literature and ut the theme. yroid, adrenal grand		
Surgical management and muti-modal treatment for the endocrine-related cancers or tumors, so as breast cancer, thyroid cancer, and other functional tumors, such as, parathyroid adenoma or hyperplasia with MEN (multiple endocrine neoplasia) and the functional tumors of adrenal gland be addressed in this practical series. Furthermore, the multimodal management of advanced cancer/recurrence breast cancer including chemotherapy, endocrine therapy and molecular targeting therapy will be discussed. In addition, the fundamental research works, such as the analyses of machanism of breast cancer growth, especially estrogen dependent growth, and oth genetic or serum markers for monitoring or predicting factors of breast cancer treatment, will be conducted by the instructors. The above-mentioned results of research will be published in an article and presented.							roid adenoma or or of adrenal gland, will at of advanced and molecular ks, such as the tgrowth, and other treatment, will be		
Required Textb	ooks								
Reading list	t								
Information concerning enrollment  Have earned credits in Research Conducting Program "Practice" I: Breast and Endocrine Surgery									
Assessment met and criteria/ra		ing will be	based on active class participation, pa	per s	ummaries	or the final re	ports		

Class numbering code	Semest	ter	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016whol	le year	Graduate School of Medical Sciences(22880)	1,	2, 3, 4	10	other
		Course			Instr	uctor	
Research ( Transplantation	Conducting n(Practice o	Progran	ry)		INOMATA	A Yukihiro	
			Goals with their ratio				
Under construct	ion · · · · 100	0%					
Teaching Sty	le その	の他					
Class metho	d Thu P <b>l</b> a	ursday a ace of th	he course and the class: From 1st to 4 nd Friday. e class: in the offices and labs of the d to the facilities of the University Hosp	epartr	•	,	
Class objectiv		find the nsplanta	problems and improve the outcome o	f trea	tment in th	ne pediatric su	urgery and
Goals			problems and their resolutions in the ney should be presented or published.		of the pedi	atric surgery	and transplantation
Class outlin	e disc pec foc In t trai how ind The	covery of diatric solutions of the field nsplanta withe LD dications e studer	of genomic analysis, epidemiological staff pathogenesis and in the development urgery, especially in congenital anomant the making a study design, method of the transplantation surgery, history tion (LDLT) will be studied by reading DLT has been developed, how it has been and evolutions for immunosuppressints will be instructed for the oral present their studies.	nt of n lies. I f the s and t the re en ex	ew treatme These are I study, and he current elating artion panded fro	ent modalitie earned in the finalizing the status of livir cles. The stud om pediatric t	s in the field of process of reading, conclusion. In g donor liver by will be focused on a dults, problems of
Required Textb	ooks						
Reading list	t						
Information concerning enrollment							
Assessment met and criteria/ra	thods the	ident. H eir study esentatio	sessment of written reports and oral proop ow the students recognize the related and obtained the results are focussed ons in some academic meetings, and put are all included in the material for as	article Pub resen	e or book o lished arti tations in t	chapters and icles written b	how they planned by the students, oral

Class numbering code	Ser	mester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016w	vho <b>l</b> e year	Graduate School of Medical Sciences(23010)	1	, 2, 3, 4	8	other
	Course name(Theme)						uctor
Research C Transplanta	Conduct ation(Pra	ing Prograr actice" <b>II</b> : P	m "Practice" <b>II</b> : Pediatric Surgery and Pediatric Surgery and Transplantation)			INOMATA	\ Yukihiro
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	その他					
Class metho	d	In seminar	rooms and labs of department of ped	atric	surgery and	d transplantat	ion
Class objectiv	es/es	Learning of surgery an	f the study skills for the research work d transplantation	to res	olve the p	roblems in the	e field of pediatric
Goals		Obtaining theme.	the study skill and conducting oral pre	senta	tions, writi	ng artic <b>l</b> es rel	ated to the targeted
Class outline	e	rat model immune-c	f clinical pathology, disease-related ve for liver transplantation, study about th ompetent cells in the field of liver trans of peri- transplant periods, and so on.	ne clir splant	nical use of	immunosupr	ressants, analysis of
Required Textbo	ooks						
Reading list	t						
Information concerning enrollment							
Assessment met and criteria/ra			ital skill and the ability for presentation ntific meetings, and the progress repot sed.				

Class numbering code	Semester	Course belonging/Course code	Year/Grade		Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(20920)	1, 2, 3, 4		10	other		
	Course	e name(Theme)			Instructor			
Research Conduc	cting Program "Pra program "Prad	ogram "Practice" I : Neurosurgery(Research conduct ogram "Practice"I:Neurousurgery)		YANO Shigetoshi, NAKAMURA Hideo, MAKINO Keishi, HIDE Takuichiro, KAWANO Takayuki, SHINOJIMA Naoki, OHMORI Yuki, NAKAGAWA Takashi				
		Goals with their ratio						
Under construct	ion · · · · 100%							
Teaching Sty	le 実習	実習						
Class metho	d writing the	searching and reading of scientific papers, planing and performing research on the specific theme, writing the paper practice place; the laboratory in the Department of Neurosurgery						
Class objectiv	of malignation of mal	Course 1: The aim of this course is to teach the mechanisms underlying the molecular pathogenesis of malignant brain tumors.  Course 2: This course teaches the mechanisms underlying the development of cerebral aneurysms, the molecular biology of moyamoya disease, and genetic abnormalities found in congenital anomalies of the central nervous system.						
Goals	understar and recer	Students will receive course grades and credits based on the course hours completed, their understanding and knowledge of course material, and their comprehension of scientific information and recent progress made in brain tumor treatment. Current molecular-targeting therapies, newgeneration of chemotherapy, and interventional neurosurgery are topics to be understood.						
Class outlin	p53 gene and chror and progr solid unde Course 2: the molec	Course 1: An understanding of the molecular mechanisms of tumorigenesis such as mutation of the p53 gene and IDH1/2, methylation of the promoter region of the MGMT gene, EGFR amplification and chromosome 1p/19q deletion will be gained. The correlation between these gene mutations and prognosis, and the role of chemokines such as MCP-1 in tumorigenesis will be addressed. A solid understanding of tumor immunology will be acquired. Course 2: An understanding of he mechanisms underlying the development of cerebral aneurysms, the molecular biology of moyamoya disease, and genetic abnormalities found in congenital anomalies of the central nervous system.						
Required Textb	ooks							
Reading list	t							
Information conc enrollment	erning							
	evaluation of reports Course 1:  1. An understanding of the role of molecular pathogenesis such as p53 mutation, IDH1/2 mutation and chromosome 1p/19q deletion 2. An understanding of the mechanisms of gene modification such as methylation and amplifications. An understanding of the role of chemokines produced by the brain tumor Course 2:  1. An understanding of the mechanisms underlying the development of cerebral aneurysms 2. An understanding of the molecular biology of moyamoya disease 3. An understanding of genetic abnormalities in congenital anomalies of the central nervous systems.							

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016whole yea	Graduate School of Medical Sciences(21730)	1,	, 2, 3, 4	8	other	
Course name(Theme)				Instructor			
Research Conduc	ting Program "Pr program "Pr			YANO Shigetoshi, NAKAMURA Hideo, MAKINO Keishi, HIDE Takuichiro, KAWANO Takayuki, SHINOJIMA Naoki, OHMORI Yuki, NAKAGAWA Takashi			
		Goals with their ratio					
Under construct	ion · · · · 100%						
Teaching Sty	le 実習						
Class metho	d writing t	searching and reading of scientific papers, planing and performing research on the specific theme, writing the paper practice place: the laboratory in the Department of Neurosurgery					
Class objectiv	glioma. Course transien	Course 1: The aim of this course is to teach techniques for the analysis of gene mutations related glioma.  Course 2: The aim of this course is to teach techniques for the development of animal models of transient ischemia. Differences between necrosis and apoptosis after transient ischemic changes studied.					
Goals	underst	Students will receive course grades and credits based on the course hours completed and their understanding and knowledge of course material, such as techniques for the analysis of gene mutations and the development of animal models.					
Class outlin	Course 1: The preparation of DNA and mRNA from cell lines and tissue specimens will be taught. In addition, students will learn how to (1) analyze gene sequences based on PCR assay of the p53 and IDH1, (2) analyze gene methylation based on methylation specific PCR for the MGMT, (3) analyze gene amplification of EGFR and chromosome 1p/19 deletion based on FISH assay. Experimental techniques taught in this course include Western blotting, immunohistochemistry, and in situ hybridization.  Course 2: The model induces transient occlusion of the rat middle cerebral artery. The rats are decapitated immediately after reperfusion or at selected times thereafter. Differences between necrosis and apoptosis after transient ischemic changes are studied. The intracellular signal pathwa are examined immunohistochemically and the mechanisms underlying the activation of precursor neural cells or neural stem cells by neurotrophic factors, and neural regeneration therapy are studied.						
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra	course 1. An ur 2. An ur 3. An u and in s Course 1. The a 2. An u 3. An u	evaluation of reports and presentation on the scientific meeting Course 1:  1. An understanding of preparation of DNA and mRNA from cell lines and tissue specimens 2. An understanding of PCR assay and DNA sequences 3. An understanding of methylation specific PCR, FISH, Western blotting, immunohistochemistry, and in situ hybridization Course 2: 1. The ability to generate the animal model of transient ischemia 2. An understanding of differentiate between necrosis and apoptosis 3. An understanding of the activating mechanisms of precursor neural cells or neural stem cells by neurotropic factors					

Class numbering	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
code			Graduate School of Medical		,		, , , , , , , , , , , , , , , , , , ,	
	2016wh		Sciences(22850)	1,	2, 3, 4	10	other	
		Course	name(Theme)		Instructor			
Research Conducting Program "Practice" I : Orthopaedic()				MIZUTA Hiroshi, Ide Jiyunji, NAKAMURA Eiichi, Fujimoto Tooru				
	Goals with their ratio							
Under construct	ion · · · ·	100%						
Teaching Sty	<b>l</b> e	講義						
Class metho	d	Lecture and exercise in the seminar room of orthopedic surgery in the 6th class on Monday						
Orthopedic surgery deals with diseases and injuries to the motor system. The motor system organs that support and help in body movement and includes the bones, joints, ligaments cord, nerves, muscles, and vessels. The purpose of this lecture is to teach about the curre and problems on musculoskeletal disease in clinical and basic research by referring to the and provide instructions on the methodology for research on this topic.						s, ligaments, spinal ut the current situation		
Goals		Ability to plan basic or clinical studies for elucidating the pathology, clinical verification of didevelopment of treatment strategies, and the prevention for musculoskeletal disease.					rification of diagnosis, lisease.	
Class outlin	е	With a focus on molecular mechanisms regulating the destruction and repair of musculoskeletal tissues, basic research aimed at the regeneration of musculoskeletal tissues, and molecular genetic approaches to musculoskeletal disease, we will introduce recent advances in basic research in these fields. We will teach how to arrive at the hypothesis for individual studies and the testing thereof. In addition, we will discuss specific cases from the literature and provide instructions on the study design and methodology necessary for elucidating the etiology and pathology, clinical verification of diagnosis, development of treatment strategies, and prevention approach for musculoskeletal disease. We will also provide instructions on the methods to be used for summarizing the results of such studies in reports and oral presentations.						
Required Textb	ooks							
Reading lis	t							
Information conc								
Assessment met and criteria/ra								

Class numbering code	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016w	hole year	Graduate School of Medical Sciences(22980)	1,	, 2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Resear	Research Conducting Program "Practice" II : Orthopaedic()						e Jiyunji, NAKAMURA moto Tooru
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	'le	講義					
Class metho	d	Lecture an	d exercise in the seminar room of orth	opedi	c surgery i	n the 6th and	7th class on Tuesday
Class objectiv	We teach experimental procedures of histology, biochemistry, and molecular biology using armodels and cultured cells acquire to impart knowledge on clinical research. The purpose of the lecture and exercise was to elucidate the etiology and pathology, prove clinical diagnosis, and develop strategies for prevention or treatment of musculoskeletal diseases, using the basic or advanced methodology for clinical research.						he purpose of this I diagnosis, and
Goals	Knowledge gained on the methodology for basic or advanced clinical research. Establishing novel findings to elucidate the etiology and pathology, prove clinical diagnosis, an develop strategies for treatment or prevention of musculoskeletal disease using the basic or advanced methodology for clinical research.					cal diagnosis, and	
Class outlin	e	biology us disease. For animals, as biology, el methodolo statistics. Use methodology	e instructions on the experimental proing the animal models and cultured ce or example, we provide instructions or swell as procedures of cell culture, tis begy planning for advanced research, so Jsing these experimental skills and tec ogy for clinical research on musculosken the approach for summarizing their	lls acc the b sue pr n add lving c hniqueletal c	quired for rasic exper eparation, ition, we to ethical issues as well disease, we	research on mimental proce histology, bio each designin les, as well as as an approp e provide inst	nusculoskeletal edures performed on ochemistry, molecular g of studies and s obtaining medical riate study design and ructions to the
Required Textb	ooks						
Reading list	t						
Information conc enrollment	erning						
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Students will be evaluated on the basis of experimental and technical skills gained for their and reports. Students may substitute accepted research papers, conference presentations progress reports in laboratory meetings for these reports. The evaluations will focus on the areas for each research project.  1) Experimental and technical skills gained for basic research on musculoskeletal disease. 2) Knowledge gained regarding the methodology for clinical research. 3) Planning and execution of appropriate methodologies and study designs to solve research problems and obtaining novel findings in the research project.					resentations, or focus on the following etal disease.		

Course Coding	Year and Semester	Faculty Offering Course	E Stuc	ligible lent Year	Credits	Weekday and Period		
	2016whole year	Graduate School of Medical Sciences(22580)	1,	2, 3, 4	10	others		
	Course	e Title(Theme)			Instru	ctor(s)		
Researc Gynecology	ch Conducting Pro (structure and fund	gram "Practice" I : Obstetrics and ction, dysfunction of human placenta)		KATA HOI	NDA Ritsuo, T	aka, Ooba Takashi, ASHIRO Hironori, A Yoshinori		
		Goals with their ratio						
Under constructi	on ····100%							
Type of Class	s Lecture							
Teaching Meth	od Program S	r: Hidetaka Katabuchi, Takashi Ohba, H chedule: year 1-4 acilities: seminar room and laboratories		•		,		
Course Goal:	To learn h placenta, a human pla To learn h including	f this Departmental Course is; ow to propose scientific hypothesis for and identification of the protein(s) main acental function. ow to propose scientific hypothesis for precancerous lesions (e.g. endometriosi ar biology and pathology.	tain c the ca	cross talk b arcinogene	etween the c	ells that control		
Course Achiever Targets	Obstetrics 1) Propose placental 2) Propose physiologi 3) Origina pathogene treatment Gynecolog 1) Propose normal ov 2) Propose endometri 3) Logical 4) Origina pathogene	The achievement will be evaluated according to the following criteria.  Obstetrics:  1) Proposal of appropriate research projects on the basis of understanding the background on the placental physiology and pathology.  2) Proposal of appropriate research projects on the basis of understanding the background on the physiological role of placental macrophage.  3) Original and innovative findings that can contribute not only to better understanding for microl pathogenesis and host defense but also to successful development of diagnosis, prevention, and treatment of various diseases.  Gynecology:  1) Proposal of appropriate research projects on the basis of understanding the background on the normal ovarian and endometrial physiology.  2) Proposal of appropriate research projects on the improvement of understanding the ovarian an endometrial carcinogenesis.  3) Logical and proper experimental design to identify the pathogenic and host defense factors.  4) Original and innovative findings that can contribute not only to better understanding for pathogenesis but also to successful development of diagnosis, prevention, and treatment of ovarians.						
Outline	molecules Further str correlation improved should be Biology an necessary Gynecolog human tiss carcinoge carcinoge molecules be modifie experimen Gynecolog	and endometrial carcinomas.  Obstetrics: Experimental design will be constructed to develop a novel approach to identify the molecules for recognition and degradation of placental human chorionic gonadotropin (hCG). Further studies will be constructed to study the distribution and function of the molecules, and to correlation with clinical findings. Research projects and working hypothesis can be modified and improved depending on the progress and achievement of research. Finally, the experimental res should be reported in international scientific journals in the fields of Reproductive Physiology, Biology and/or Endocrinology. All instructions in the above-mentioned processes, which are necessary to fulfill requirements for PhD thesis, are conducted in this Departmental Course. Gynecology: Experimental design will be constructed to develop a novel approach to identify usi human tissue-materials and immortalized human ovarian surface epithelial cells in ovarian carcinogenesis, and using recombinant mice having murine PTEN mutation in endometrial carcinogenesis. Further studies will be constructed to study the distribution and function of the molecules, and the correlation with clinical findings. Research projects and working hypothesis of be modified and improved depending on the progress and achievement of research. Finally, the experimental results should be reported in international scientific journals in the fields of Gynecology. All instructions in the above-mentioned processes, which are necessary to fulfill requirements for PhD thesis, are conducted in this Departmental Course.						
Textbooks/Mate	rials not specif	ied						
Reading List	not specifi	ied						
<b>Enrollment Prereq</b>	uisites							
Assessment Metl and Criteria	their unde research f planning a discussion	are evaluated for their course grades and rstanding and knowledge earned about or recognition and degradation of place and interpretation and criticism of the real at the laboratory and academic meetin hievement in the PhD research.	scier ntal g sults	ntific infori gonadotroj obtained.	mation on rec pins, and abil The presenta	ent progress in the ity for experimental ation including		

Class numbering code	Semester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period	
	2016whole year	Graduate School of Medical Sciences(22700)	1,	2, 3, 4	8	other	
	Course	name(Theme)			Instr	uctor	
	cting Program "Prac vitro fertilization ar	man	KATA HOI	NDA Ritsuo, T	aka, Ooba Takashi, ASHIRO Hironori, A Yoshinori		
		Goals with their ratio					
Under construct	ion · · · · 100%						
Teaching Sty	le 講義						
Class metho	d Program S	r: Hidetaka Katabuchi, Takashi Ohba, H Schedule: year 1-4 acilities: seminar room and laboratorie:		•		<i>'</i>	
Class objectiv	es and embry	: The aim of this class is to acquire the to transfer (IVF-ET). By: The aim of this class is to acquire the					
Goa <b>i</b> s	Obstetrics 1) Proposa program. 2) Logical 3) Novel fi microenvii immortaliz Gynecolog 1) Undersi 2) Acquisi culture cel	<ul> <li>2) Logical / proper experimental design to improve the oocyte / embryo quality.</li> <li>3) Novel findings obtained by appropriate and proper analytical approaches to improve the microenvironment of oocyte / embryo culture including co-culture system using human immortalized cell lines.</li> <li>Gynecology:</li> <li>1) Understanding how to culture cells and to breed animals.</li> <li>2) Acquisition of experimental skills to analyze immunohistochemistry and molecular biology, to culture cells and to produce animal models for the gynecologic cancers or its precancerous lesi</li> <li>3) Acquisition of experimental techniques to analyze various factors including immune system (</li> </ul>					
Class outlin	/ embryo, such as mi embryo wi encourage Departme Gynecolog experimen system. Pc immortaliz recombina	Obstetrics: Experimental techniques to be earned in this course include the incubation of game / embryo, insemination, quality estimation and transfer of the embryo using experimental animals such as mice. Particular emphasis is placed also on the establishment of co-culture system of embryo with feeder cell layer, intracytoplasmic sperm injection (ICSI). The students are also encouraged to take the embryologist's licenses. All of above will be thoroughly studied in this Departmental Course.  Gynecology: Experimental techniques to be earned in this course include establishment of experimental models of animals and cultured cells, and analysis of various factors and host immusystem. Particular emphasis is placed also on the establishment of culture system using immortalized human ovarian surface epithelial cells and/or macrophages, and the establishment recombinant mice model, and advanced techniques of immunohistochemistry and molecular biology. All of above will be thoroughly studied in this Departmental Course.					
Required Textb	ooks not specifi	ed					
Reading list	t not specifi	ed					
Information conc enrollment							
Assessment met and criteria/ra	Students are evaluated for their course grades and credits based on the course hours completed, their understanding and knowledge earned about scientific information on recent progress in the research for IVE-ET, and ability for experimental planning and interpretation and criticism of the						

Class numbering code	Semes	ster	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016whol	le year	Graduate School of Medical Sciences(22820)	1,	, 2, 3, 4	10	other	
		Course			Instr	uctor		
Research Conducting Program "Practice" I : Urology()						Kawano	Yoshiaki	
Goals with their ratio								
Under constructi	on · · · · 100	0%						
Teaching Styl	le 講	義						
Class method	d Fac	ce-to-fac	ce lecture and practice					
Class objective	es urc	Participants are expected to learn essential experimental knowledge and procedures for study of urological cancers. They are also expected to learn how to plan experiments by themselves for the research projects and to write papers.						
Goals			s are expected to independently plan I give presentations.	and p	erform exp	periments, into	erpret results, write	
As exemplified by cytokine therapy for renal cell carcinoma, BCG bladder instillation therapy for bladder cancer, and peptide vaccine therapy for prostate cancer, immunotherapy primarily tend be effective against urological cancers. Although cancer treatment is now reaching a major turn point due to the emergence of molecular targeted drugs, actual response rate of those drugs far below the outcome of clinical trials, and these drugs are far from being "miracle remedies" as turns out they actually possess various problems including adverse effects. Therefore, to tackle issues, course participants will establish multi-disciplinary therapy models including immunother by using mouse models for urological cancers and analyzing the antitumor effects and immunological parameters with guidance by supervisors. Based on these research results, the participants will also be provided a guide on how to write research papers and give oral presentations.						apy primarily tends to hing a major turning of those drugs falls cle remedies" as it erefore, to tackle those uding immunotherapy ects and arch results, the		
Required Textbo	ooks							
Reading list								
Information concerning enrollment								
Assessment meth and criteria/rat	rep	oorts car	be awarded depending on experimer to be substituted by academic articles, ournal clubs or lab meetings.					

Class numbering code	Seme	ester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016wh	ole year	Graduate School of Medical Sciences(22950)	1,	2, 3, 4	8	other
	Course name(Theme)						uctor
Resea	arch Cond	ducting P	rogram "Practice" II : Urology( )			Kawano	Yoshiaki
			Goals with their ratio				
Under constructi	ion · · · · 1	00%					
Teaching Styl	le 講	構義					
Class method	d F	ace-to-fac	ce lecture and practice				
Class objectiv	es u	Participants are expected to learn essential experimental knowledge and procedures for study or urological cancers. They are also expected to learn how to plan experiments by themselves for the research projects and to write papers.					
Goals	P p	Participant papers and	ts are expected to independently pland give presentations.	and p	erform exp	periments, int	erpret results, write
As exemplified by cytokine therapy for renal cell carcinoma, BCG bladder instillation therapy for bladder cancer, and peptide vaccine therapy for prostate cancer, immunotherapy primarily tend be effective against urological cancers. Although cancer treatment is now reaching a major turn point due to the emergence of molecular targeted drugs, actual response rate of those drugs fall below the outcome of clinical trials, and these drugs are far from being "miracle remedies" as turns out they actually possess various problems including adverse effects. Therefore, to tackle issues, course participants will establish multi-disciplinary therapy models including immunothe by using mouse models for urological cancers and analyzing the antitumor effects and immunological parameters with guidance by supervisors. Based on these research results, the participants will also be provided a guide on how to write research papers and give oral presentations.						apy primarily tends to ching a major turning of those drugs falls cle remedies" as it erefore, to tackle those luding immunotherapy ects and arch results, the	
Required Textbo	ooks						
Reading list							
Information concerning enrollment							
Assessment metl and criteria/rat	nous re	eports car	l be awarded depending on experime n be substituted by academic articles, ournal clubs or lab meetings.				

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vhole year	Graduate School of Medical Sciences(22830)	1,	2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research Conducting Program "Practice" I : Ophthalmology(Ophthalmology, Departmental Course "Jissen" I)						HARA Hideno	bu, Inoue Toshihiro
Goals with their ratio							
Under construct	ion · · · ·	100%					
Teaching Sty	le	その他					
Class metho	d	Lectures, (	Group meeting				
Class objectiv	es es	novel appr	sis of the results obtained, further experoach. Finally, the experimental results the fields of microbiology, biochemist	shou	ld be repo	rted in intern	ational scientific
Goals	1) Understanding how to investigate molecular pathogenesis for ocular blindness diseases. 2) Proposal of appropriate research projects on the basis of understanding the background of molecular mechanisms relevant to visual-threatening diseases. 3) Logical/proper experimental design to identify the pathogenic factors. 4) Novel findings obtained by appropriate and proper analytical approaches.					ness diseases. ne background on the	
Class outline	е	macular de and neuro learn how aim to den neuro-rege	major blindness disease including retiregeneration (AMD), etc) and glaucoma -regeneration as a new strategies are roto investigate the mechanisms of moleonerstrate that how several molecules a pereration change its expression, by usi ischemic-reperfusion, AMD.	are ca neede cular p ssocia	aused by r d. The air pathogene ated with c	etinal cell dea n of this Depa esis of these c cell death, ne	ath, neuro-protection artmental Course is to ocular diseases. We uro-protection and
Required Textb	ooks						
Reading list	t						
Information conc enrollment	erning						
Assessment met and criteria/ra		their unde research fo interpretat laboratory	re evaluated for their course grades ar rstanding and knowledge earned abou or molecular pathogenesis of ocular dis cion and criticism of the results obtaine and academic meetings is also taken i ent in the PhD research.	t scier sease, d. Th	ntific infor and abilit e presenta	mation on red y for experima ation includin	ent progress in the ental planning and g discussion at the

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22960)	1,	, 2, 3, 4	8	other
		Course			Instr	uctor	
Researc	h Condi	ucting Prog		TANII	HARA Hideno	bu, Inoue Toshihiro	
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le	実験					
Class metho	d	Lectures a	nd group meetings				
Class objectiv	/es	The aim of diseases.	this class is to acquire the techniques	to an	a <b>l</b> yze the r	nolecular biol	ogy to various ocular
Goals		2) Underst 3) Underst hybridizati	cion of experimental skills to extract DN canding the principle and method of PC canding of analyzing gene expression b on. ndings obtained by appropriate and pr	CR. y use	of RT-PCR	, northern blo	otting and in situ
Class outlin	e	of animals molecules handling o PCR, Nortl	tal techniques to be earned in this cou , such as mice and rats, and cultured of produced in cells and tissues. Particu f various pathogens (culture methods nern blotting, in situ hybridization, etc) ntal Course.	ells, a lar em etc.), a	nd analysi: iphasis is p analytical i	s of various si placed also or methods for g	gnaling factors and n safe and proper ene expression (RT-
Required Textb	ooks						
Reading list	t						
Information concerning enrollment							
Assessment met and criteria/ra		their expe	re evaluated for their course grades ar rimental skills and techniques acquired . The report assessment can be substi on and discussion at the laboratory an	l durir tuted	ng this cou by the ass	rse, and repo essment of ea	rts submitted for

Class numbering code	Semester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period			
	2016whole year	Graduate School of Medical Sciences(22840)	1,	2, 3, 4	10	other			
	Course			Instr	uctor				
Research Condu	ucting Program "Pr	ck		Sanuki	Tetsuji				
	Goals with their ratio								
Under constructi	on · · · · 100%								
Teaching Styl	le その他								
Class method	d We condu	ct the course according to the number	of atte	endees.					
Class objectiv	es the view p	To analyze the process of nerve regeneration on the site of nerve injury and nucleus ambiguous fithe view point of expression and function of neurotrophic factors, using animal models in which t recurrent laryngeal nerve was given various degrees of injury, through use of the electron microscope, immunohistology and molecular biology.							
Goals		understanding of the degeneration and e the recovery of the regenerating nerv							
Class outline	As the recurrent laryngeal nerve is mainly consisted of motor nerve fibers, the ability for recovery should be high when it is injured. However, the function of injured recurrent laryngeal nerves is rarely recovered completely. Regeneration of relatively thick nerves such as the sciatic nerve and facial nerve has been studied before, but that of the recurrent laryngeal nerve has not been examined. We previously found and reported that some neurotrophic factors facilitate the regeneration of the recurrent laryngeal nerve, and that the effects of the neurotrophic factors on the								
Required Textbo	ooks No Textbo	ok is specified; handouts to be distribu	ted.						
Reading list									
Information concerning enrollment									
Assessment metl and criteria/rat	hods their expe	are evaluated for their course grades an rimental skills and techniques acquired . Students may also be required to pub rse.	durin	g this cou	rse, and repo	rts submitted for			

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(22970)	1,	, 2, 3, 4	8	other		
	Cours	e name(Theme)		Instructor				
Research Cond	ucting Program "P	ractice" <b>II</b> : Otolaryngology-Head and N Surgery()	eck		Minoda	a Ryosei		
		Goals with their ratio						
Under construction ····100%								
Teaching Sty	le 講義							
Class metho	d We conta	ct it by the number of the student atter	ding a	a lectures a	appropriate <b>l</b> y.			
Class objectiv	You will learn about; Pathophysiology of profound hearing loss. Treatment strategy of profound hearing loss. Up-to-date information of basic research of sensorineural hearing loss. You will conduct basic research into possible methods and mechanism for curing the sensor hearing loss.							
Goals	You will ubasic resoloss.	nderstand pathophysiology and basic rearch, you will find a new method and/o	eseard or med	ch of senso chanism fo	orineural hear r treating the	ing loss. Through the sensorineural hearing		
Class outlin	cell reger regeneration for hair confidence of the confidence of t	Hearing loss is induced by various causes such as aging, noise, viral infection. It is believed that hair cell regeneration once disappeared was impossible. However, recently we proved that hair cells regenerate if we over-express atho1 gene in cochlea utilizing adenovirus vector, which is important for hair cell generation in embryonic stage.  ① We will train handling technique and breeding technique of guinea pigs, rats and mouse, and tissue preparation technique of vestibular organs and cochleae. ② We will train ex-vivo organ culture and gene transfer by electroporation.						
Required Textb	ooks Textbook	s are not specified, and handouts will b	e distr	ibuted.				
Reading list	t							
Information conc enrollment								
Students will be evaluated by attendance rate, oral presentations and repots regard research and results of a research. A published own papers and a presentation in a utilized for the evaluation instead of the reports if they want.  Students whose attendance rates are over 2/3 can take examination by a report. The revaluated for the following items; 1) Understanding of handling of small animals and guideline of animal experiments. 2) Understanding of surface preparation technique. 3) Understanding of cells cultures and organ cultures. 4) Understanding of gene transfer technique.						rt. The reports will be		

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vhole year	Graduate School of Medical Sciences(22860)	1, 2, 3, 4		10	other
		Course	name(Theme)			Instr	uctor
Research ( Surgery(Elucidation	e mechanis	m "Practice" I : Oral and Maxillofacial ms of radioresistance in oral squamous rcinoma)	cell	NAK	(AYAMA Hide	ki, YOSHIDA Ryoji	
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le	講義					
Class metho	d	face-to-fac	e class				
Class objectiv	es/es	To underst	tand the clinical impact of radioresistar d the basic mechanisms of radioresista	nce in	the treatm of OSCC ce	nent of OSCC e <b>ll</b> s.	patients. To
Goals		To explain characteris	the clinical impact of radioresistance i stics of radioresistant OSCC cells.	n the	treatment	of OSCC pati	ents. To explain the
Class outline	e	The studer resulting in	nts who take this course wi <b>ll l</b> earn the von the vonce of reacteristics of reacteristics.	ay of	analyzing esistant O	of radioresist SCC ce <b>ll</b> s.	ant OSCC cells,
Required Textb	ooks						
Reading list	Kuwahara et al. Clinically relevant radioresistant cells efficiently repair DNA double-strand break induced by X-rays. Cancer Sci. 100(4):747-52, 2009 Kuwahara et al. The modified high-density survival assay is the useful tool to predict the effectiveness of fractionated radiation exposure. J Radiat Res. 51(3):297-302, 2010						
Information concerning enrollment  The students have to possess a basic knowledge of cancer biology.							
Assessment met and criteria/ra			sess the student's comprehension by ore than 75%.	he re	ports. The	e students ha	ve to attends the

Class numbering code	Sem	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016wl	hole year	Graduate School of Medical Sciences(22990)	1, 2, 3, 4		8	other
	Course name(Theme)						uctor
Research Conducting Program "Practice" II : Oral and Maxillofacia Surgery(Elucidation of the mechanisms of metastasis in oral squamou					NAK	(AYAMA Hide	ki, YOSH <b>I</b> DA Ryoji
			Goals with their ratio				
Under construct	ion · · · · 1	100%					
Teaching Sty	le	講義					
Class metho	d 1	face-to-fac	e class				
Class objectiv			and the clinical impact of metastasis in nechanisms of metastasis of OSCC ce		reatment	of OSCC pation	ents. To understand
Goals	-	To explain characteri:	the clinical impact of metastasis in the stics of metastatic OSCC cells.	treat	ment of O	SCC patients.	To explain the
Class outline		The students who take this course will learn the way of analyzing of highly metastatic OSCC cells, resulting in understanding the characteristics of highly metastatic OSCC cells.					
Required Textbo	ooks						
Nakamura T, Shinriki S, Jono H, Guo J, Ueda M, Hayashi M, Yamashita S, Zijlstra A, Nakayama H Hiraki A, Shinohara M, Ando Y. Intrinsic TGF- β 2-triggered SDF-1-CXCR4 signaling axis is crucial for drug resistance and a slo cycling state in bone marrow-disseminated tumor cells. Oncotarget 6(2):1008-19, 2015 Tanaka T, Nakayama H, Yoshitake Y, Irie A, Nagata M, Kawahara K, Takamune Y, Yoshida R, Nakagawa Y, Ogi H, Shinriki S, Ota K, Hiraki A, Ikebe T, Nishimura Y, Shinohara M. Selective inhibition of nuclear factor- κ B by nuclear factor- κ B essential modulator-binding dopeptide suppresses the metastasis of highly metastatic oral squamous cell carcinoma. Cancer Sci. 103(3):455-63, 2012					Y, Yoshida R,  M.  Iator-binding domain		
Information concerning enrollment The students have to possess a basic knowledge of cancer biology.							
Assessment met and criteria/ra			ess the student's comprehension by ore than 75%.	the re	ports. The	e students ha	ve to attends the

Course Coding		ar and mester	Faculty Offering Course	Stu	Eligible dent Year	Credits	Weekday and Period		
	2016v	vhole year	Graduate School of Medical Sciences(22570)	1	, 2, 3, 4	10	others		
		Course	e Title(Theme)			Instru	ctor(s)		
Research Conducting Program "Practice" I : Dermatology and Plastic Surgery(Research Conducting Program "Practice" I : Dermatology and Plastic Surgery)						In Hironobu, Jinnin Masatoshi, Fukushima Satoshi, Masuguchi Shinichi, Makino Takamitsu, Igata Toshikatsu, Ichihara Asako, Miyashita Azusa, Kajihara Ikko, Aoi Jun, Fujisawa Akihiko, Niimori Daisuke, Honda Noritoshi, Kudo Hideo.			
			Goals with their ratio						
Under construct	ion · · ·	100%							
Type of Clas	SS	Lecture							
Teaching Meth	hod	Lecture, re	eading papers						
Course Goal	ls	The experi	mental results should be reported in s	cienti	tific journals in the field of Dermatology				
Course Achieve Targets	ment	Inflammate	ory skin diseases and skin tumors, incl	uding	the epiden	niological app	oroach		
Outline		inflammate the results Furthermo carcinoger biochemic condition	this Departmental Course is to learn hory skin diseases and skin tumors, included the problem obtained, we will discuss the problem re, we will develop a novel approach finesis of skin, by using the ultraviolet in al, and molecular biological technique of some inflammatory diseases and turn scientific journals in the field of Dern	uding s and or the adiati s will nors.	the epiden design exp defense m ion model i be studied Finally, the	niological appoerimental pro echanism, ag mouse. In add to analyze th	proach. On the basis of ocedures. ging and dition, pathological, are changes in the skin		
Textbooks/Mate	erials								
Reading Lis	t								
Enrollment Prerec	quisites								
Assessment Met and Criteria		1) The lateresults are 2) A molection disorder is 3) Methods mechanisr 4) An appropriate and the second mechanisr 5) Knowled	cular biological technique for analyzing cunderstood. of a pathology and molecular biology n has been acquired. copriate research topic is set for the sk	the a exper n dise	appearance riments cor ease defens	of disease macerning the see mechanism	nechanism of the skin skin defense n or the carcinogenesis		

Class numbering code	Ser	mester	Course belonging/Course	code	Yea	r/Grade	Credit	Day,Period			
	2016w	whole year Graduate School of Medical 1, 2, 3					, 2, 3, 4 8 other				
		Course	name(Theme)				Instr	uctor			
Research Conducting Program "Practice" II : Dermatology and Plastic Surgery(Research Conducting Program "Practice" II : Dermatology and Plastic Surgery)							In Hironobu, Jinnin Masatoshi, Fukushima Satoshi, Masuguchi Shinichi, Makino Takamitsu, Igata Toshikatsu, Ichihara Asako, Miyashita Azusa, Kajihara Ikko, Aoi Jun, Fujisawa Akihiko, Niimori Daisuke, Honda Noritoshi, Kudo Hideo.				
			Goals with th	eir ratio							
Under construct	ion · · · ·	100%									
Teaching Sty	/le	講義									
Class metho	d	Lecture, re	ading papers								
Class objectiv	ves	The experi	mental results should be repo	orted in sc	ientif	ic journals	in the field o	f Dermatology			
Goals		Inflammate	ory skin diseases and skin tum	ors, inclu	ding t	he epiden	niological app	proach			
Class outlin	е	inflammate the results Furthermo carcinoger biochemic condition	this Departmental Course is to by skin diseases and skin tume obtained, we will discuss the re, we will develop a novel appless of skin, by using the ultrall, and molecular biological to some inflammatory disease a scientific journals in the field	ors, include problems proach fo aviolet irra echniques s and tum	ding to and or the ordination of the ordination	the epiden design exp defense m on model i de studied inally, the	niological appoerimental pro perimental pro pechanism, ag mouse. In add to analyze th	proach. On the basis of cocdures, ing and lition, pathological, the changes in the skin			
Required Textb	ooks										
Reading lis											
Information conc enrollment											
Assessment methods and criteria/ratios  Assess							echanism of the skin skin defense n or the carcinogenesis				

Course Coding		ar and nester	Faculty Offering Course	Stu	ligible dent Year	Credits	Weekday and Period
	2016v	vhole year	Graduate School of Medical Sciences(20540)	1,	, 2, 3, 4	10	others
		Course			Instru	ctor(s)	
Resea	rch Con	ducting Pro	gram "Practice" I : Agressology()			Hidenobu	Kamohara
			Goals with their ratio				
Under construct	ion · · ·	100%					
Type of Clas	SS	Lecture					
Teaching Meth	nod						
Course Goal	ls	The target	of this lecture is to reveal the point for	cerel	oral resusc	itation.	
Course Achieve Targets	ment						
Outline		mainly con treatment the recove restrains m suppress b transplants	Ilmonary resucitation guideline is revisoression was emphasized on by BLS/Al prosed of adrenaline and amiodarone was simplified. The cerebral regional or ry of brain function. The hypothermia netabolism of the whole body, and it ha prain cell damage by the oxygen radica ation from brain death among Japan, E h and discuss about a possibility of the	was r exyger therap as bee I in br	ecommend lation(rSO2 by to keep en clarified ain ischeme and Amer	ded, and choi 2) was evalua brain function that hypothe iia. There is b	ce of medicine ted as a possibility of n after resuscitation rmia therapy would ig differential for organ
Textbooks/Mate	erials						
Reading Lis	t						
Enrollment Prerequisites							
Assessment Met and Criteria		clinical res	rement will be evaluated according to rojects on the basis of understanding searches. 3) Understanding how to proportant findings and guideline.	the fo the ag ove cli	llowing crit ressology. nical probl	teria. 1) Prop 2) Understar lems. 4) Und	osal of appropriate nding how to perform erstanding for the

Course Coding		ar and nester	Faculty Offering Course		Eligible dent Year	Credits	Weekday and Period			
	2016w	hole year	Graduate School of Medical Sciences(21350)	1,	, 2, 3, 4	8	others			
Course Title(Theme) Instructor(s)										
Research Conducting Program "Practice" II : Agressology() Hidenobu Kamohara										
			Goals with their ratio							
Under constructi	on ····	100%								
Type of Class	S	Lecture								
Teaching Meth	od									
Course Goals	S		The goals of this tuition are to understand the characteristics and importance of each organ, and to pursue the future possibilities.							
Course Achiever Targets	ment									
Outline	Organ function by a variety of factors such as sepsis established organ dysfunction. The prolonged situation promoted multiple organ failure with their correlation and caused to be death. Mechanic supports such as artificial respirator and dialysis are benefit for organ failure but often have a varied of complications. Medical transplantation is an effective treatment because it replaced the form an appropriate the proposed that there is a proposed limit it remains a problem of language ways of									
Textbooks/Mate	rials	None								
Reading List										
Enrollment Prerequisites										
Assessment Methods and Criteria  Students are evaluated for their course grades and credits based on the course hours complete their research skills and techniques acquired during this course, and reports submitted for evaluation. The report assessment can be substituted by the assessment of each student's presentation and discussion at the laboratory and academic meetings.							ubmitted for			

Course Coding		ar and mester	Faculty Offering Course	Stu	Eligible dent Year	Credits	Weekday and Period		
	2016v	vhole year	Graduate School of Medical Sciences(22870)	1	, 2, 3, 4	10	others		
		Course			Instru	ctor(s)			
Researc	h Cond	ucting Prog			Yamamo	to Tatsuo			
			Goals with their ratio						
Under construct	ion · · ·	100%							
Type of Clas	SS	Lecture							
Teaching Met	hod		r: Tatsuo Yamamoto Program Sched acilities: seminar room and laboratori						
Course Goa	ls								
Course Achieve Targets	ment								
Outline		mechanisr proven by design will resuscitati literatures internatior	this Departmental Course is to learn ms of pain transmission and cardiovas clinical or basic experiment. On the laber to be constructed to develop a novel agon. Specific research projects to be erelated to the specific fields. Finally, hal scientific journals. All instructions to fulfill requirements for PhD thesis,	cular r lasis o proac xecute the ex in the	esuscitatio f the result h for pain t ed should b perimental above-mer	n. The hypot s obtained, fu herapy or for be determined results shoul ntioned proce	hesis must then be urther experimental cardiopulmonary d by searching latest d be reported in esses, which are		
Textbooks/Mate	erials								
Reading Lis	t								
Enrollment Prerec	quisites								
Assessment Methods and Criteria  Assessment Methods and Criteria  Assessment Methods and Criteria  1) Logical/proper experimental design to identify the scientific hypothesis. 4) Novel findings obtained by appropriate and proper analytical approaches. 5) Original and innovative findings that can contribute not only to better understanding for anesthesiology but also to successful development of new paradigm for pain treatment an cardiovascular resuscitation.						cardiovascular			

Course Coding		ar and mester	Faculty Offering Course		Eligible dent Year	Credits	Weekday and Period
	2016v	vhole year	Graduate School of Medical Sciences(23000)	1,	, 2, 3, 4	8	others
		Course	e Title(Theme)			Instru	ctor(s)
Research	h Cond	ucting Prog	ram "Practice" II : Anesthesiology()			Yamamo	to Tatsuo
			Goals with their ratio				
Under construct	ion · · ·	100%					
Type of Clas	s	Lecture					
Teaching Meth	nod		: Tatsuo Yamamoto Program Sched acilities: seminar room and laboratorie				
Course Goal	S						
Course Achiever Targets	ment						
Outline		resuscitati establishm cardiovasc	this class is to acquire the techniques on. Specifically, experimental techniq tent of experimental pain models of an cular resuscitation model. Particular en logical and physiological experiment.	ues to imals	be earned	l in this cours	e include and dog experimental
Textbooks/Mate	erials						
Reading List	t						
Enrollment Prerequisites							
Assessment Met and Criteria		1) Acquisit 2) Underst	vement will be evaluated according to tion of experimental skills to produce a canding how to evaluate the level of pa canding how to evaluate the neural sta	nimal in in t	models. he animal	model.	tation.

Class numbering code	Sen	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016w	hole year	Graduate School of Medical Sciences(20950)	1,	2, 3, 4	10	other	
		Course	name(Theme)			Instr	uctor	
Research Conducting Program "Practice" I : International Medical Cooperation( "Jissen" I)					Haga Yoshio, takahashi takeshi, takemoto shigeki			
			Goals with their ratio					
Under construct	ion · · · ·	100%						
Teaching Sty	le	演習						
Class metho	d	Group less	son					
Class objectiv			se of this study is to make the students search. We will use the examples of info					
Goals		2) The stud 3) The stud 4) The stud	dents can state the main points of ethi dents can state how to set the research dents can understand the research des dents can make the research protocol. dents can state the concept of biostati	ques igns a	tion.	lect them.		
Class outline	e	ethical gui select rese	ry lesson, we will instruct prerequisite of delines that researchers must obey; 2) earch design; 3) how to build research esson, we will instruct our experience in esearch.	how to	o set up re	esearch hypo ic knowledge	thesis and how to of biostatistics. In a	
Required Textbo	ooks							
Reading list	t							
Information concerning enrollment								
Assessment met and criteria/ra	hods tios	1) Type of 2) Type of	aluate students in the light of their und ethical guideline that researchers mus study design; its advantage and disad collect clinical data and how to analyz evidence	t obey antag	vin each s e	ollows; tudy design		

Class numbering code	Semes	ster	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016who	le year	Graduate School of Medical Sciences(21760)	1	, 2, 3, 4	8	other
	Course name(Theme)						uctor
Research C Cooperation(Rese	onducting learch Cond Co	Program lucting P ooperati	edical	edical Haga Yoshio, takahashi takeshi, takemoto shigeki			
			Goals with their ratio				
Under construct	ion · · · · 10	0%					
Teaching Sty	/le 演	習					
Class metho	d Gr	oup less	on				
Class objectiv			and how to implement critical apprais student's own article with the progres				l article. To start
Goals	2)	To unde	the method of critical appraisal base erstand how to write an original article writing of "Methods" and "Introductio	which	n editors de	emond.	
Class outline	e We	e wi <b>ll</b> imp ien, we v	plement critical appraisal against the l vill help the students to start writing "N	iteratı ⁄letho	ure relating ds" and "In	the student's troduction of	research theme. their own article.
Required Textb	ooks						
Reading list	t						
Information concerning enrollment To read at least 3 original articles relating to the student's own research theme.						<b>.</b> .	
Assessment methods and criteria/ratios  We will evaluate students in the light of their understandings as follows;  1) Degree of understanding of STROBE statement 2) Readiness of research background regarding the student's own theme 3) Knowledge of the methodology relating to the student's own research							

Class numbering code	Ser	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016w	/hole year	Graduate School of Medical Sciences(22480)	1,	2, 3, 4	10	other		
		Course			Instr	uctor			
Research C	onducti	ng Program		OGURA	Teru, YAMAN Masa	AKA Kunitoshi, ESAKI itoshi			
Goals with their ratio									
Under construct	tion · · · ·	100%							
Teaching Sty	/le	その他							
Class metho	od	Program S	rs: Teru Ogura, Kunitoshi Yamanaka, M chedule: year 1-4, every Monday (6th p acilities: small conference rooms at IMI	period	1)	ries at Dept. (	of Molecular Cell		
Class objectiv	ves	Students will learn how to propose scientific hypotheses for the regulation of cell homeostasis ar growth and how to prove such hypotheses experimentally. Students will be led to perform resear projects based on hypotheses, to discuss research results logically, to present in scientific meeting and to publish research papers in international scientific journals.							
Goals		growth, pr	vill be able to propose scientific hypoth ove such hypotheses experimentally, d scientific meetings, and publish resea	iscuss	research	results logica	lly, present research		
Class outlin	e	regulation biogenesis proven exp model org localizatio spectrome scientific r	f this Departmental Course is to learn h of cell homeostasis and growth including and maintenance of organelles, cell coperimentally. Experiments should include anisms such as E. coli, yeast, and worm n of gene products, identification of intestic analysis of purified proteins. The e meetings, and finally should be published cell biology to fulfill requirements for F	ing dy ycle, a de iso is, ana eracti xperin ed in i	namics an ind cell div lation and alysis of ex ing proteir nental resu internation	d quality convision. The hycharacterization and pression and in vitroults should be	trol of proteins, pothesis must be ion of mutants of intracellular b biochemical and presented in		
Required Textb	ooks								
Reading list	t								
Information concerning enrollment									
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Students are evaluated for their abilities and achievement in the field of regulation of cell a homeostasis; ability to propose novel hypotheses and to find out unsolved issues, understated how to investigate such issues, ability to propose proper research projects, experimental dachieve the proposed research projects, novel findings, logical discussion, and publication research results. The presentation including discussion at the laboratory and meetings is a into consideration to assess the level of achievement in the PhD research.							ues, understanding perimental design to library publication of the		

				İ					
Class numbering code	Sen	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016w	whole year Graduate School of Medical 1, 2, 3, 4		, 2, 3, 4	8	other			
		Course			Instr	uctor			
Research Co	onductin	ng Program		OGURA	Teru, YAMAN Masa	IAKA Kunitoshi, ESAKI atoshi			
			Goals with their ratio						
Under construct	ion · · · ·	100%							
Teaching Sty	'le	その他							
Class metho	d	Program S	s: Teru Ogura, Kunitoshi Yamanaka, N chedule: year 1-4, every Thursday (6t acilities: small conference rooms at IN	1-7th բ	periods)	ries at Dept. (	of Molecular Cell		
Class objectiv	/es	Students will find out unsolved issues in the field of cell homeostasis and growth, acquire knowled and techniques to study molecular mechanisms, and acquire ability to design and achieve proper experiments.							
Goals		acquire the	vill be able to find out unsolved issues e techniques to analyze molecular me oper experiments.						
Class outline	e	homeostas acquired a to isolate r methods to and purific	this class is to acquire the technique sis and growth and to understand such and methodologies to be understood in mutants, methods of gene cloning, provisualize intracellular localization of action of proteins, and biochemical, boteins in vitro.	n meth n this o cedur gene p	odologies. course incl es of gene products, p	. Experimenta lude forward a knockout and procedures of	I techniques to be and reverse genetics I RNA interference, Iarge scale expression		
Required Textb	ooks								
Reading list	t								
Information conc enrollment									
Assessment methods and criteria/ratios  Students are evaluated for their ability to understand recent progress in the field of methods and criteria/ratios  Students are evaluated for their ability to understand recent progress in the field of methods acquired during this course, understanding effectiveness and limitations of various experiments with proper choice of methods, all interpret experimental results, and reports submitted for evaluation. The report assess substituted by the assessment of each student's presentation and discussion at the limitations of various experiments with proper choice of methods, all interpret experimental results, and reports submitted for evaluation. The report assess substituted by the assessment of each student's presentation and discussion at the limitations of various experiments.						skills and techniques rious experimental chods, ability to rt assessment can be			

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period			
	2016whole year	Graduate School of Medical Sciences(22490)	1,	2, 3, 4	10	other			
	Course	e name(Theme)			Instr	uctor			
Research C	onducting Progra		NISHINA	KAMURA Ryı	ıichi, Taguchi Atsuhiro				
Goals with their ratio									
Under constructi	on · · · · 100%								
Teaching Styl	le 実験								
Class method	d set up the	research plans, perform experiments, a	and wi	rite the pa	per.				
Class objectiv	The aim of this Departmental Course is to learn how to propose scientific hypothesis for the mechanisms of organogenesis, especially kidney development. The hypothesis must then be presented to develop a novel approach for regenerating the organs. Specific research projects to be exect should be determined by searching latest literatures related to organogenesis such as kidney development. Research projects and working hypothesis can be modified and improved dependent on the progress and achievement of research. Finally, the experimental results should be report international scientific journals in the fields of developmental biology, molecular biology, cell biology, and/or kidney diseases. All instructions in the above-mentioned processes, which are necessary to fulfill requirements for PhD thesis, are conducted in this Departmental Course.								
Goals		papers, set up the research plans, perfo and write a PhD thesis	m exp	periments,	present and	discuss the data in			
Class outline	organoge 2) Unders 3) Logical 4) Novel f 5) Origina	al of appropriate research projects on t nesis, especially kidney development. tanding how to investigate molecular m /proper experimental design to identify indings obtained by appropriate and pr I and innovative findings that can contr ent but also to successful development	echar mech oper a ibute	nisms in kio nanisms in analytical a not only to	dney develop kidney devel approaches. b better unde	oment.			
Required Textbo	ooks								
Reading list									
Information concerning enrollment									
Assessment methods and criteria/ratios  nd interpretation and criticism of the results obtained. The presentation including discussive laboratory and academic meetings is also taken into consideration to assess the level of achievement in the PhD research.									

Class numbering code	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22610)	1,	, 2, 3, 4	8	other	
		Course			Instr	uctor		
Research C	Conduct	ing Progran	NISHINA		uichi, TANAKA Satomi, Atsuhiro			
Goals with their ratio								
Under construct	ion · · ·	100%						
Teaching Sty	le	実習						
Class metho	d	performed	in the laboratory of Kidney Deveopme	nt				
Class objectiv	The aim of this class is to acquire the techniques to analyze organogenesis, especially kidney development. Specifically, experimental techniques to be earned in this course include establishment of genetically engineered mice, and analysis of gene functions both in vivo and ir vitro. Particular emphasis is placed also on proper handling of embryonic stem cells, in situ hybridization, immunostaining, organ culture of the kidney, and overexpression and knockdowr genes of interest in cultured cells, all of which will be thoroughly studied in this Departmental Course.							
Goals		acquire va organoger	rious techniques, such as mouse gene nesis (especia <b>ll</b> y kidney deve <b>l</b> opment a	tics, h nd rec	isto <b>l</b> ogy, a constructio	nd cell cultur on)	e, to analyze	
Class outlin	e	2) Ünderst 3) Acquisit organ cult interest ca	n of experimental skills to produce and canding how to identify abnormalities a tion of experimental techniques, including, overexpression and knockdown in he accurately analyzed and understation of experimental skills to investigation.	nd ge ling in cultu ood.	netīc inter situ hybri red ce <b>ll</b> s, s	ractions in the dization, sect so that the fur	e knockout mice. ion immunostaining, actions of genes of	
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
Assessment methods and criteria/ratios  Students are evaluated for their course grades and credits based on the course hours complete their experimental skills and techniques acquired during this course, and reports submitted evaluation. The report assessment can be substituted by the assessment of each student's presentation and discussion at the laboratory and academic meetings.								

Class numbering code	Semester	Course	e belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016whole ye	ar Grad	uate School of Medical Sciences(22500)	1,	2, 3, 4	10	other	
	Сог	rse name(The	eme)			Instr	uctor	
Research Condumolecular and	cting Program ' d ce <b>ll</b> ular mech	Practice" I : Br nims of the v	rain Morphogenesis(Researcl ertebrate brain development	n on	SHIN	/IAMURA Ken	ji, Hatakeyama Jun	
Goals with their ratio								
Under construct	ion · · · · 100%							
Teaching Sty	le 実験							
Class metho	d Desigr obtain IMEG.	and conduct d results. Co	experiments and studies for nducted at the laboratory and	given d offic	research s ce of Depa	subjects. Writ rtment of Bra	e papers and present in Morphogenesis,	
Class objectiv	ves Condumorph	ct researches genesis and	to understand molecular and histogenesis of the vertebrat	d/or c e brai	ellular me n.	chanisms und	lerlying	
Goals	Students are evaluated for their course grades and credits based on their understanding and knowledge obtained about notions of recent progress in the research for developmental biolog neurobiology, and ability for establishing issues to address, planning of experiments, and interpretation and criticism of the results obtained. The presentation including discussion at the laboratory and academic meetings is also taken into consideration to assess the level of achievement in the PhD research.							
Class outlin	field or mechal of inte experi hypoth cell bid project achieved developments of the mechanism of the mechani	development isms underly est are region nental plans to eses are settle logy, anatomy s and working ment of resectional meeting omental biolo	te is to understand the classical biology, in order to define ing development and evolutionalization, morphogenesis, are address the issues raised bed accordingly. Multi-disciplion, histology, genetics, bioimaly, hypothesis can be modified arch. Finally, the experimentags and subjected to internating and neurobiology. All institute in the subjected to the subje	resea on of od cell y thes nary a ging, a al resu onal s tructio	arch project the verteble lineage of the subjects approached and embroved cults are prescientific joons in the	cts and scient brate brain. Ct f the embryon s and to prove s (molecular vology) are en depending or esented at do ournals in the above-mentic	ific hypothesis for the urrent specific subjects nic brain. Proper the working biology, biochemistry, nployed. Research the progress and mestic as well as fields of urrecepts in the processes, which	
Required Textb	ooks Develo	omental Biolo	gy, Scott F. Glibert					
Reading list	t							
Information conc enrollment								
Assessment methods and criteria/ratios  Assess						e mechanisms of brain in general. nisms underlying brain		

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016whole year	Graduate School of Medical Sciences(22620)	1,	2, 3, 4	8	other
	Course	e name(Theme)			Instr	uctor
cellular and mol	icting Program "Pr ecular mechanism ings of experiment	SHIM	AMURA Kenji	, Hatakeyama Jiyun		
		Goals with their ratio				
Under construct	ion · · · · 100%					
Teaching Sty	le 実習					
Class metho	d Search an procedure	d reading of literature and references. I es. Conducted at laboratory and office o	nstruc of Dep	ctions and partment o	trainings of v f Brain Morph	arious experimental nogenesis, IMEG.
Class objectiv		tidisciplinary experimantal skills necessa ms underlying morphogenesis and histo				
Goals	technique can be su	Students are evaluated for their course grades and credits based on their experimental skills and techniques acquired during this course, and reports submitted for evaluation. The report assessment of each student spresentation and discussion at the laboratory and academic meetings.				
Class outline	developm morpholo genes and e cell and o animals a plasmid c studied b	If this class is to acquire the techniques ent of the vertebrate brain. Experimenta gical and histological analyses of the deatheir products. Experimental embryological cultures derived from the embryor re expertise of our division. The basic monstruction, are also included. In additive actively reading recent literature and a techniques will be thoroughly studied a	al tech evelop gy suric bra olecu on, lat	nniques to ling neural ch as man ain, and ge lar biologi test techno ling to app	be earned in tissues as we ipulation of the metic analysis cal methods ologies are all propriate train	this course include bell as expression of the living embryos, and so using transgenic such as DNA analysis, so encouraged to be using courses. These
Required Textb	ooks					
Reading list						
Information conc enrollment						
The achievement will be evaluated according to some of the following criteria.  1) Acquisition of experimental skills to perform proper genetic as well as surgical manipulation the living embryos.  2) Understanding how to analyze phenotypes derived from embryological or genetic manipula 3) Understanding how to analyze functions of genes involved in regionalization and morphoge of the brain.  4) Acquisition of experimental techniques to produce recombinant genes and proteins to rever their roles in development of brain tissues.  5) Understanding of relevance and significance of the results obtained from experiments for nearly development.						

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016whole year	Graduate School of Medical Sciences(22510)	1,	2, 3, 4	10	other	
	Course			Instr	uctor		
Research Conducting Program "Practice" I : Cell Modulation(To learn how to culture and manipulate the pluripotent stem cells)  Era Takumi							
		Goals with their ratio					
Under constructi	on · · · · 100%						
Teaching Styl	e 実験						
Class method	d facing less	son					
Class objectiv	es To establi	sh culture, differentiation and analysis t ells	echni	ques of th	e pluripotent	stem cells suach as ES	
Goals	their unde research f experimer including	erstanding and knowledge earned about or the stem cell, Regenerative medicine ntal planning and interpretation and crit	eir course grades and credits based on the course hours completed, where the second about scientific information on recent progress in the generative medicine and development mechanism, and ability for terpretation and criticism of the results obtained. The presentation por and academic meetings is also taken into consideration to get in the PhD research.				
Class outline	How to cu stem cells	lture and manipulate the stem cells suc	h as e	embryonic	stem cells ar	nd induced pluripotent	
Required Textbo	ooks						
Reading list							
Information conceenrollment	erning To master	the knowledge of stem cells					
	cell biolog	al of appropriate research projects on the sy and developmental mechanisms. It anding how to investigate molecular ba				G	
	Assessment methods and criteria/ratios 3) Logical/proper experimental design to identify the factors that play an essential role in stem regulation.						
	4) Novel findings obtained by appropriate and proper analytical approaches.						
	5) Origina regulation	l and innovative findings that can contri	bute	to better ι	ınderstandin	g for stem ce <b>ll</b>	

Class numbering code	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016w	vho <b>l</b> e year	Graduate School of Medical Sciences(22630)	1,	2, 3, 4	8	other	
		Course			Instr	uctor		
Research	Condu	ıcting Progr	am "Practice" II : Cell Modulation()			Era T	akumi	
			Goals with their ratio					
Under constructi	ion · · ·	100%						
Teaching Styl	le	実習						
Class method	d	facing tead	ch					
Class objectiv	es	To master evaluate th	how to analyze the KO mouse and the ne results	plurip	otent sten	n ce <b>ll</b> s such a	s ES and iPS ce <b>ll</b> s and	
Goals		Students are evaluated for their course grades and credits based on the course hours completed, their experimental skills and techniques acquired during this course, and reports submitted for evaluation. The report assessment can be substituted by the assessment of each student's presentation and discussion at the laboratory and academic meetings.						
Class outline	e)	experimen molecular establishm technique	his class is to acquire the techniques t tal techniques to be earned in this cou and biochemical analyses for mouse e tent of knock-out mice and analytical n is to induce ES/iPS cells into tissue ster of molecular biology, all of which will be	rse in mbryc netho n ce <b>ll</b> s	clude esta os. Particul ds for knoo s and to m	blishment of ar emphasis i ck-out mice, a anipulate ES/	immunostaining, s placed also on and advanced iPS cells by the	
Required Textbo	ooks							
Reading list								
Information conceenrollment		Master of s	stem cell biology					
		1) Acquisit	ion of experimental skills to handle the	mou	se embryo	S.		
		2) Underst	anding how to do the histological anal	ysis aı	nd stain th	e sections of	mouse embryos.	
Assessment met and criteria/rat		3) Acquisition of experimental techniques to produce recombinant genes, so that their structures and functions can be accurately analyzed and understood.						
		4) Understanding of theme of the experiments and the plane of the experiments						
		5) Acquisit experimen	cion of experimental skills to make a hy ts.	pothe	sis and to	prove a hypo	thesis using proper	

Class numbering code	Semester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period	
Cell Maintenance Departmental Course "Jissen" I	2016whole year	Graduate School of Medical Sciences(22520)	1,	2, 3, 4	10	other	
	Course	name(Theme)			Instr	uctor	
Research Conduc	ting Program "Prad Departmenta	ctice" I : Cell Maintenance(Cell Mainten I Course "Jissen" I)	ance		TATEISH	I Satoshi	
		Goals with their ratio					
Under construct	ion · · · · 100%						
Teaching Sty	le 実習及び写	[技					
Class metho		f this Departmental Course is to learn h mechanisms of cell cycle, cell division					
Class objectiv	es mechanis	of appropriate research projects on the ms of cell cycle checkpoint, DNA repair enescence.					
Goals	their unde	are evaluated for their course grades an erstanding and knowledge earned abou for cell cycle checkpoint and DNA repai	t scier	dits based ntific infor	on the cours mation on rec	e hours completed, ent progress in the	
Class outlin	е						
Required Textb	ooks						
Reading list	t						
Information conc enrollment	Have basic knowledge concerning what is taught in this course						
Assessment methods and criteria/ratios  Proposal of appropriate research projects on the basis of understanding the background on the mechanisms of cell cycle checkpoint, DNA repair, cellular senescence, apoptosis (cell death) and cellular senescence. Understanding how to investigate mechanisms of cell cycle checkpoint and tumor suppressor genes.							

Class numbering code	Sen	nester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period	
Cell Maintenance Departmental Course "Jissen" II	2016w	hole year	Graduate School of Medical Sciences(22640)	1	, 2, 3, 4	8	other	
		Course	name(Theme)			Instr	uctor	
			n "Practice" II : Cell Maintenance(Cell mental Course "Jissen" II)			TATEISH	I Satoshi	
			Goals with their ratio					
Under construct	ion · · · ·	100%						
Teaching Sty	le	実習及び実	技					
Class metho	d		this Departmental Course is to learn hechanisms of apoptosis, recombinat					
Class objectiv			f appropriate research projects on the ns of apoptosis, recombination and re				ackground on the	
Goals		their unde	re evaluated for their course grades ar rstanding and knowledge earned abou or apoptosis, recombination and repai	ıt scie	ntific infori	mation on rec	e hours completed, ent progress in the	
Class outline	е							
Required Textbo	ooks	The Ce <b>ll</b>						
Reading list	t	The Cell						
Information conceenrollment		Have basic	Have basic knowledge concerning what is taught in this course					
Assessment methods and criteria/ratios Proposal of appropriate research projects on the basis of understanding the background on the mechanisms of cell cycle checkpoint, DNA repair, cellular senescence, apoptosis (cell death) and criteria/ratios cellular senescence. Understanding how to investigate mechanisms of cell cycle checkpoint and tumor suppressor genes.						sis (cell death) and		

Course Coding		ar and mester	Faculty Offering Course	St	Eligible cudent Yea	Credits	Weekday and Period		
	2016v	vhole year	Graduate School of Medical Sciences(22530)		1, 2, 3, 4	others			
		Course	e Title(Theme)			Instru	ctor(s)		
Research C	onducti	ing Program Differentia		OGAWA	Minetaro				
Goals with their ratio									
Under construct	ion · · ·	100%							
Type of Clas	S	Other							
Teaching Meth	nod	All instruct	tions in the processes that are nece I in this departmental course.	ssary to	o fulfill requ	irements for P	hD thesis are		
Course Goal	s		this departmental course is to lear of the hematopoietic and vascular			research on th	e developmental		
Course Achieve Targets	ment	<ol> <li>Methodologies for identification and functional examination of stem cells are well understood.</li> <li>Genetical and cell biological approaches to investigate the hematopoietic and vascular development are learned.</li> <li>Methodologies for regulation of in vitro differentiation of embryonic stem cells are well understood.</li> <li>A research project is properly set up to elucidate the mechanisms of hematopoietic and vascul development.</li> <li>Logical and proper experimental design is set up and performed to solve the problems.</li> <li>Novel findings on the development of hematopoietic and vascular systems are obtained.</li> <li>Research findings are properly presented and discussed in an academic environment.</li> </ol>							
Outline		The latest literatures are first examined to understand current status of the research fields. On the basis of the knowledge obtained by searching the literatures, specific research projects are set up to elucidate the molecular and cellular mechanisms underlying (1) establishment of the multiple potentials and self-renewal capability of hematopoietic stem cells and (2) development of the higher order architecture of the vascular system. The study tool includes FACS purification of specific cell populations, in vitro differentiation of embryonic stem cells, genetically-engineered mice, as well as general molecular and cell biological approaches. Research projects and working hypothesis can be modified and improved depending on the progress and achievement of research. Finally, the experimental results are reported in international scientific journals in the fields of hematology, vascular biology, cell biology, and/or developmental biology.							
Textbooks/Mate	erials								
Reading Lis	t								
Enrollment Prerequisites									
Assessment Met and Criteria	Students are evaluated for their course grades and credits based on their understanding and knowledge earned about scientific information on recent progress in the research for the mechanisms of hematopoietic and vascular development, and ability for experimental planning a								

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22650)	1,	2, 3, 4	8	other	
		Course			Instr	uctor		
Research C	onducti	ng Program Differentia			OGAWA	Minetaro		
Goals with their ratio								
Under construct	ion · · ·	·100%						
Teaching Sty	⁄le	その他						
Class metho	d	The basic research p	experimental techniques are thorough project.	ly stud	died and p	ut into practio	ce on a specific	
Class objectiv	/es		f this class is to acquire the techniques of the hematopoietic and vascular syst		estigate th	ne mechanism	ns of developmental	
Goals		2) Method 3) Cellular developme 4) Method 5) A reseal developme	s for purification of stem cells by using s for functional identification of hemat and molecular biological approaches ent are learned. s for in vitro differentiation of embryon rch project is properly set up to elucida ent. and proper experimental design is set	opoie to ana ic ste ate the	tic stem ce alyze hema m cells are e mechanis	ells are maste stopoiesis and e mastered. sms of hemat	red. I vascular opoietic and vascular	
Class outlin	e	colony form marrow ce embryonic vascular de	Ital techniques to be learned in this co mation assay of hematopoietic progeni Il transplantation, in vitro differentiatio stem cells, and other cellular and mol evelopment. These techniques are put tion of the mechanisms of hematopoiet	tor ce n of h ecu <b>l</b> a into p	IIs, long-te ematopoie methodo practice on	erm bone mar etic and vascu logies to anal a specific re	row cell culture, bone lar cells from yze hematopoiesis and search project aimed	
Required Textb	ooks							
Reading list	t							
Information concerning enrollment								
Assessment met and criteria/ra		techniques can be sub	are evaluated for their course grades ar s acquired during this course, and repo ostituted by the assessment of each stu and academic meetings.	orts su	bmitted fo	or evaluation.	The report assessment	

Course Coding		ar and mester	Faculty Offering Course		Eligible dent Year	Credits	Weekday and Period
	2016v	vhole year	Graduate School of Medical Sciences(22550)	1,	2, 3, 4	10	others
		Course	e Title(Theme)			Instru	ctor(s)
Research	Condu	cting Progr	am "Practice" I : Stem Cell Biology()			Niwa I	Hitoshi
			Goals with their ratio				
Under construct	ion · · ·	100%					
Type of Clas	SS	Other					
Teaching Meth	nod	Seminar, p IMEG.	ractice and skill training will be held a	t Dep	artment of	Pluripotent S	Stem Cell Biology in
Course Goal	ls		ding the cell biological characters of mns determining them.	ouse	embryonic	stem cells a	nd the molecular
Course Achieve Targets	ment	establishm	nent of the ability to perform the basic i	esear	ch as an a	utonomous re	esearcher
Outline		Seminar, p self-renew	ractice and skill training will be held fo al or (2) analysis of molecular mechani	r (1) a sm go	analysis of overning di	molecular me fferentiation.	echanism governing
Textbooks/Mate	erials						
Reading Lis	Reading List						
Enrollment Prerequisites							
Assessment Met and Criteria		Oral prese	ntation, discussion and research repor	t			

Course Coding		ar and mester	Faculty Offering Course		Eligible Ident Year	Credits	Weekday and Period
	2016v	vhole year	Graduate School of Medical Sciences(22670)	1	1, 2, 3, 4	8	others
		Course	e Title(Theme)			Instru	ctor(s)
Research	Conduc	cting Progra	am "Practice" II : Stem Cell Biology()			Niwa I	Hitoshi
			Goals with their ratio				
Under construct	ion · · ·	100%					
Type of Clas	SS	Other					
Teaching Meth	nod	Seminar, p IMEG.	ractice and skill training will be held	at Dep	partment of	Pluripotent S	Stem Cell Biology in
Course Goal	ls	Understan mechanisr	ding the cell biological characters of rns determining them.	nouse	e embryonic	stem cells a	nd the molecular
Course Achieve Targets	ment	establishm	ent of the ability to perform the basic	resea	ırch as an aı	utonomous re	esearcher
Outline		Seminar, p self-renew	ractice and skill training will be held f al or (2) analysis of molecular mechan	or (1) ism g	analysis of overning dif	molecular me fferentiation.	echanism governing
Textbooks/Mate	erials						
Reading List							
Enrollment Prerequisites							
Assessment Met and Criteria		Oral prese	ntation, discussion and research repo	rt			

Course Coding		ar and nester	Faculty Offering Course	Stud	Eligible dent Year	Credits	Weekday and Period
	2016v	vhole year	Graduate School of Medical Sciences(22560)	1,	, 2, 3, 4 10		others
		Course	e Title(Theme)			Instru	ctor(s)
Research Condu	cting Pr	ogram "Pra Biology	Cell	NAKA		Saitou Noriko, Hino ijirou	
			Goals with their ratio				
Under construct	ion · · ·	100%					
Type of Clas	SS	Other					
Teaching Meth	nod	seminar ro	om and laboratories at Department of	Medio	cal Cell Bio	ology	
Course Goal	ls		of this Course is to understand the moent and human diseases.	ecula	r basis of e	epigenetic reg	gulation in
Course Achieve Targets	ment	As the ach regulation	ievement targets, students can unders and the significance in development a	tand a	and explair man disea	the molecul ses.	ar basis of epigenetic
Outline		change in regenerati studying h or inactive further expregulation literatures, and achiev	epigenetics is defined as "heritable ch DNA sequence". This is involved in don, aging and cancer. Students will pe ow cells establish, maintain or erase the chromatins at specific genes. On the berimental design will be constructed to a Specific research projects need to be a Research projects and working hypothy ement of research. Finally, the experimournals as well as conferences.	etermi form eir ide pasis c pasis c done done	ining cell id medical so entities by of the hypo cover a now using info can be imp	dentity in devicence-oriented formation of othesis and the rel evidence formation from oroyed depen	elopment, ed research by transcriptionally active e results obtained, or epigenetic database and latest ding on the progress
Textbooks/Mate	erials	EPIGENET	ICS (David Allis et al., Cold Spring Harl	or La	boratory P	ress, 2007)	
Reading Lis	t						
Enrollment Prerec	quisites						
Students are evaluated for their course grades and credits based on the course hours completed their understanding about epigenetics, and ability to do experiments and criticism of the results obtained. The presentation at the laboratory and academic meetings is also taken into consideration.  1) Understanding significance of epigenetics in life science. 2) Understanding relationship between epigenetics and human diseases. 3) Proper experimental design to identify the mechanism of epigenetic regulation. 4) Novel findings obtained by appropriate and proper analytical approaches.							cism of the results ken into

Class numbering code	Seme	ester	Course belonging/Course code	Yea	ır/Grade	Credit	Day,Period
	2016wh	nole year	Graduate School of Medical Sciences(22680)	1, 2, 3, 4		8	other
		Course			Instr	uctor	
Research Condu	cting Prog	gram "Prad Biology	Cell	NAKA		Saitou Noriko, Hino jirou	
			Goals with their ratio				
Under construct	ion · · · · 1	00%					
Teaching Sty	le a	その他					
Class metho	d s	seminar ro	om and laboratories at Department of	Medic	al Cell Bio	ology	
Class objectiv			of this Course is to learn the technique ent and human diseases.	s to ar	nalyze the	epigenetic re	gulation in
Goals	A r	As the ach regulation	ievement targets, students can master in development and human diseases.	the te	chniques <sup>·</sup>	to ana <b>l</b> yze the	e epigenetic cell/gene
Class outline	e b F e e	experimen piology, bi Particular epigenetic Advanced	covers the techniques to analyze the e tal techniques to be earned in this cou ochemistry and genetics, using culture emphasis is placed on functional analy regulation important for development techniques of DNA/RNA sequencing as based on epigenetic studies for diagnovered.	rse ind d ce <b>ll</b> s sis of s reger nd bio	clude varions and expenses and expenses and neration, roinformation, roinformatio	ous assays in erimental anin proteins that netabolism, a cs, and transla	cell biology, molecular nals such as mice. are involved in ging and cancer. ational medical
Required Textbo	ooks E	EPIGENET	ICS (David Allis et al., Cold Spring Hark	or Lab	ooratory P	ress, 2007)	
Reading list	t						
Information conceenrollment							
Assessment methods and criteria/ratios  Students are evaluated for their course grades and credits based on the course hours comp their experimental skills acquired, and reports submitted for evaluation. The report can be substituted by presentation and discussion at the laboratory and academic meetings.  1) Acquisition of experimental skills in epigenetics. 2) Understanding the role of epigenetic mechanisms in physiology and human diseases. 3) Ability to design appropriate experiments and to investigate epigenetic regulation. 4) Acquisition of experimental skills to investigate gene and chromatin in cells and animals.							eport can be eetings. diseases. Ilation.

Class numbering code	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016v	vhole year	Graduate School of Medical Sciences(22270)	1,	2, 3, 4	10	other		
		Course			Instr	uctor			
Researc	h Condu	ucting Prog			TAKIGUCH	II Masafumi			
Goals with their ratio									
Under construct	ion · · · ·	100%							
Teaching Sty	le	演習							
Class metho	d								
Class objectiv	es/es	and virolo	e is structured to expose students to the gy. Students will learn how to formulate ns and to prepare written/oral reports	a hy	pothesis o	n the underly			
Goals		Students will learn: 1) antigen processing and recognition and their original findings on the subjects. 2) viral antigens recognized by the immune system and immune responses against the antigens ar their original findings on the subjects. 3) basic research and clinical applications for the regulation of immune responses and their origin findings. 4) previous literature relevant to their research 5) to form reasonable hypotheses and implement their experimental plans.							
Class outlin	e	molecules limited to, immune re their tissue systems, u molecular They will fi	e will emphasize on how to test a hypoinvolved in antiviral immunity and immidentifying genes coding for antigens as ponses and to studying the gene expleiocalization. Based on the their empising molecular, cellular, and developm functions of newly identified genes in further explore the possibility of application and oral reports.	iune r ind fu ressio ical fi ental ihe an	egulations nctional m n, the stru- ndings, stu biology te- tiviral imm	The focus wollecules that ctures of the good that the control of the control of the chniques, to use system a	ill be on, but not play a role in antiviral gene products, and sign experimental understand the nd viral pathogenesis.		
Required Textb	ooks								
Reading list	t								
Information concerning enrollment									
	Grades will be based upon attendance, understanding literatures relevant to students' researce and the ability to evaluate them, students' overall performance and the quality of project design and criteria/ratios or domestic/ international conferences may be substituted for written assignments.								

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22370)	1,	2, 3, 4	8	other	
		Course	name(Theme)			Instr	uctor	
Research	n Condu	ıcting Progi	ram "Practice" II : AIDS Research I()			TAKIGUCH	II Masafumi	
			Goals with their ratio					
Under construct	ion · · ·	100%						
Teaching Styl	le	実験						
Class metho	d							
Class objectiv	'es	The course biochemic	e course will emphasize on experimental methods, including various cellular immunology, chemical, and molecular techniques necessary for immune analysis of human and mice.					
Students will learn: 1) to isolate immune cells and analyze their morphology and functions. 2) to investigate the structures and functions of proteins involved in the immune response: 3) to examine gene structure and function of genes expressed in the immune system. 4) viral infection and experimental techniques for infection. 5) to form reasonable hypotheses and implement their experimental plans.						ine responses. system.		
Class outline  The course will cover how to isolate and identify immune cells and to examine immune responsible antigen presenting cells and T lymphocytes both in vivo and in vitro. The focus will also be or molecular and biochemical methods to analyze immune molecules and antigens and introdustudents to techniques for cellular infection.						s will also be on		
Required Textbo	ooks							
Reading list								
Information conceenrollment		ning						
Assessment methods and criteria/ratios  Grades will be based upon attendance, students' experimental techniques and skills during the course, and laboratory reports. Manuscripts prepared for publication and pattendance, students' experimental techniques and skills and criteria/ratios at the lab meetings or domestic/ international conferences may be substituted for writerials assignments.					on and presentations			

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period				
	2016whole year		Graduate School of Medical Sciences(22280)	1,	2, 3, 4	10	other				
Course name(Theme)						Instr	uctor				
Research	h Condu	ucting Progr	ram "Practice" I : AIDS Research II()			MATSUSH	IITA Shuzo				
	Goals with their ratio										
Under construct	Under construction ····100%										
Teaching Sty	⁄le	実験									
Class metho	d		tions which are necessary to fulfill requ ntal Course.	ireme	nts for Phl	O thesis, are o	conducted in this				
Class objectiv	⁄es	Students are supposed to propose a research hypothesis and to set a necessary experimental procedure for research on the pathogenesis and intervention of HIV-1 infection. Latest report concerning the relationship between anti-HIV immune response such as neutralizing antibody cytotoxic T-cell and the evolution of the virus will be reviewed. Making use of these, participal supposed to analyze the role of anti-HIV immune response in the viral pathogenesis and the mechanism of escape from immunity. The research strategy should be tested by making use of experimental system using cell biology, molecular biology and immuno-chemical techniques, addition, researches concerning the application to new treatment strategy such as immune-thand the development of vaccine that induces the neutralizing antibody also serve as a goal. Stophave to complete original and innovative works necessary to fulfill requirements for PhD thesis.									
Goals	Students are evaluated for their course grades and credits based on the course hours completed. Their understanding and knowledge earned about scientific information on recent progress in research for pathogenesis and host defense mechanism of HIV-1 infection, and ability for experimental planning and interpretation and criticism of the results obtained. The presentation including discussion at the laboratory and academic meetings is also taken into consideration assess the level of achievement in the PhD research. Students have to complete original and innovative works necessary to fulfill requirements for PhD thesis.						cent progress in the d ability for . The presentation to consideration to				
Class outlin	Learning from literatures which use samples from HIV-1 infected individuals or in vitro models students are supposed to propose a research hypothesis and to set a necessary experimental procedure for research on the pathogenesis and intervention of HIV-1 infection. The research strategy should be tested by making use of experimental system using cell biology, molecular biol and immuno-chemical techniques. In addition, researches concerning the application to new						ry experimental n.The research logy, molecular biology lication to new elopment of vaccine results obtained, or prevention and led in international				
Required Textb	ooks										
Reading list	t										
Information conc enrollment											
Assessment met and criteria/ra											

Class numbering code	Semes	ster	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016who	ole year	Graduate School of Medical Sciences(22380)	1	, 2, 3, 4	8	other		
		Course	name(Theme)			Instr	uctor		
Research	Conductir	ng Progra	am "Practice" II : AIDS Research II()			MATSUSH	IITA Shuzo		
			Goals with their ratio						
Under construct	ion ····10	00%							
Teaching Sty	rle 実	習及び実	技						
Class metho	d All	l instruct	ions of this course are conducted in	semina	ar room an	d laboratories	s at "AIDS Research II		
Class objectiv	/es (cl		this class is to acquire the technique ses or animal models) or in vitro mod						
Goals	Stu	udents a chniques	re supposed to complete the course s during the class.	nours a	and learn t	heir experime	ental skills and		
Class outlin	The aim of this class is to acquire the techniques to analyze samples from HIV-1 infected indiv (clinical cases or animal models) or in vitro model origin to understand the pathophysiology of infection. For example, individual viral sequence is determined by automated sequencer after amplification of specific gene from the samples by PCR. The sequence data are subjected to the phylogenic analysis. In addition, experiments using pseudoviruses and cell sorter analyses are performed with regard to the cell mediated immunity and the humoral immunity including neutralizing antibody. With these techniques research program will be conducted to contribute only to better understanding pathogenesis but also to successful development of prevention at treatment of HIV-1 infection. Finally, students will be trained for documentation and oral presentation of the experimental results obtained.								
Required Textb	ooks								
Reading list	t								
Information conc enrollment									
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  The achievement will be evaluated according to the following criteria.  1) Acquisition of experimental skills with respect to genetic and biological aspects and observed in the pathogenesis, prevention and treatmentally-1 infection.  3) Whether the experimental design is appropriate to the subject of study proposed and observed in the pathogenesis of HIV-1 infection.  4) Original findings that can contribute to understanding the pathogenesis of HIV-1 infection are obtained.						d treatment of the  cosed and executed  HIV-1 infection and			

Course Coding		ar and mester	Faculty Offering Course	Stu	Eligible Ident Year	Credits	Weekday and Period	
	2016v	vhole year	Graduate School of Medical Sciences(22290)	1	1, 2, 3, 4	10	others	
		Course	e Title(Theme)			Instru	ctor(s)	
Research	n Condu	cting Progr	am "Practice" I : AIDS Research III()			OKAD	A Seiji	
			Goals with their ratio					
Under construct	ion · · ·	100%						
Type of Clas	SS	Practice ar	nd Training					
Teaching Meth	hod	Practice ar	nd discussion.					
Course Goal	ls	The aim of this Departmental Course is to learn how to propose scientific hypothesis for the mechanisms of the interaction between hematopoietic-immune system and viral infection. The hypothesis must then be proven experimentally.						
Course Achieve Targets	ment	Propose the research work related Labo project. Perform the experiments, make discussion according to the data and literature review. Complete at least one project, present the paper at the conference, and write the English paper.						
Outline		Practice how to conduct the original research. Learn how to find and read the research paper, how to present at the meeting and conference, and how to write the original research paper.						
Textbooks/Mate	erials							
Reading Lis	t							
Enrollment Prerec	Enrollment Prerequisites							
Assessment Met and Criteria		their unde research for planning a discussion	re evaluated for their course grades a rstanding and knowledge earned abour microbial pathogenesis and host dend interpretation and criticism of the at the laboratory and academic meet nievement in the PhD research.	ut scie fense result	entific inform mechanism s obtained.	mation on red n, and ability The presenta	cent progress in the for experimental ation including	

Course Coding		ar and mester	Faculty Offering Course		ligible dent Year	Credits	Weekday and Period		
	2016v	vhole year	Graduate School of Medical Sciences(22390)	1,	2, 3, 4	8	others		
		Course	Title(Theme)			Instru	ctor(s)		
Research	Condu	cting Progra	am "Practice" II : AIDS Research III()			OKAD	A Seiji		
			Goals with their ratio						
Under construct	ion · · ·	100%							
Type of Clas	SS	Practice a	nd Training						
Teaching Meth	nod	Practice a	nd discussion.						
Course Goal	ls	The aim of this Departmental Course is to learn how to propose scientific hypothesis for the mechanisms of the interaction between hematopoietic-immune system and viral infection. The hypothesis must then be proven experimentally.							
Course Achieve Targets	ment	Propose the research work related Labo project. Perform the experiments, make discussion according to the data and literature review. Complete at least one project, present the paper at the conference, and write the English paper.							
Outline		Practice how to conduct the original research. Learn how to find and read the research paper, how to present at the meeting and conference, and how to write the original research paper.							
Textbooks/Mate	erials								
Reading Lis	t								
Enrollment Prerequisites									
Assessment Met and Criteria		their unde research fo planning a discussion	re evaluated for their course grades ar rstanding and knowledge earned abou or microbial pathogenesis and host def nd interpretation and criticism of the r at the laboratory and academic meeti nievement in the PhD research.	t sciei ense i esults	ntific infori mechanisn obtained.	mation on rec n, and ability The presenta	ent progress in the for experimental ation including		

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22300)	1,	, 2, 3, 4	10	other	
		Course	name(Theme)			Instr	uctor	
Research	Condu	cting Progr	am "Practice" I : AIDS Research IV()			SUZU	Shinya	
			Goals with their ratio					
Under construct	ion · · · ·	100%						
Teaching Sty	le	その他						
Class metho	d	Practice o	ice on HIV-1 research					
Class objectiv	/es	To educate students so that they can make experimental plans, perform those experiments, appropriately interpret the results, write the manuscript						
Goals			an reach the levels with which they ma ely interpret the results, write the man			plans, perfo	m those experiments,	
Class outline	e	By focusing myeloid cells, students learn how they make experimental plans, perform those experiments, appropriately interpret the results, write the manuscript						
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
Assessment met and criteria/ra			tudents are enough to make experimenthe results, write the manuscript	ntal pl	ans, perfo	rm those expe	eriments, appropriately	

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22400)	1,	, 2, 3, 4	8	other	
		Course	name(Theme)			Instr	uctor	
Research	Condu	cting Progra	am "Practice"     : A DS Research   V()			SUZU	Shinya	
			Goals with their ratio					
Under construct	ion · · ·	100%						
Teaching Sty	le	その他						
Class method	d	Shinya Suz ce <b>ll</b> s	zu will teach experimental techniques	neces	sary for H <b>I</b> \	V-1 research t	hat focus on myeloid	
Class objectiv	es es	To learn experimental techniques necessary for HIV-1 research that focus on myeloid cells such as macrphages						
Goals		Students can reach the levels with which they can perform research to understand the HIV-1 pathogenesis						
Class outline	e	By focusing myeloid cells such as macrophages and fibrocytes, students will learn experimental techniques necessary to understand HIV-1 pathogenesis						
Required Textbo	ooks							
Reading list								
Information conceenrollment								
Assessment met and criteria/ra		Whether s	tudents are enough to perform researc	h to u	nderstand	the HIV-1 pa	thogenesis	

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(22310)	1,	2, 3, 4	10	other		
	Course	name(Theme)			Instr	uctor		
Research	Conducting Prog	ram "Practice" I : AIDS Research V()			UENO T	akamasa		
		Goals with their ratio						
Under construct	ion ····100%							
Teaching Sty	le その他							
Class metho	d and to des	am will emphasize on how to raise their sign experimental strategies to answer t n antiviral immunity and viral pathogene	he qu					
Class objectiv		their own findings, students are expectonally recognized journals in the fields ares.						
Goals	reviewing Manuscrip	Grades will be based on attendance and overall performance in understanding and critically reviewing scientific literature, and quality of experimental design, findings, and presentations. Manuscripts for scientific papers and presentations at domestic/international conferences will be counted towards the overall course grade.						
Class outline	The course is structured to expose students to the recent and important discoveries in HIV/AIDS biology as well as human antiviral immune responses and discuss how to perform research studie. The program will emphasize on how to raise their own scientific questions, to propose hypothese and to design experimental strategies to answer the questions by analyzing cells, proteins, and go involved in antiviral immunity and viral pathogenesis. The focus will be on, but not limited to, functional aspects of human T cells, molecular basis of antigen recognition, as well as HIV access proteins. Based on their own findings, students are expected to write scientific manuscripts to be submitted to internationally recognized journals in the fields and give oral and poster presentation in academic conferences. All academic and scientific activities listed above are PhD course requirements and will be conducted under the supervision of the instructor.							
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Students will be evaluated by the following criteria:  1) their understandings of background and their research agendas in their own resear their understandings of the role of anti-HIV immune responses and viral pathogene their ability to formulate scientific questions and hypotheses. their ability to implement strategic experimental design, accomplish research projects, a logical conclusions by evaluating their own experimental results.						eathogenesis.		

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016whole year	Graduate School of Medical Sciences(22410)	1,	2, 3, 4	8	other
	Cours			Instr	uctor	
Research	Conducting Prog	ram "Practice" II : AIDS Research V()			UENO T	akamasa
		Goals with their ratio				
Under construct	ion · · · · 100%					
Teaching Sty	le その他					
Class metho		se is structured for students to learn exp s and test hypotheses.	erime	ntal meth	ods to addres	s their scientific
Class objectiv	recombir	ram will emphasize on experimental tec nmune responses, flow-cytometric analy ant proteins, as well as gene technolog azardous materials such as HIV.	sis of	cellular fu	nctions, biocl	nemical analysis of
Goals	learned of domestic	ill be based on attendance and overall luring the course. Manuscripts for scien /international conferences and intra-lal burse grade.	tific pa	apers and	presentations	at
Class outline	question replication functions	se is structured for students to learn exts and test hypotheses. The program will in, viral pathogenesis, human immune rowichemical analysis of recombinant prover how to work safely with biohazard	emph espon: rotein	asize on e ses, flow-c is, as well a	xperimenta <b>l</b> t ytometric ana as gene techr	echniques for viral Alysis of cellular
Required Textb	ooks					
Reading list	t					
	Information concerning enrollment					
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Students will be evaluated on to the following criteria:  1) their skills and knowledge to work safely with biologically hazardous materials.  2) their skills and knowledge of viral replication and pathogenesis.  3) their skills and knowledge to isolate and maintain cells involved in antiviral immud. their skills and knowledge to analyze functional aspects of cells, proteins, and gets their skills and knowledge to prepare and analyze recombinant proteins and the						mmune responses.

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22330)	1,	, 2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research Conduc	ting Pro	gram "Prac	tice" I : AIDS Research VII(Virology of H	IV-1)		Ariumi	Yasuo
			Goals with their ratio				
Under construct	ion · · ·	·100%					
Teaching Sty	⁄le	その他					
Class metho	d	Opening: Period: ev	Yasuo Ariumi 1~4 full year very Tuesday 6th period DS VII Laboratory				
Class objectiv	/es	After getting practiced.	ng the knowledge about HIV-1 virology	, resea	arch theme	e and/or proje	ect was planned and
Goals			is to plan the research theme and proje -1 virology.	ect by	yourse <b>l</b> f a	fter getting th	e basic knowledge
Class outlin	e	pathogene Planning o	f HIV-1 virology about HIV-1 structure, esis. f research theme and/or research projon of research progress report and rese	ect ar	nd the prac	ctice.	,
Required Textb	ooks						
Reading list	t						
Information concerning enrollment							
Assessment methods and criteria/ratios  Evaluation will be performed as follows:  1) Understanding of research field and backgrour 2) Getting knowledge of HIV-1 virology and how t 3) Planning the research project and the practice 4) Research achievement: getting new results and					dy HIV-1.		

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vhole year	Graduate School of Medical Sciences(22430)	1,	, 2, 3, 4	8	other	
		Course	name(Theme)			Instr	uctor	
Research	Conduc	cting Progra	m "Practice" II : AIDS Research VII()			Ariumi	Yasuo	
			Goals with their ratio					
Under construct	ion · · ·	100%						
Teaching Sty	le	実習及び実	技					
Class metho	d	Opening: Period: eve	Yasuo Ariumi 1 - 4, fu <b>ll</b> year ery Thursday 6 - 7 periods OS VII Laboratory					
Class objectiv	es es	Getting res biological,	search skills how to analyze HIV-1 to cl or molecular biological method.	arify t	he HIV-1 li	fe cycle by vi	rological, cellular	
Goals			search skills how to analyze HIV-1 to cloor molecular biological method.	clarify the HIV-1 life cycle by virological, cellular				
Class outlin	e	biological, facility, ob	esearch skills how to analyze HIV-1 to o or molecular biological method, includ servation of cellular localization under g, gene cloning, PCR, and biochemical	ling c confo	ell culture, cal laser s	. HIV-1 infecti	on study in the BSL3	
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
Assessment met and criteria/ra		1) Getting biological 2) Cell cul <sup>3</sup> 3) Method	was performed by checking following research skills how to analyze HIV-1 by method. ture skill of human cells. of production and analysis of recombi knowledge and skills how to do virus in	cellunant	ılar biologi proteins.	cal, biochemi	cal, or molecular	

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22350)	1,	2, 3, 4	10	other	
		Course	name(Theme)			Instr	uctor	
Research	Condu	cting Progr	am "Practice" I : AIDS Research IX()			Shinic	hi Oka	
			Goals with their ratio					
Under construct	ion · · ·	100%						
Teaching Sty	le	講義・演習						
Class metho	d	Supervisor Program S Site and Fa	: Shinichi Oka chedule: year 1-4, every Tuseday (5th- acilities: seminar room at ACC of Natio	6th pe nal Ce	eriod) enter for G	lobal Health a	and Medicine	
Class objectiv	/es	The aim of clinical pro	thie program is to learn how to make poblems	rotoc	ols for clir	nical studies t	o resolve current	
Goals								
Class outline	e	clinical pro be submitt	thie program is to learn how to make poblems. Baesd on their findings, studen ted to internationally recognized journation conferences.	ts are	expected	to write scier	ntific manuscripts to	
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
Assessment met and criteria/ra		1) their u 2) their u 3) their a	will be evaluated by the following criter inderstandings of research agenda in t inderstandings of clinical data and ana ibility to formulate scientific questions iccomplishment of research projects.	neir o lyzing	technique	e.		

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22450)	1,	2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research	Condu	cting Progra	am "Practice" II : AIDS Research IX()			Shinic	hi Oka
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	講義					
Class metho	d		: Shinichi Oka chedule: year 1-4, every Wednesday (5 acilities: laboratories at ACC of Nationa	ith pe al Cen	riods) ter for G <b>l</b> o	bal Health an	d Medicine
Class objectiv	es/es	The aim of	this program is to learn how to diagno	se, tre	eat, and pr	event comp <b>l</b> i	cations related to AIDS
Goals		Students v	vill learn how to make protocols for clir	nical s	tudies to r	esolve these	clinical problems.
Class outline	e	The aim of AIDS. Stud problems.	this program is to learn how to diagno ents will learn how to make protocols	se, tre or cli	eat, and pr nical studi	event compli es to resolve	cations related to these clinical
Required Textb	ooks						
Reading list	t						
	rmation concerning enrollment						
Assessment met and criteria/ra		1) their k 2) their k	vill be evaluated by the following criter mowledge of clinical complications rel mowledge of how to diagnose, treat, an accomplishment of research projects	ated to	o AIDS event comp	olications rela	ted to AIDS

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22360)	1, 2, 3, 4		10	other
		Course	name(Theme)			Instr	uctor
Research	ո Condւ	ucting Progr	am "Practice" I : AIDS Research X()			Hiroyuki	Gatanaga
			Goals with their ratio				
Under construct	ion · · ·	·100%					
Teaching Sty	⁄le	講義					
Class metho	d	Program S	: Hiroyuki Gatanaga chedule: year 1-4, every Wednesday (6 acilities: seminar room at ACC of Natio	th pe	riod) enter for G	lobal Health a	and Medicine
Class objectiv	/es		vill learn how to analyze HIV mutations eir clinical significance.	and c	hanges of	vira <b>l l</b> oads in	infected patients and
Goals		Baesd on t	heir findings, students are expected to nally recognized journals and give oral	write or pos	scientific ster preser	manuscripts in aca	to be submitted to ademic conferences.
Class outlin	e	discuss the questions, analyzing o manuscrip	vill learn how to analyze HIV mutations eir clinical significance. The program w to propose hypotheses, and to design clinical samples. Baesd on their finding ts to be submitted to internationally re ons in academic conferences.	i <b>ll</b> em exper s, stu	phasize or imental st dents are e	how to raise rategies to an expected to w	their own scientific swer the questions by rite scientific
Required Textb	ooks						
Reading list	t						
Information conc enrollment	Information concerning enrollment						
Assessment methods and criteria/ratios  Students will be evaluated by the following criteria:  1) their understandings of clinical backgrounds and their research ager their understandings of HIV clinical pathogenesis and analyzing tech their ability to formulate scientific questions and hypotheses. 4) their accomplishment of research projects.						ing technique	their own interests.

Class numbering code	Ser	mester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016w	iwhole year Graduate School of Medical 1, 2, 3, 4				8	other
		Course			Instr	uctor	
Research	Condu	cting Progr	am "Practice" <b>II</b> : AIDS Research X()			Hiroyuki	Gatanaga
			Goals with their ratio				
Under construct	ion · · · ·	100%					
Teaching Sty	le	講義					
Class metho	d	Program S	r: Hiroyuki Gatanaga chedule: year 1-4, every Thursday (6t acilities: Iaboratories at ACC of Natior	ո & 7tl al Cer	h periods) nter for G <b>l</b> o	bal Health an	d Medicine
Class objectiv	es es	The aim of tailor-mad	fthis program is to learn the optimizat e medicine in HIV treatment	ion of	antiretrovi	ra <b>l</b> therapy to	each infected and
Goals			vill learn and analyze both of viral fato antiretroviral therapy.	rs and	host (patie	ent) factors w	hich influence the
Class outline	e	The aim of tailor-mad (patient) fa	this program is to learn the optimizat e medicine in HIV treatment. Students actors which influence the effects of a	ion of wi <b>ll l</b> e ntiretr	antiretrovi earn and ar oviral thera	ral therapy to nalyze both of apy.	each infected and f viral fators and host
Required Textb	ooks						
Reading list							
Information concerning enrollment							
Assessment met and criteria/ra		1) their sk 2) their sk	vill be evaluated by the following crite ills and knowledge of the viral factors ills and knowledge of the host factors ccomplishment of research projects	which	influence influence	the effects of the effects of	antiretroviral therapy. antiretroviral therapy.

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	whole year Graduate School of Medical Sciences(22740) 1, 2, 3, 4			, 2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research	Conduc	cting Progra	m "Practice" I : AIDS Research XI()			Tetsuro	Matano
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le l	講義・演習					
Class metho	d	Program S	r: Tetsuro Matano chedule: year 1-4, every Tuesday (6th acilities: Seminar rooms and laborator	period ies at	d) National Ir	nstitute of Info	ectious Diseases
Class objectiv	/es		e is structured to expose students to th ction and the current progress in AIDS				timmune interaction
Goals			heir findings, students are expected to nally-recognized journals and give oral				
Class outlin	e	in HIV infe to perform emphasize control, co are expect	e is structured to expose students to the ction and the current progress in AIDS virological and immunological analyse on how to design and perform scientificant intributing to development of an effect red to write scientific manuscripts to be ral or poster presentations in academic	vacci s in p fic exp ive Al subn	ne develop rimate AID periments DS vaccine nitted to in	oment. Stude OS models. Th to elucidate t e. Based on th	nts will have a chance e program will he requisites for HIV neir findings, students
Required Textb	ooks						
Reading list	t						
Information conc enrollment	on concerning ollment						
Assessment methods and criteria/ratios  Students will be evaluated by the following criteria:  1) their understandings of virus-host immune interaction in HIV infection.  2) their understandings of the current progress in AIDS vaccine development.  3) their ability to formulate scientific questions and hypotheses.  4) their accomplishment of research projects.							

Class numbering code	Ser	nester	Course belong	ging/Course code	Yea	ır/Grade	Credit	Day,Period
	2016w	/hole year		hool of Medical es(22760)	1,	2, 3, 4	8	other
	Course name(Theme)							uctor
Research (	Conduc	ting Progra	m "Practice" <b>II</b> : A	IDS Research XI()			Tetsuro	Matano
			G	oals with their ratio				
Under constructi	ion · · · ·	100%						
Teaching Styl	le	講義						
Class method	d	Program S	: Tetsuro Matano chedule: year 1-4, acilities: Seminar	every Thursday (6th- rooms and laboratorio	·7th p	eriods) National Ir	nstitute of Infe	ectious Diseases
Class objectiv	res	The aim of simian imn	this program is to nunodeficiency vir	learn how to perform us (SIV) infection.	n virol	logical and	l immuno <b>l</b> ogi	cal analyses in HIV and
Goals		Students w	vi <b>ll l</b> earn how to m	ake protocols for bas	ic stu	dies towar	d AIDS vaccii	ne development.
Class outline	е	simian imn diversity ar in primate	nunodeficiency vir nd host cellular/hi	้นร (SIV) infection. Stu	ident: inses,	s will learn , and will h	how to analy ave a chance	to join vaccine tria <b>l</b> s
Required Textbo	ooks							
Reading list	:							
Information conceenrollment	erning	g						
Assessment methods and criteria/ratios  Assessment methods 5 their knowledge on host cellular/k 3 their skills to perform virological 4 their knowledge on AIDS vaccine to 5 their accomplishment of research				genome diversity in H cellular/humoral imm logical and immunolo vaccine trials.	IV/SI\ une r	esponses i	in HIV/SIV inf	fection. DS models.

Class numbering code	Sen	nester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016w	hole year	Graduate School of Medical Sciences(22770)	1,	, 2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Research	Conduc	cting Progra			Yoshimur	a Kazuhisa	
			Goals with their ratio				
Under construct							
Teaching Sty	'le	演習					
Class metho	d	Program S	": Kazuhisa Yoshimura chedule: year 1-4, every Thursday (6th acilities: seminar room and laboratorie	peric s at	od) "AIDS Reso	earch Center,	NIID"
Class objectiv	/es	regarding drugs and,	this course is to learn how working hy recent important progresses in HIV/AIE or neutralizing antibodies, and the me g several examples.	S inc	luding the	action mech	anism of anti-H <b>I</b> V-1
Goals	Students are expected to search latest literatures about (i) functional molecules of host and components involved in viral replication, (ii) anti-HIV drugs, (iii) neutralizing antibodies, and mechanism of resistance for drugs and/or antibodies. On the basis of findings obtained, experimental design will be constructed to develop novel anti-HIV therapies and anti-HIV dr clinical applications using molecular and pharmacological approach.						ntibodies, and (iv) the obtained,
The aim of this course is to learn how working hypotheses have been proposed and confirm regarding recent important progresses in HIV/AIDS including the action mechanism of anti-I drugs and/or neutralizing antibodies, and the mechanism of resistance for drugs and/or ant by showing several examples. Students are expected to search latest literatures about (i) fun molecules of host and virus components involved in viral replication, (ii) anti-HIV drugs, (iii) neutralizing antibodies, and (iv) the mechanism of resistance for drugs and/or antibodies. O basis of findings obtained, experimental design will be constructed to develop novel anti-HIV therapies and anti-HIV drugs for clinical applications using molecular and pharmacological approach. Finally, the experimental results should be orally presented in academic meetings reported in international scientific journals. All instructions in the above-mentioned process which are necessary to fulfill requirements for PhD thesis, are conducted in this course.						anism of anti-HIV-1 gs and/or antibodies, s about (i) functional IIV drugs, (iii) antibodies. On the novel anti-HIV rmacological emic meetings and oned processes,	
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment methods and criteria/ratios  The achievement will be evaluated for each research project according to the following 1) Acquisition of latest findings and advances in life cycle of HIV-1.  2) Acquisition of latest findings and advances in anti-HIV drugs, neutralizing antibodies, mechanisms of resistance.  3) Acquisition of experimental skills to culture HIVs and cells.  4) Acquisition of experimental skills to produce recombinant HIVs.  5) Proposal of appropriate experimental design and execution for conducting research						ntibodies, and	

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016whole year	Graduate School of Medical Sciences(22900)	1,	2, 3, 4	8	other
	Course	e name(Theme)			Instr	uctor
Research	Conducting Progr	am "Practice" II : AIDS Research XII()			Yoshimur	a Kazuhisa
		Goals with their ratio				
Under construct	ion · · · · 100%					
Teaching Sty	le 講義					
Class metho	d Program	r: Kazuhisa Yoshimura Schedule: year 1-4, every Tuesday (6th- Facilities: seminar room and laboratorie	7th pe s at	eriods) "AIDS Res	earch Center,	NIID"
Class objectiv	es The aim o	f this course is to acquire virological, bi	ochen	nical, and	molecular-bio	ological techniques
Goals						
Class outlin	analyzing Specifical assay, and analysis fo	If this course is to acquire virological, bimicrobiological study of HIV-1 infection ly, experimental techniques to be learned ap24Ag ELISA for the titration of HIV, aror classification of HIV-1 genomes. In adorter analyses are performed. All techniques.	n whice ed in tended of the period of the pe	ch cause A this course R cloning, n, experime	IDS and relate include WST sequence an ents using pse	ed diseases. -8 assay, TZM-bl- alysis, and phylogenic eudo-typed viruses
Required Textb	ooks					
Reading lis	t					
Information conc enrollment						
The achievement will be evaluated for each research project at 1) Acquisition of experimental skills to use clinical isolates. 2) Acquisition of experimental skills with respect to genetic ar 3) Acquisition of experimental skills to analyze the action mediately action and the action of experimental skills to analyze the replication Appropriate experimental design and execution of conducting the action of experimental skills to analyze the replication appropriate experimental design and execution of conducting the action of experimental skills to analyze the replication appropriate experimental design and execution of conducting the action of experimental skills to analyze the replication appropriate experimental design and execution of conducting the action of experimental skills to analyze the action mediates.						ects. IIV drugs and

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vhole year	Graduate School of Medical Sciences(22780)	1,	2, 3, 4	10	other
	Course name(Theme)						uctor
Research	Conduc	cting Progra	am "Practice" I : AIDS Research XIII()			Sato Y	orifumi
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le l	講義					
Class metho	d	Lecture an	d discussion				
Class objectiv	/es	The goal is themselve	s to establish their own skill to design, p s.	lan, p	oerform, ar	nd eva <b>l</b> uate th	e research by
Goals		Understan genomic b project.	Understanding about recent major finding about virology, molecular cell biology, immunology, and genomic biology. In addition, overall performance and understanding of their own scientific research project.				
Class outlin	е	Recent ma addition, e	ijor finding about virology, molecular ce xperimental findings regarding retrovir	ell bio al late	logy, immu ency.	unology, and	genomic biology. In
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra		and genon 2) Knowle persistent 3) Experim	1) Understanding about recent major finding about virology, molecular cell biology, immunology, and genomic biology. 2) Knowledge and understanding for the fundamental and latest notion about retroviral life cycle, persistent infection, and pathogenesis. 3) Experimental findings regarding retroviral latency. 4) Overall performance and understanding of scientific research project.				

Class numbering code	Sei	mester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(22910)	1	, 2, 3, 4	8	other
		Course			Instr	uctor	
Research	Conduc	ting Progra	m "Practice" II : AIDS Research XIII()			Sato Y	orifumi
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le	講義					
Class metho	d	Lecture an	d discussion				
Class objectiv	es/es	The goal is themselve	to establish their own skill to design, s.	plan,	perform, ar	nd eva <b>l</b> uate th	e research by
Goals		Understan genomic b project.	ding about recent major finding abou iology. In addition, overall performan	t virolo ce and	ogy, mo <b>l</b> ect understan	ular cell biolo ding of their	gy, immunology, and own scientific research
Class outlin	e	Recent ma addition, e	jor finding about virology, molecular oxperimental findings regarding retrov	ell bio	ology, immu ency.	unology, and	genomic biology. In
Required Textb	ooks						
Reading lis	t						
Information concentrollment							
Assessment met and criteria/ra		and genon 2) Knowled persistent 3) Experim	anding about recent major finding ab nic biology. dge and understanding for the fundan infection, and pathogenesis. lental findings regarding retroviral late performance and understanding of sc	nenta <b>l</b> ency.	and latest	notion about	637

Class numbering code	Se	mester	Course belonging/Course code	Y	Yea	r/Grade	Credit	Day,Period			
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(20370)		1, 2, 3, 4		10	other			
	Course name(Theme)						Instructor				
"Research Conducting Program ""Practice"" I :Reproductive Engineering(Reproductive biology)							NAKAGA <sup>-</sup>	TA Naomi			
			Goals with their ration	)							
Under construct	ion ···	100%									
Teaching Sty	le	その他									
Class metho	d		Naomi Nakagata nter for Animal Resources & Develop	ment	t (C	ARD) P <b>l</b> ac	tice laborator	y 1 and 2 (503 and			
Class objectiv	es/es		oncerning the reproductive engineering techniques.	ng te	echi	nologies a	nd the basic	reproductive			
Goals		To learn to Transfer.	echniques for In Vitro Fertilization, Cr	yopre	opreservation of Embryos and Sperm and Embryo						
Class outline	e		f this Departmental Course is to learr lization, cryopreservation of embryos								
Required Textb	ooks										
Reading list	t										
Information conc enrollment											
Assessment met and criteria/ra		their unde research fo presentati	are evaluated for their course grades rstanding and knowledge earned ab- or the reproductive biology and the k on including discussions at the labor tion to assess the level of achievemen	out sc asic r atory	cien rep	itific infori roductive d academ	mation on rec engineering t ic meetings is	ent progress in the echniques. The also taken into			

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21180)	1,	, 2, 3, 4	8	other
		Course	name(Theme)			Instr	uctor
Research Con	ducting	g Program "I	Practice" <b>II</b> : Reproductive Engineering(	)		NAKAGA <sup>-</sup>	TA Naomi
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le	その他					
Class metho	d		Naomi Nakagata nter for Animal Resources & Developmo	ent (C	CARD) Plac	tice laborator	y 1 and 2 (503 and
Class objectiv	es es	To master engineerin	concerning the reproductive engineeri g techniques.	ng teo	chnologies	and the basi	c reproductive
Goals		To master Transfer.	techniques for In Vitro Fertilization, Cr	yopre	servation (	of Embryos ar	d Sperm and Embryo
Class outline	e	The aim of Vitro Fertil	this Departmental Course is to master ization, Cryopreservation of Embryos a	the b nd Sp	asic repro erm and E	ductive engin mbryo Transf	eering techniques (In er).
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
Assessment met and criteria/ra		their unde research fo presentation	re evaluated for their course grades an rstanding and knowledge earned abou or the reproductive biology and the bas on including discussions at the laborate ion to assess the level of achievement	t sciei sic rep ory an	ntific infor productive nd academ	mation on rec engineering t ic meetings is	ent progress in the echniques. The s also taken into

Class numbering code	Ser	mester	Course belonging/Course code	Ye	ar/Grade	Credit	Day,Period			
	2016w	/ho <b>l</b> e year	Graduate School of Medical Sciences(22710)	1	, 2, 3, 4	10	other			
		Course	name(Theme)		Instructor					
Research Cond	ducting I	Program "P	ractice" I : Bioinformatics(Bioinformatic	cs)		ARAKI N	/lasatake			
			Goals with their ratio							
Under construct	ion · · · ·	100%								
Teaching Sty	⁄le	講義	義							
Class metho	d	Program S	r: Masatake Araki chedule: year 1-4, every Tuesday (6th acilities: seminar room and laboratorie			Bioinformatics	s, IRDA			
Class objectiv	Students are evaluated for their course grades and credits based on the course hours complet their understanding and knowledge learned about scientific information on recent progress in research for gene technology and molecular biology, and ability for experimental planning and interpretation and criticism of the results obtained. The presentation including discussion at the laboratory and academic meetings is also taken into consideration to assess the level of achievement in the PhD research.									
Goals		1) Acquisit technology 2) Underst 3) Underst 4) Approp	vement will be evaluated according to to ton of an understanding of English pay y and molecular biology. Landing how to generate transgenic micanding of basic technology of experimentate research project and experimentandings obtained by the analysis of dise	oers fo ce an ental Il desi	or research d knockout genetics. gn to analy	i project in th t mice. yze disease m	odel mice.			
Class outlin	e	mice in the technolog be present screening phenotype improved should be processes,	f this Departmental Course is to underse fields of medical and pharmaceutical and molecular biology. For this purposed in seminar. Some of gene trap mouse for specific research projects. Then prosess should be done. Research projects adepending on the progress and achieve reported in international scientific jou, which are necessary to fulfill requiremental Course.	scient se, se se line ecise nd wo emen rnals.	ice, and to everal exantes to be an analysis of orking hypot t of researce All instruct	learn essentingles of diseased should trapped geneothesis can be cheffer. Finally, the altions in the altions in the altions in the second sec	al skill of gene se model mice should d be determined by e and mouse e modified and e experimental results pove-mentioned			
Required Textb	ooks	Distribute	required materials suitably.							
Reading list	t	"Mouse Ph	enotypes" V. E. Papaioannou & R. R. B	ehring	ger					
Information conc enrollment										
Assessment met and criteria/ra		their unde research for interpretat laboratory	lents are evaluated for their course grades and credits based on the course hours complete runderstanding and knowledge learned about scientific information on recent progress in arch for gene technology and molecular biology, and ability for experimental planning and repretation and criticism of the results obtained. The presentation including discussion at the ratory and academic meetings is also taken into consideration to assess the level of evement in the PhD research.							

Class numbering code	Semester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(22720)	1,	2, 3, 4	8	other		
	Course			Instr	uctor			
Research Cond	ucting Program "P	s)		ARAKI N	1asatake			
Goals with their ratio								
Under construct	ion · · · · 100%							
Teaching Sty	le その他							
Class metho	d Program S	r: Masatake Araki chedule: year 1-4, every Thursday (6th- acilities: seminar room and laboratories			Bioinformatics	, IRDA		
Class objectiv	The achievement will be evaluated according to the following criteria.  1) Understanding how to use mouse resource database. 2) Acquisition of how to annotate trapped genes. 3) Acquisition of how to analyze of genotype and phenotype of disease model mice. 4) Acquisition of how to use ES cells and early stage embryo of mouse. 5) Appropriate research project and experimental design to analyze disease model mice.							
Goals	their expe eva <b>l</b> uation	are evaluated for their course grades an rimental skills and techniques acquired . The report assessment can be substitu on and discussion at the laboratory and	durin uted b	g this cou by the asse	rse, and repo essment of ea	rts submitted for		
Class outline	principle a genetics, k trapped g inverse PC southern k	f this class is to understand the importa and meaning of gene trap method. Expe piochemistry and molecular biology sho ene and mouse phenotype. Specifically, CR and plasmid rescue, (ii) analysis of ge plot, northern blot, immunoassay and so e embryo of mouse, all of which will be s	erimen ould be (i) an enotyp o on, (	ital technice learned notation on oe and phe iii) how to	ques in the fir in this course of trapped ger enotype of ge use Embryor	elds of experimental in order to analyze ne by 5'-RACE, ne trap mice by iic Stem (ES) cells and		
Required Textb	ooks Distribute	required materials suitably.						
Reading list	: "Mouse Ph	nenotypes" V. E. Papaioannou & R. R. Be	hring	er				
Information conc enrollment								
Assessment methods and criteria/ratios  Assessment methods and criteria/ratios  Acquisition of how to annotate trapped genes.  3) Acquisition of how to analyze of genotype and phenotype of disease model mice.  4) Acquisition of how to use ES cells and early stage embryo of mouse.  5) Appropriate research project and experimental design to analyze disease model mice.								

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(20470)	1, 2, 3, 4		10	other		
	Course	name(Theme)			Instr	uctor		
Research Co	onducting Prograr	n "Practice"   : Radioisotope Science()			KOJIMA	Akihiro		
		Goals with their ratio						
Under constructi	on · · · · 100%							
Teaching Styl	e 実験							
Class method	Investigat writing pa	on of related references, planning and oper. All instructions for the research are	execu conc	tion of exp lucted in t	periments for his Departme	specific theme, and ntal Course.		
Class objective	es technolog	The aim of this course is to learn the basic and applied theories for nuclear medicine imaging technology through experiment and computer simulations, and develop quantitative imaging techniques that allow to perform more accurate diagnosis and effective radiation therapy.						
Goals	radioactiv	tand the principle and theory about nu e phantom experiments and computer s ems hat hamper the accurate quantifica	simula	ation and t	o perform pra	actical study to solve		
This course is aimed at learning the latest quantitative methods on recent nuclear medicine im techniques and the usefulness of innovative imaging instruments and image-processing softwa developed as imaging modalities for a basic experiment and/or clinical application based on the methods. Furthermore, various problems that hamper the accurate quantification of radioactive the body using SPECT and PET will be explored and the development of a new method to solve these problems will be required. The performance of this method developed will be examined some computer simulated models and experimental phantom studies. If the usefulness and effectiveness of this method is confirmed through the calculation or experiment, further resear be required for the application of clinical imaging.						rocessing software stion based on those ion of radioactivity in wethod to solve will be examined in sefulness and		
Required Textbo	ooks							
Reading list	Reading list							
Information concerning enrollment Radiation worker registration in Kumamoto University								
Assessment meth and criteria/rat								

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
2	2016who <b>l</b> e year	Graduate School of Medical Sciences(21280)	1,	2, 3, 4	8	other
	Course			Instr	uctor	
Research Con	nducting Program	"Practice"     : Radioisotope Science()			KOJIMA	Akihiro
		Goals with their ratio				
Under constructio	n · · · · 100%					
Teaching Style	実験					
Class method		on of related references, planning and oper. All instructions for the research are				
Class objectives	The aim of this course is to understand the necessity and usefulness of SPECT, x-ray CT, and lig (fluorescence and luminescence) imaging modalities for human and small animals in in vivo molecular imaging and to develop imaging techniques to greatly assist studies on drug develop pathological condition analysis, therapeutic effect, etc.					
Goals	To learn m systems ar	olecular imaging techniques with SPEC nd to optimize the method combined wi	T, x-r	ay CT, and ese modal	d rea <b>l</b> -time in ities.	vivo light imaging
The aim of this course is to develop more effective molecular imaging techniques with radioiso to make pharmacodynamics analysis of drugs, quantification of physiological functions, and fir of lesions feasible for humans and small animals (mice and rats). For the study of the clinical radioisotope imaging, 3-D anthropomorphic phantom models and computer simulations will be employed in SPECT to investigate the improvement of quantitative accuracy on the measurem physiological functions. In molecular imaging for small animals, three modalities, SPECT, x-ray and light imaging, are combined each other to improve lesion detectability in vivo.						unctions, and finding of the clinical imulations will be n the measurement of es, SPECT, x-ray CT,
Required Textboo	oks					
Reading list						
Information concerning enrollment						
Assessment metho and criteria/ratio						

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(25010)	1,	2, 3, 4	10	other		
	Cours	e name(Theme)		Instructor				
Research	Conducting Pro			Takizaw	a Hitoshi			
		Goals with their ratio						
Under construct	ion · · · · 100%							
Teaching Sty	le その他							
Class metho	d in the ser	ninar room and the laboratory at Interna	ational	l Research	Center for M	edical Sciences		
Class objectiv	res immunol	se is intended to expose students to the ogy and hematology, and discuss the ba ulated and proved by experiments.	latest ckgro	and impo und of the	rtant findings discoveries,	in the field of how the hypothesis		
Goals		e research progresses in the above-menents for PhD thesis, and reported by ora			es are necess	ary to fulfill		
Class outline	immunol was form research stress suc molecula their proj novel and	se is intended to expose students to the ogy and hematology, and discuss the baulated, and how the questions were add projects on the response of human or meth as infection, autoimmunity, ageing, arr, cellular, and developmental biology, the ct. In parallel, they will learn the state-lysis for the project upon need. Studentind to publish it in a scientific journal.	ckgro ressed louse nd lea hat ar of-the	und of the d experime hematopo rn experime e required art techno	discoveries, lentally. The stilly. The stilly. The still etic stem cellental approate to address the logies and approate to address the logies and approate the logies and approach the logies approach the logies approach the logies and approach the logies approach the logies approach the logies and approach the logies approach the logies approach the logies and approach the logies approach the logies approach the logies and approach the logies app	how the hypothesis udents will have Is to hematopoietic ches/techniques of ne questions raised in ply them to develop		
Required Textb	ooks							
Reading list	:							
Information conc enrollment								
Assessment methods and criteria/ratios  1) their knowledge on conventional and the latest findings on immunology and hem studying literatures. 2) their progress to learn conventional and novel experimental techniques positively 3) their ability to formulate hypothesis and design/plan appropriate experiments for project. 4) their progress on their research project.						iitive <b>l</b> y.		

Class numbering code	Seme	ester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016wh	ole year	Graduate School of Medical Sciences(25020)	1,	, 2, 3, 4	8	other
		Course			Instr	uctor	
Research	n Conducti	ing Progra			Takizaw	a Hitoshi	
			Goals with their ratio				
Under construct	ion ····10	00%					
Teaching Sty	√le ₹	その他					
Class metho	od in	the semi	inar room and the laboratory at Intern	ationa	I Research	Center for M	edical Sciences
Class objectiv	ves st	tem cell (l	e is intended to learn various experime HSC) biology, cell biology, and molecu etic cells including human and mouse	lar bid	ology, that	/techniques are required	with hematopoietic to analyze
Goals	st	tem cell (l	e is intended to learn various experime HSC) biology, cell biology, and molecu etic cells including human and mouse	lar bid	ology, that	/techniques are required	with hematopoietic to analyze
Class outlin	e st he he ar	tem ce <b>ll</b> (l ematopoi ematopoi na <b>l</b> ysis of	e is intended to learn various experime HSC) biology, cell biology, and molect etic cells including human and mouse etic cells using fluorescence activated HSCs, protein/gene analysis using mo nimal experimentation such as HSC tra	lar bid HSCs cell s lecula	ology, that . For insta orting/ana ar biology a	are required nce, isolation alyzer, in vitro	to analyze of immune and or in vivo functional
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
1) their knowledge on immunophenotype and function of HSCs, and progress on learn experimental techniques that are required for their HSC biology 2) their experimental skills on analysis of protein/gene involved in HSC maintenance. 3) their knowledge on lymphoid and hematopoietic tissues, and relevant experimental kills on general and HSC oriented mouse experimentation. 5) their ability to design/plan appropriate experiments for their research project and t							nance. rimental skills. on.

Class numbering code	Seme	ester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016whc	nole year Graduate School of Medical Sciences(25030) 1, 2, 3, 4		2, 3, 4	10	other	
		Course	name(Theme)			Instr	uctor
Research	Conductir	ng Progra			Sashid	a Goro	
	Goals with their ratio						
Under construct	ion · · · · 10	00%					
Teaching Sty	le そ	で他					
Class metho	d ge	enera <b>ll</b> y ii	n the seminar room and laboratories a	t "IRC	CMS-II"		
Class objectiv	res an	he course nd hemat nechanisn	e is structured to expose students to the ological malignancies and discuss howns.	e late v to ha	st and imp ave a hypo	ortant finding thesis on the	gs on hematopoiesis underlying
Goals	Fii re	ina <b>ll</b> y, the equireme	research progresses in the above-ments for PhD thesis, and reported by ora	ntione I pres	d processe entation.	es are necess	ary to fulfill
The course is structured to expose students to the latest and important findings on hemator and hematological malignancies and discuss how to have a hypothesis on the underlying mechanisms. The program will emphasize on how to examine a hypothesis experimentally be studying hematopoietic stem cells involved in hematopoiesis and/or leukemia. We will focus genes that play a role in hematopoietic stem cells and/or leukemic stem cells and also examine as the play a role in hematopoietic stem cells and/or leukemic stem cells and also examine as the play a role in hematopoietic stem cells and leukemic stem cells and their biological fur vivo. Based on the their empirical findings, students will design experimental systems, using biological, molecular, and biochemical techniques to understand the molecular mechanism identified genes in hematopoietic stem cells and leukemic cells. Students are expected to purities and oral reports. This course does not contain any studies for retrovirus-induced malignancies (e.g. HTLV-induced T cell leukemia).						underlying berimentally by . We will focus to study and also examine the biological function in ystems, using ar mechanisms of expected to prepare	
Required Textb	ooks						
Reading list	t						
Information conc enrollment							
1) their knowledge of hematopoiesis and hematopoietic malignancies. 2) their skills to isolate hematopoietic stem cells and analyze the functions. 3) their skills to isolate hematopoietic malignant cells/leukemic cells and analyze the tunor formation. 4) their knowledge of previous literatures relevant to their research and their ability hypotheses.							

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(25040)	1, 2, 3, 4		8	other
	Course name(Theme)						uctor
Research (	Conduct	ting Prograi	m "Practice" II : IRCMS-II(IRCMS— II )			Sashid	a Goro
			Goals with their ratio				
Under construct	ion · · ·	100%					
Teaching Sty	le	その他					
Class metho	d	genera <b>ll</b> y i	n the seminar room and laboratories at	"IRO	CMS-II"		
Class objectiv	es es		e will emphasize on experimental metho hematopoietic cells in mice.	ods in	cluding ce	ellular and mo	lecular techniques
Goals			e will emphasize on experimental metho hematopoietic cells in mice.	ods in	cluding ce	ellular and mo	lecular techniques
Class outline	e	analyzing stem cells molecular malignanc	e will emphasize on experimental metho hematopoietic cells in mice. Students w and leukemic cells to examine their bic and biochemical methods to determine ies. This course does not contain any st uced T cell leukemia).	ill lea logic e the	irn how to al functior function o	analyze and in mice. This foncogenes f	solate hematopoietic course also covers or hematopoietic
Required Textb	ooks						
Reading list							
Information conc enrollment							
Assessment met and criteria/ra		2) their ski 3) their ski tumor forn	owledge of hematopoiesis and hemato ills to isolate hematopoietic stem cells a ills to isolate hematopoietic malignant on nation. ility to form reasonable hypotheses and	and ar cells/l	nalyze the leukemic c	functions. ells and analy	

Class numbering code	Sem	ester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period
	2016wh	nole year	Graduate School of Medical Sciences(25050)	1,	2, 3, 4	10	other
		Course	name(Theme)			Instr	uctor
Resea	arch Con	ducting Pr			SHENG GEOI	RGE GUOJUN	
Under construct	ion · · · · 1	100%					
Teaching Styl	le -	その他					
Class metho	d I	n the sem	inar room and the laboratory at Interna	tional	Research	Center for M	edical Sciences.
Class objectiv	res	cancer bio	e is designed to introduce the concept logy. Students will gain an appreciation nogenesis in animal development and a EMTs.	of dy	namic na	ture of multi-d	cellular organization
Goals		disease. St	vill learn the basics of cell shape chang udents will understand the diversity of vill be trained to look at human disease es.	devel	opmentaľ	EMTs and the	eir link to cancer EMTs.
Class outline	e c	mesenchyi developme developme necessary developme	e is designed for students to gain basic mal transition (EMT). EMT is a morphog ent and human diseases. Students will l ent and cancer progression. Students wifor studying cellular morphogenesis in ental and cancer EMTs will be stressed. ental EMT models to study specific can	enetionelice earn localisis earn localisis earnes earne earnes earnes earnes earnes earnes earnes earnes earnes earnes	c process key conce o learn mo Ability to u ents will ca	important in l pts of cell sha plecular and in Inderstand th	ooth animal pe changes during maging techniques e link between
Required Textbo	ooks						
Reading list	:						
Information conceenrollment							
Assessment met and criteria/rai	hods 2 tios r	relevant lit 2) progress morphoge 3) ability to	s in learning experimental techniques r	iecess	sary for the	e analysis of c	·

Class numbering code	Ser	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(25060)	1,	, 2, 3, 4	8	other	
		Course	name(Theme)			Instr	uctor	
Resea	arch Co	nducting Pr	rogram "Practice"     : IRCMS-   ()			SHENG GEO	RGE GUOJUN	
			Goals with their ratio					
Under construct	ion · · · ·	100%						
Teaching Sty	le	その他						
Class metho	d	In the sem	inar room and the laboratory at Interna	ationa	I Research	Center for M	edical Sciences.	
Class objectiv	es	literature r	The course is intended to teach students key concepts of early vertebrate development. Through literature reading and research projects, students will gain an understanding of developmental principles of stem cell biology and translational medicine.					
Goals		Students will carry out critical reading of relevant literature on early animal development. They will formulate hypotheses concerning germ layer formation and mesoderm differentiation, and experimentally test these hypotheses using in vitro and in vivo models.						
Class outline	e)	developme and hands will be tau functional	e is designed for students to gain basic ent, germ layer formation and mesoder -on project-based research. Classical i ght, including embryo culture, embryo studies of lineage differentiation, and ire expected to actively take part in reson.	m diff and m manip genon	erentiation odern exp oulation an ne-level co	n through crit erimental app nd live imagin omparative an	cal literature reading broaches/techniques g, molecular and alysis and microscopy.	
Required Textbo	ooks							
Reading list	:							
Information conceeding	erning							
Assessment met and criteria/rai		rélevant lit 2) progres 3) ability to	dge on classical and latest findings on lerature; s in learning experimental techniques o formulate hypothesis and think critic s in their research project on mesoder	neces: a <b>ll</b> y;	sary for stu	udying mesod		

Class numbering code	Sei	mester	Course belonging/Course code	Ye	ear/Grade	Credit	Day,Period			
	2016v	vho <b>l</b> e year	Graduate School of Medical Sciences(21860)	-	1, 2, 3, 4	8	other			
		Course	name(Theme)			Instructor				
Research Conducting Program "Practice" II : Metabolomics()						Yuichi Oike, Hiroyuki Nakanishi, Kazuya Yamagata, Motohiro Takeya, Yukio Ando, Shokei Mitsuyama				
			Goals with their ratio							
Under construct	ion · · ·	·100%								
Teaching Sty	·le	実習及び実	技							
Class metho	d	Program S Site and F	chedule: year 2-4, every Tuesday (6th acilities: seminar room and laboratori	-7th pes at e	oeriods) each Depar	tment				
Class objectiv	/es	metabolic modern po molecular	f this Jissen II is to acquire the technic regulation of cells, via small-molecule ost-genome technology can greatly he basis various diseases, e.g., metabolic development of diagnostic and thera	meta Ip us synd	bolite profi to obtain a romes, can	ling, i.e., meta better unders cer, etc., which	abolomics. This standing of the ch in turn can promote			
analy 2) Ui tech 3) Ac Goals signa diver meta 4) Ca meta			tanding of the theoretical background tanding how to apply the MS analysis swith mass spectrometers. It is too feeling to prepare experimes and in tissay of low-molecular-weight metabolity for accurate experimental planning incs to better understand molecular resis of various diseases.	to the ental ues ir es and	metabolon models to on vivo, in what disignaling evaluation	nics, and acquestions and acquestions and acquestions and acquestions are molecules can of the results	uiring the operation rate metabolic and identification of a n be performed via the obtained from the			
Class outlin	e	metabolic modern po molecular successful such subje proteomic and their a	The aim of this Jissen II is to acquire the techniques to analyze the molecular mechanisms of metabolic regulation of cells, via small-molecule metabolite profiling, i.e., metabolomics. This modern post-genome technology can greatly help us to obtain a better understanding of the molecular basis various diseases, e.g., metabolic syndromes, cancer, etc., which in turn can promote successful development of diagnostic and therapeutic endeavor for many diseases. In particular, such subjects to be earned in this course include a basic principle of bioinformatics established as proteomics/metabolomics (LC-MS/MS etc.), practical operation of analytical instruments (e.g., MS), and their advanced techniques for application to the analysis of various signaling and metabolic molecules derived from cultured and in vivo cells and tissues and even from clinical specimens.							
Required Textb	ooks									
Reading list	t									
Information concerning enrollment										
Assessment methods and criteria/ratios  Students are evaluated for their course grades and credits based on the course hours comp their experimental skills and techniques acquired during this course, and reports submitted evaluation. The report assessment can be substituted by the assessment of each student's presentation and discussion at the laboratory and academic meetings.						rts submitted for				

Class numbering code	Semest	ter	Course belonging/Course code	Ye	ear/Grade	Credit	Day,Period	
	2016whole	e year	Graduate School of Medical Sciences(21870)		1, 2, 3, 4	8	other	
	Course name(Theme)						uctor	
Research C	Research Conducting Program "Practice" II : Metabolic information epidemiology()						lkeda Manabu, Gi suku Koichiro	
	Goals with their ratio							
Under constructi	on · · · · 100	)%						
Teaching Styl	le 講義	<b></b>						
Class method	d Me	eting						
Class objectiv	es thei	ir exper Iuation	re evaluated for their course grades rimental skills and techniques acquir . The report assessment can be subs on and discussion at the laboratory a	ed dur ituted	ing this cou by the asse	irse, and repo essment of ea	rts submitted for	
Goals	1) L ana 2) L tech 3) A sign dive met 4) C met	Understalyses. Understalyses. Understalyses Acquisitaling referse arrabolom Capabilitabolom	rement will be evaluated according to anding of the theoretical backgroun anding how to apply the MS analysis with mass spectrometers. Sion of techniques to prepare experiesponses of cells in culture and in times and in the application of low-molecular-weight metabol nics analysis. Ity for accurate experimental planninics to better understand molecular sists of various diseases.	to the to the nental sues in tes and	orinciple of metabolon models to convivo, in who is signaling to evaluation of the conviction of the c	methods for a nics, and acquarties, and acquarties observe generation chemical molecules can of the results	uiring the operation rate metabolic and identification of a n be performed via the obtained from the	
The aim of this Jissen II is to acquire the techniques to analyze the molecular mechanisms metabolic regulation of cells, via small-molecule metabolite profiling, i.e., metabolomics. The modern post-genome technology can greatly help us to obtain a better understanding of the molecular basis various diseases, e.g., metabolic syndromes, cancer, etc., which in turn can successful development of diagnostic and therapeutic endeavor for many diseases. In particular such subjects to be earned in this course include a basic principle of bioinformatics establed proteomics/metabolomics (LC-MS/MS etc.), practical operation of analytical instruments (and their advanced techniques for application to the analysis of various signaling and metabolomics derived from cultured and in vivo cells and tissues and even from clinical specing						abolomics. This standing of the thin turn can promote ases. In particular, natics established as instruments (e.g., MS), ing and metabolic		
Required Textbo	ooks <b>I</b> nte	ernation	nal papers					
Reading list	Epic	demiolo	ogy -an introduction (KJ Rothman), D	esigni	ng clinical r	esearch (SB F	lulley et al.)	
Information conceenrollment	erning							
Assessment met and criteria/rat								

## 11. Departmental Course"Practice(jissen)" III

Diagnostic Imaging Departmental Course "Jissen" III • • • • • • • • • • • • • • 202
Surgical therapeutics for Cancer Departmental Course "Jissen" III • • • • • • • • 203
Radiation Oncology Departmental Course "Jissen" III • • • • • • • • • • • • • • • • •
Cancer Chemotherapy "Jissen" III • • • • • • • • • • • • • • • • •
Clinical metabolic informatics "Jisson" III

Class numbering code	Sei	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period			
	2016v	vhole year	Graduate School of Medical Sciences(21880)	1,	2, 3, 4	8	other			
		Course	name(Theme)			Instr	uctor			
Research Conducting Program "Practice" III : Diagnostic Image Analysis("Practice" III : Diagnostic Image Analysis)					YAMA	ASHITA Yasuy	uki, KITAJIMA Mika			
			Goals with their ratio							
Under construct	ion · · ·	100%								
Teaching Sty	le	実習								
Class metho	d	Conference	e							
Class objectiv	es es	Understan	ding on imaging studies							
Goals		Understan	Inderstanding on imaging studies							
Class outline	e	will be give Program S Neuroradi Radiology Conferenc Pathology Radiology	chedule: year 1-4, every Tuesday 7:00 ology Conference; Head&Neck-Radiolo e; Gastroenterological Surgery-Patholo	(A to ogy Co ogy-Ra gy-Rac	tal of 15 st onference; adiology Co	tudies); Oral and Ma: onference; Th	xillofacial Surgery- noracic Surgery-			
Required Textb	ooks									
Reading list	t									
Information concerning enrollment  Students are evaluated for their course grades and credits based on the course hours complete their understanding and knowledge for diagnostic imaging, ability for clinical study interpretand their reports submitted. The presentation including discussion at the conference meet also taken into consideration.					tudy interpretation.					
Assessment met and criteria/ra		1) Underst diseases a 2) Underst	vement will be evaluated according to t canding and knowledge of the ideal me nd organs. canding and knowledge of radiologic ar al and execution of appropriate researc	thod o	of diagnos y of variou	tic imaging ac s organs.				

Class numbering code	Semester	Course belonging/Course code	Yea	r/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(21890)	1, 2, 3, 4		8	other		
	Course			Instr	uctor			
Research Co Cancer(Research	nducting Program n Conducting Proစု	for	BABA Hideo, Suzuki Makoto, In Hironobu, INOMATA Yukihiro, YUMOTO Eiji, MIZUTA Hiroshi, KATABUCHI Hidetaka, NAKAYAMA Hideki, IWASE Hirotaka, Yoshiaki Kawano, Hideo Nakamura					
		Goals with their ratio						
Under construct	ion ····100%							
Teaching Sty	le 演習							
Class metho	of Univers We receiv We choos for eight l	Site and Facilities: seminar room and laboratories at each department, award and consultation room of University hospital, chemotherapies center.  We receive practical training in 240 hours in total during three or four annual.  We choose a field in hope of training and receive practical training in X 30 days (240 hours in total) for eight hours. We can choose the field of plural number. About the details of the training, obey the instructions of the field charge teacher of each field.						
Class objectiv	res treatment head and	To experience some clinical cases and to acquire the acknowledge and skills of latest surgical treatments in each department for various types of cancer as follows: digestive cancer, lung cancer, head and neck tumor, oral cancer, breast cancer, bone soft part tumor, gynecologic tumor, genitourinary system tumor, skin cancer and pediatric cancer.						
Goals	various ty and nervo endocrine	The aims of the current lecture are to understand thoroughly the leading-edge medical treatment for various types of cancer as follows: (1) gastroenterological tumor (2) respiratory tract tumor (3) brain and nervous system neoplasm (4) head and neck tumor (5) otolarygological neoplasia (6) breast endocrine tumor (7) genitourinary system tumor (8) gynecological tumor (9) orthopaedic and neuro-musculoskeletal tumor (10) skin tumor (11) hematopoietic tumor (12) pediatric tumors.						
Class outline	acquire the of cancer bone soft cancer. Y node dissection can expermanagem	rent program, we will provide the opporne acknowledge and skills of latest surgions as follows: digestive cancer, lung cance part tumor, gynecologic tumor, genitourous can learn not only the techniques of section but also the acknowledge of peripence the medical clinical training in eatent, pre- or post operative adjuvant the lepending on department.	cal tre r, hea rinary surgic opera ch dei	eatments in d and nec system tu al resection ative chem partment in	n each depar ck tumor, oral mor, skin car on of primary noradiotherar to learn the p	tment for various types cancer, breast cancer, licer and pediatric tumor and lymph by. Furthermore, you eri-operative		
Required Textbo	ooks							
Reading list								
Information conceeding								
Assessment met and criteria/ra	hods tios  Student etreatment active parties  [Evaluat 1) Integra	ion for Grades and Credits] valuations are based on attendance, unces, clinical study planning performance / ticipation in discussions.  ion Criteria] ted knowledge of surgical treatment for ted knowledge of adaptation of the surg	resul variou	t interpret	ation, and pr	esentation skills and		

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(21900)	1,	2, 3, 4	8	other		
	Course			Instr	uctor			
Research C	Conducting Progra	m "Practice" III : Radiation Oncology()			1 AYO	Natsuo		
		Goals with their ratio						
Under construct	ion · · · · 100%							
Teaching Sty	le 講義							
Class metho	Program :	r: Natsuo Oya Schedule: year 1-4, every Tuesday (5th p Facilities: Radiotherapy Planning Room ,	oerioo New	d) Clinical La	aboratory and	l Examination Center		
Class objectiv	ves patients v Students	of this Departmental Course is to acquire with radiotherapy, and to plan and perfo will learn radiation biology, radiation ph f radiation therapy in multidisciplinary c	rm a c	clinical res and clinica	earch in radia al radiation o	ation oncology.		
Goals	patients v Students	The aim of this Departmental Course is to acquire the knowledge and techniques to treat cancer patients with radiotherapy, and to plan and perform a clinical research in radiation oncology. Students will learn radiation biology, radiation physics and clinical radiation oncology to understand the role of radiation therapy in multidisciplinary cancer treatment.						
Class outlin	strategy in and one of information develope eligibility technique D conformadiother	the clinical significance of radiotherapy multidisciplinary cancer treatment, as of the promising strategies in cancer pall on technology, high-precision 3-D confod and entered clinical practice. By patie decision, the technique of radiotherapy e of irradiation, will be discussed. In addinal external beam radiotherapy, including and functional image-incorporating a reported in international scientific jour	a min iation rmal onts ur field ition, ng ster radio	imally inva a. Also, accexternal be ndergoing setting and the princily reotactic r therapy, w	sive and high cording to the eam radiothe radiotherapy d dose fraction ple and meth adiotherapy, ill be also stu	nly curative treatment, e recent progress in rapy has been the procedure of onation planning, the od of high-precision 3- intensity modulated died. The study results		
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
The achievement will be evaluated according to the following criteria.  1) Integrated knowledge of radiation biology and its clinical application. 2) Integrated knowledge of radiation physics and its clinical application. 3) Integrated knowledge of clinical radiation oncology and ability to make an approp decision and treatment planning. 4) Understanding and knowledge of the principle and method of high-precision 3-D external beam radiotherapy. 5) Proposal and execution of appropriate research projects in clinical radiation onco					on 3-D conformal			

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016whole year	Graduate School of Medical Sciences(21910)	1,	2, 3, 4	8	other		
	Course	name(Theme)			Instr	uctor		
Research Conducting Program "Practice" III : Cancer Chemotherapy(Research Conducting Program "Practice" III)  Conducting Program "Practice" III)  Conducting Program "Practice" III)  WASE Hirotaka, Yamamoto Tatsuo, Yutaka, BABA Hideo, TASHIRO Ma Betsupu Tooru, SUGITA Michiko, T Motohiko, NAGAHAMA Hiroyasu, IC Keisuke, YAMAMOTO Yutaka, Chil Akira, Miyamoto Yuuji								
		Goals with their ratio						
Under construct	Under construction ····100%							
Teaching Sty	le 講義							
Class metho	d face-to-fac	face-to-face class lesson, group learning, flipped class lesson, e-learning						
Class objectiv	/es							
Goals	various typ	of the current lecture are to understand bes of cancer as follows: (1) gastroenter gical malignancies, (4) supporteive thera	ologi	cal tumor,	(2) breast an	d thyroid cancer, (3)		
This course helps students to understand the practice of chemotherapy for the malignant tumo each organs, e.g. mechanism of action, adaptation, method, adverse events.  Also this course helps to get the title of specialist of medical oncologist.						e malignant tumor in		
Required Textb	ooks							
Reading list	t							
Information conc enrollment								
Assessment met and criteria/ra								

Class numbering code	Sem	nester	Course belonging/Course code	Ye	ear/Grade	Credit	Day,Period	
	2016wl	hole year	Graduate School of Medical Sciences(21930)	-	1, 2, 3, 4	8	other	
·		Course	name(Theme)			Instr	uctor	
Research Conducting Program "Practice" III : Clinical metabolic informatics(Lecture Series "Jissen" III: Clinical metabolic informatics)					MU	ARAKI Eiichi, HOKIMOTO Seiji, MUKOUYAMA Masashi, TANIHARA Hidenobu, FUKUI Toshihiro, NAKAJIMA Makoto, KATABUCHI Hidetaka, OHBA Takashi		
			Goals with their ratio					
Under construction	on ·····	100%						
Teaching Styl	e	実習						
Clinical practice will be done for 240 hours during grade 3 and grade 4. selected, and 8 hours × 30 days are practiced to the standard (During 2 possible to select two or more fields.  According to instruction of the allotment teacher in each field of details					uring 240 ho	urs in total). It is also		
Class objective	es	This cours treatment	e aims understanding the latest know of the various metabolic diseases.	ledge	and the ted	chnology in th	e diagnosis and the	
Goals		related dis Explain the are acquire cardiac inf	e importance of the diagnosis and tre eases is now increasing. e latest knowledge and the technolog ed by taking charge of the cases of di arction, chronic kidney disease, diab cerebral hemorrhage, sterility, and th	y of thabetes	ne diagnosis s mellitus, d ephropathy,	s and the trea lyslipidemia, a , diabetic retii	tment of each disease angina pectoris, nopathy, cerebral	
The importance of the diagnosis and treatment of the metabolic disorders and the lifestyle-relative diseases is now increasing. In this class, the latest knowledge and the technology of the diagnosis and the treatment of each disease are acquired by taking charge of the cases of diabetes mellitidyslipidemia, angina pectoris, cardiac infarction, chronic kidney disease, diabetic nephropathy diabetic retinopathy, cerebral infarction, cerebral hemorrhage, sterility, and the polycystic ovar syndrome, etc. on a clinical site.					ogy of the diagnosis of diabetes mellitus, etic nephropathy,			
Required Textbo	ooks							
Reading list								
Information conce enrollment	erning							
Assessment meth and criteria/rat		Grading w	ill be based on active class participat	on, pa	aper summa	aries, and the	final report.	

## 12. Developmental Biology and Regenerative Medicine

Special Lecture "Tokuron" on Developmental Biology and Regenerative Medicine I • • • • 210
Special Lecture "Tokuron" on Developmental Biology and Regenerative Medicine II • • • 211
Special Lecture "Tokuron" on Transplantation immunology
Special Lecture "Tokuron" on Bioethics • • • • • • • • • • • • • • • • 213
Practice "Enshuu" on Developmental Biology and Regenerative Medicine I • • • • • 214
Practice "Enshuu" on Developmental Biology and Regenerative Medicine II • • • • 215
Practice "Enshuu" on Developmental Biology and Regenerative Medicine III •••• 216
Practical Training "Jisshuu" on Developmental Biology and Regenerative Medicine • • • • 217

	numbering code	Semes	ster	Course belonging/Course code	١	Year/Grade	Credit	Day,Period
		2016who	le year	Graduate School of Medical Sciences(22140)		1, 2, 3, 4	2	other
			Course	name(Theme)			Instr	uctor
Specia	al Lecture on	Developme Biolog	ntal Biology and Re	og(Special Lecture "Tokuron" on Developr generative Medicine I)	Kunitoshi, Oota Kunimasa, NAKAO Mitsuyosh NISHINAKAMURA Ryuichi, OKANO Masaki			
				Goals with their ratio				
	construction		<del></del>					
- 1	eaching Styl							
(	Class method	Re	ports are	and/or OHP will be used in the lectures, considered for those who are regularly al	sent f	for unavoidabl	e reasons.	ussion is encouraged.
С	lass objective	devints	Developmental and regenerative medicine aims at curing diseases by revealing molecular mechanisms of organ development. In this course, you learn basic concepts and techniques used in this filed. This course serves as introductory for those in the Course of Developmental Biology and Regenerative Medicine, and will also be useful for those in other programs, as you obtain essential knowledge of cell differentiation and growth, cell adhesion and cell-cell interactions essential for the organogenesis, pluripotent stem cells and tissue stem cells, developmental mechanism of organogenesis derived from ectoderm, endoderm and mesoderm and the molecular basis of epigenetic cell regulation in development and human diseases.					
	Goals	cel plu ect	ll differen uripotent	se, students are expected to acquire com tiation and growth, (2) cell adhesion and stem cells and tissue stem cells, (4) devel indoderm and mesoderm, (5) molecular b ases.	cell-ce opmer	ell interactions ntal mechanis	s essential for tl m of organoger	ne organogenésis, (3) nesis derived from
	Class outline	pal	Following topics including the most recent progresses will be shown and discuss in addition to reading original papers.  Stem cell and regenerative medicine Development of hematopoetic stem cells Development and regeneration of the nervous system Cell lineage and developmental regulation of the nematode C. elegans Celegans as a model for human diseases Membrane dynamics Neurogenesis and neural circuit formation Kidney development and regeneration Epigenetic cell regulation in cell differentiation and transformation					
				Each Summary				
No.	Date			Theme	Т		Summa	ry
1	10/1	3 Th	u. 4th pe	riod. Takumi Era 【eE-0】	Plu	uripotent and	tissue stem cel	ls
2	10/2	0 Th	u. 4th pe	riod. Takumi Era 【eE-0】	Ste	em cell, diseas	se and clinical a	application
3	10/2	7 Th	u. 4th pe	riod. Minetaro Ogawa	De	evelopment of	the hematopoe	etic system
4	11/1	0 Th	u. 4th pe	riod. Minetaro Ogawa	De	evelopment of	hematopoetic	stem cells
5	11/1	7 Th	u. 4th pe	riod. Kenji Shimamura	ES ne	cells as a too urobiology	for developme	ental and regenerative
6	11/2	4 Thi	u. 4th pe	riod. Kunitoshi Yamanaka		ell lineage and matode C. ele		l regulation of the
7	12/0	1 no	schedule		An	nual Meeting	of the MBSJ	
8	12/0	8 Th	u. 4th pe	riod. Teru Ogura	c.	elegans as a r	nodel for huma	n diseases
9	12/1	5 Th	u. 4th pe	riod. Hiroyuki Nakanishi 【eE-0】	Мє	embrane dyna	mics	
10	12/2	2 Thi	u. 4th pe	riod. Kunimasa Ohta		eural stem cell	s, neurogenesis	s, and their clinical
11	01/1	2 Th	u. 4th pe	riod. Kunimasa Ohta	Ne	euronal circuit	formation and	regenerative medicine
12	01/1	9 Th	u. 4th pe	riod. Ryuichi Nishinakamura	De	evelopment of	kidney	
13	01/2	6 Th	u. 4th pe	riod. Masaki Okano	Re	gulatory mech	nanism of epige	netics in development
14	02/0	2 Th	u. 4th pe	riod. Mitsuyoshi Nakao 【eE-0】	Ер	igenetic medi	cine I	
15	02/0	9 Thi	u. 4th pe	riod. Mitsuyoshi Nakao 【eE-0】	Ер	igenetic medi	cine II	
Req	uired Textbo	ooks Tex	xtbooks a	re not specified, and handouts will be dis	tribute	ed.		
	Reading list	1 "(	Essential C. ELEGA EPIGENET	Developmental Biology" (3rd edition by NS II" (ed. D.L. Riddle, T. Blumenthal, E FICS" (edited by David Allis et al.) Cold S	J. Me	yer, & J.R. Prie	ess) CSHL Press	(1997)
Inforr	nation conce enrollment	erning						
Assessment methods and criteria/ratios  Grading will be based on the student's understanding of the course subject matter as well as participation class discussions. The students' understanding will be evaluated on the basis of reports or exams to be scored from 0 to 100 for each session. Final grades will be based on the average of the top 10 scores.							or exams to be scored	
Langu	uage of instru	iction lec	ture in Er	nglish + English textbook				

	numbering code	Seme	ester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
		2016whc	ole year	Graduate School of Medical Sciences(22150)	1,	, 2, 3, 4	2	other		
Course name(Theme)							Instr	uctor		
		Special	ecial Lecture on Developmental Biolo()  Biology  INOMATA Yukihiro, Sal  Eiji, ENDO Fumio, Ando  NAKAMURA Kimitos			λ Yukihiro, Saka ) Fumio, Andoι //URA Kimitosh	Takaaki, In Hironobu, amoto Seisuke, YUMOTO a Yukio, Minoda Riyousei, i, SAKAGUCHI Hisashi, i, Niimori Kanako			
	Goals with their ratio									
Under construction ···· 100%										
Т	eaching Styl	e 講	義							
(	Class method	d Po	owerPoint	and/or OHP will be used in the lectures, ar	nd activ	ve participa	tion in discussi	on is encouraged.		
Class objectives			evelopmer urthermore vestigation n embryon echanisms ensory and	ntal and regenerative medicine aims at curi it and the origin of diseases in order to dev it, this course will up-to-date with the prese is on replacement of lost cells, tissues or o ic stem cells, tissue stem cells, their proper is of development and repairs of epithelial ti circulatory organ, tissue injury and restora is in transplant medicine.	elop a nt statu rgans. I ties an ssues,	diagnosis a us of the reg In this cours id application methodolog	nd treatment for generation med se, you will obta on on regeneral gies in the rege	or the diseases. licines, the on going ain essential knowledge tive medicine, nerative medicine of		
	Goals	de	evelöpmer	ding the lectures in this course, students a tal biology and specific developmental bio e liver, lung, heart, nervous tissue, inner ea	logy ar	nd mechani:	sms of diseases	eneral basics of s in various organs		
(	Class outline	an ab an re co pa	In this course, lectures on the following fields will be given: Regenerative medicine using embryonic stem and tissue stem cells properties and application of endodermal tissue stem cells growth, differentiation abnormalities of epithelial cells damage, repair and mechanisms of tissue reconstitution pathological analyses of hereditary amyloidosis development of treatment for hereditary amyloidosis development a regeneration of skin (recovery of injury) denervation and reinnervation of the larynx regeneration of cochlear hair cells basic and clinic on vascular neogenesis treatment of ischemic heart disease pathological analysis and treatment of genetic diseases tissue and organ grafts in general, present status problems of liver transplant					owth, differentiation and on pathological sis development and regeneration of eart disease		
				Each Summary						
No.	Date			Theme	T		Summa	ıry		
1	02/2		(1st grade) th period	Hitoshi NIWA 【eE-0】	Self-ı	renewal of p	oluripotent ster	m cells		
2	02/2	7 4t	th period	Hitoshi NIWA 【eE-0】	Diffe	rentiation o	f pluripotent st	t stem cells		
3	03/0	6 4t	th period	Takaaki ITO		vth, differen pithelial cell		rphological abnormalities		
4	03/1	3 4t	th period k	(anako NIIMORI (Takaaki ITO)			eural differentia ntiation and pr	ation and its involvement roliferation		
5	03/2	7 4t	th period	Kimitoshi NAKAMURA	Rege	nerative me	edicine for dise	ases of childhood		
6	02/2	0 [ 4t	(2nd grade th period	r] Yukio ANDO	Path	ological ana	lyses of heredi	tary amyloidosis		
7	02/2	7 4t	th period	Hirofumi JONO	Deve	elopment of	treatment for h	nereditary amyloidosis		
8	03/0	6 4t	th period	Hironobu IHN [eE-0]	Deve		d regeneration	of skin (recovery of		
9	03/1	3 4t	th period	Ryosei MINODA 【eE-0】	Neur	opathy and	treatment of la	arynx paralyses		
10	03/2	7 4t	th period	Ryosei MINODA 【eE-0】	Rege	neration of	cochlear hair c	cells		
11	02/1	6 [	3rd grade		Basic	c and clinic	on vascular ne	ogenesis		
12	02/2	3 4t	th period F	lisashi SAKAGUCHI 【eE-0】	Treat	tment of isc	hemic heart dis	sease		
13	03/0	2 4t	th period k	Kimitoshi NAKAMURA	Path	ological ana	lysis and treati	ment of genetic diseases		
14	03/0			Yukio INOMATA 【eE-0】	+		-	organ transplants		
15	03/1		th period	Yukihiro INOMATA [eE-0]	_		brain-dead an			
	uired Textbo				1					
	Reading list									
	nation conce enrollment	erning								
Assessment methods and criteria/ratios  Grading will be based on active class participation, paper summaries, and the final report. on the student's understanding of the course subject matter. The students' understanding the basis of papers and quizzes related to the topics dealt with in class to be scored from will be based on the average score of the papers and quizzes as well as participation in class.						ng will be evaluated on n 0 to 100. Final grades				
Langu	iage of instru	uction le	cture in Ja	panese + Japanese textbook						

Class									
	numbering code	Sei	mester	Course belonging/Course code	Year/Grade	Credit	Day,Period		
		2016whole year		Graduate School of Medical Sciences(22160)	1, 2, 3, 4	2	other		
Course name(Theme)						Instr	uctor		
		Special	Lecture on T	Fransplantation immunolog()		Hiroyuki, SENJ	u, INOMATA Yukihiro, U Satoru, AWAI Hirotake, tsushi		
				Goals with their ratio	·				
Under	constructio	n · · · · 10	0%						
Т	eaching Styl	е	講義						
(	Class method	d		and/or OHP will be used in the lectures, and sor video lectures are considered for those					
Cl	lass objectiv	es	(1) The med (2) Allo-anti (3) The stru (4) Basic im	f this lecture are to understand the following chanism of rejection in allo-transplantation igens that induce allo-reactivity cture and function of human major histocon munology and clinical immuno-regulation the status and future direction of transplantation	npatibility comple	x (HLA) aft-rejection			
	Goals		Understand complexes	ling of the mechanisms of rejection in allo-tr and the basics in clinical immuno-regulation	ansplantation, the therapy and tran	e structures of r splantation me	najor histocompatibility dicine		
	Class outline		However, the species, durallogeneic of Among such lecture on the will provide lecture on the species.	patients, transplantation of the cells, tissue nere are structural differences of proteins, lip e to genetic polymorphism. Therefore, follow donor, the recipient immune system is activa n allogeneic antigens, MHC are the stronges he basic and clinical immunology related to the latest information on the issue of clinical he transplantation immunology at the level of linical medicine, including recent advances	oids, and sugars by ing the transplanted by such polyr tin stimulating all the methodology altransplantation of cells, tissues, ar	etween differer tation of a graft norphic molecu lo-reactive imm to avoid such rand regeneratind organs, from	it individuals of the same obtained from an iles and reject the graft. une response. We will ejection. In addition, we re medicine. We will the viewpoint of both		
				Each Summary					
No.	Date	9		Theme		Summa	ry		
1	10/1	7	Mon 4th pe 0]	riod, Yasuharu Nishimura 【eJ-0, eE-0, eEJ-	Structure and fu	nction of HLA o	lass I		
2	10/2	4	Mon 4th pe	riod, Yasuharu Nishimura 【eE-0, eEJ-0】	Structure and function of HLA class II				
3	10/3	1	Mon 4th pe	riod, Atsushi Irie	Polymorphism of MHC and T cell- activation signals				
4	11/0	7	Mon 4th pe	riod, Satoru Senju 【eEJ-L】	Recognition of a	lloantigens by <sup>-</sup>	ns by T cells		
5	11/1	4	Mon 4th pe 0]	riod, Yasuharu Nishimura 【eJ-0, eE-0, eEJ-	HLA and anti-tur	mor immunity			
6	11/2	.1	Mon 4th pe	riod, Atsushi Irie	Major and minor histocompatibility antigens				
7	11/2	.8	Mon 4th pe	riod, Satoru Senju 【eE-0】	Immune response and dendritic cells				
8	12/0	5	Mon 4th pe	riod, Satoru Senju 【eE-0】	Pluripotent stem	cells and imm	une therapy		
9	12/1	2	Mon 4th pe	riod, Hiroyuki Oshiumi, Hirotake Awai	Graft versus Hos	t reaction(GV	HR)		
10	12/1	9	Mon 4th pe	riod, Hiroyuki Oshiumi, Hirotake Awai	Immune-suppre	ssion			
11	12/2	.6	Mon 4th pe	riod, Hiroyuki Oshiumi, Hirotake Awai	Transplantation	immunology ar	nd NF- κ B		
12	01/1	6	Mon 4th pe	riod, Hiroyuki Oshiumi, Hirotake Awai	Transplantation	immunology ar	d Stem cell		
13	01/2	3	Mon 4th pe	riod, Hiroyuki Oshiumi, Hirotake Awai	Steroid receptor	s and immune-	suppression		
14	01/3	0	Mon 4th pe	riod, Yukihiro Inomata【eE-0, eEJ-0】	Transplantation	in Japan and th	e world		
15	02/0	6	Mon 4th pe	riod, Yukihiro Inomata【eE-0, eEJ-0】	Liver transplant from living donor				
Req	uired Textbo	ooks	Textbooks a	are not specified, and handouts will be distri	buted.				
	Reading list		"The Immune System" by Peter Parham. Garland Publishing Inc. New York and London, 2004 "Janeway's Immunobiology Seventh Edition" by Kenneth Murphy, Paul Travers, Mark Walport. Garland Science, Taylor & Francis Group LLC. New York and Abingdon, 2008. "A history of transplantation immunology" (Leslie Brent) Academic Press 1997						
Inforn	nation conce enrollment	erning	It is recomn	nended for you to read a syllabus and indica	ted recommende	d readings in ac	dvance.		
Assessment methods and criteria/ratios		Achievement of the Objectives will be evaluated by active class participation and the reports of which the theme will be specified after the lectures. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of the reports and brief examinations related to the topics dealt with in the class to be scored from 0 to 100. Final grades will be based on the average of the best 10 scores of the reports and brief examinations as well as the participation in class discussions.							
Langu	uage of instru	uction	lecture in Ja	apanese + Japanese textbook					

Cours	se Coding	Year and	d Semester	Faculty Offering Course	E	Eligible	Credits	Weekday and Period		
Cours	oc county	rear arr	a comester	, 3	Stud	dent Year	Oreans	Trockday and Forton		
		2016whole year		Graduate School of Medical Sciences(22170)	1,	, 2, 3, 4	2	others		
Course Title(Theme)							Instru	ctor(s)		
			Special Led	cture on Bioethics()			Kadooka	Yasuhiro		
Goals with their ratio										
Under construction ····100%										
٦	Type of Class	S	Lecture							
Te	aching Meth	od		ing system will be provided for classes on "r society" are held in intensive courses. Vario e-learning.						
(	Course Goals	S	This special lecture on bioethics will deal with ethical issues involved in developmental biology and regenerative medicine, which may be applications of organ transplantation, human stem cell research, iPS cell research, genetic diagnosis and therapy, and so on. This course is aimed to provide life science researchers with adequate knowledge and understanding concerning major bioethical issues to help them conduct sound researches.							
Cou	rse Achieven Targets		To recognize various ethical, legal, and social issues and implications (ELSIs) and classic cases in the field of bioethics. To understand intrinsic problems involved in healthcare and medical research and discuss their significance. To acquire fundamental theoretical knowledge about biomedical ethics. To write and present their own bioethical arguments in a plausible manner. To read and critically analyze papers published in international journals in ethics and bioethics.							
	Outline		The course and student their own ar	will consist of lectures concerning importants' presentation. Participating students are rguments.	t bioet requir	thical issues red to critica	and principles ally read bioeth	s, small group discussion, nical papers and present		
				Details for Individual Classe	es					
No.	Date	Э		Theme of Course			Brief Outline o	of Course		
1			【1st grade Research et		CITI e-learning system					
2			Research et	hics 2	CITI e-learning system					
3			Research et	hics 3	CITI	CITI e-learning system				
4			Research et	hics 4	CITI e-learning system					
5			Research et	hics 5	CITI	e-learning s	ystem	n		
6			【2nd grade Highly adva	e) nced medicine 1	Brain	Death and	Organ Transpl	antation		
7			Highly adva	nced medicine 2	Regenerative medicine and human cloning			man cloning		
8			Highly adva	nced medicine 3	Gene diagnosis and therapy					
9			Highly adva	nced medicine 4	Assisted reproductive technology and Enhancement			gy and Enhancement		
10			Highly adva	nced medicine 5	Neuroethics					
11			【3rd grade Science and		Professionalism of scientists					
12			Science and	d Society 2	Socia	al responsib	ilities of scient	ists		
13			Science and	d Society 3	Scier	ntific commu	unication			
14			Science and	d Society 4	Socie	ety and med	icine 1 (health	care policy, etc.)		
15			Science and	d Society 5	Society and medicine 2 (Public health, etc.)					
Text	books/Mate	rials	Textbooks a	are not specified and handouts are provided	l.					
	Reading List		Carl Mitchan (Editor in Chief) Encyclopedia of Science, Technology, and Ethics. Volume 1-4, Macmillan Reference USA, Thomson/Gale, 2005. Bonnie Steinbock (Edition) The Oxford handbook of Bioethics. Oxford University Press, 2007. Timothy F. Murphy Case Studies in Biomedical Research Ethics. The MIT Press, 2004. Karen F. Greif, Jon F. Merz Current Controversies in the Biological Science. The MIT Press, 2007. V. Ravitsky, A. Fiester, A. L. Caplan (eds). The Penn Center Guide to Bioethics (171-180), New York: Springer Publishing Company, 2009.							
Enrollment Prerequisites										
Assess	ment Metho Criteria	ds and	Students are evaluated for their course grades and credits based on the course hours completed, their understanding and knowledge earned about information in the research for bioethics, ability of summarizing and presenting bioethical deliberation of their own themes, and quality of hand-in report essays. Grading will be based on the student's understanding of the course subject matter. The students' understanding will be evaluated on the basis of short essays.							
Langu	lage of Instru	uction	Instruction	in Japanese + Japanese Textbook						

Class numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period		
	2016	whole year	Graduate School of Medical Sciences(22180)	1,	, 2, 3, 4	2	other		
		Course	e name(Theme)			Instr	uctor		
Practice on Dev	elopmenta Developm	al Biology and nental Biology	d Regenerative Medicine I(Practice "Enshuu" y and Regenerative Medicine I)	on	OGAWA Minetaro, NISHIMURA Yasuharu, INOMATA Yukihiro, NAKAO Mitsuyoshi, ITO Takaaki				
	Goals with their ratio								
Under construct	ion · · · · 10	0%							
Teaching S	tyle	演習							
Class meth	od	PBL, group	work training						
Class object	iives	Developmental and regenerative medicine is an extremely interdisciplinary science that involves embryology, cell biology, molecular biology, genetics, immunology, histology, reconstructive surgery, bioethics and other broad fields of biosciences. Characterizing pathological conditions and etiology and developing medical treatment for diseases from the viewpoint of developmental biology, as well as establishing regenerative medicine in an effort to repair ageing and injured tissues and organs, may need to surmount various critical problems that should be related to above interdisciplinary fields. Based on the knowledge learned in the special lectures "Tokuron", this practice intends to enhance the ability of approaching solution of problems from a multilateral perspective by advancing quest for an arbitrarily-selected issue through successive examinations of literatures and discussions.							
Goals	Goals  Students are expected to acquire the ability of approachir based on their knowledge in interdisciplinary fields.					solution of problems from a multilateral perspective			
Class outli	ne	Students form a small group and raise an issue related to developmental and regenerative medicine. (An example of the issue might be finding a way to recover kidney function avoiding relying on dialysis treatment.) Students then find obstacles to settlement of the issue and examine literatures cooperatively with the group members and make discussions in order to explore methodology and strategy to solve the raised problems. The instructors listed above appropriately support the group work to facilitate learning. Results of the study are summarized in a report. Students will also have opportunities for the presentation of the results.					s treatment.) Students the group members and lems. The instructors		
			Each Summary						
No. Da	ate		Theme			Summa	ry		
1									
Required Text	books								
Reading li	st								
Information cor enrollme									
Assessment meth criteria/rat		Grading will be based on active participation in the group work as well as the final report and presentation. Focus of evaluation are (i) whether problems are appropriately raised from the selected issue, (ii) whether strategies to solve the problems are appropriately presented, (iii) whether both technical and ethical aspects are considered.							
Language of ins	truction	lecture in E	nglish + English textbook						

	numbering code	Se	mester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
		2016v	whole year	Graduate School of Medical Sciences(22190)	1,	, 2, 3, 4	2	other	
			Course	e name(Theme)			Instr	uctor	
Practi	ce on Develo D	opmenta evelopm	l Biology and ental Biology	Regenerative Medicine II(Practice "Enshuu' v and Regenerative Medicine II)	on	OGAWA Minetaro, NISHIMURA Yasuharu, INOMATA Yukihiro, NAKAO Mitsuyoshi, ITO Takaaki			
				Goals with their ratio					
Under	constructio	n · · · · 10	0%						
Т	eaching Styl	е	講義・演習						
(	Class method	d	Students at summary of for one repo	tend the seminars that are authorized by the the lectures and his/her own discussion ab ort.	cours	se and write e topics. In	reports. The re principle, one l	eports should include nour seminar is suitable	
Developmental and regenerative medicine is an interdisciplinary science that is rapidly evolife science. This practice consists of lectures from researchers who work on developmentare regenerative medicine in Japan and overseas. Researchers committed to cutting-edge reseand present latest developments of their own. Students are encouraged to attend the semi date knowledge of regenerative medicine and related fields that may not be covered in the "Tokuron".					ntal biology and esearch will be invited eminars to acquire up-to-				
	Goals		Students ar medicine.	e expected to acquire competence to under	stand	the latest re	esearch develo	pments of regenerative	
	Class outline	;	Topics of the seminars may encompass full range of issues that are related to developmental biology and regenerative medicine, including cell engineering, genetic engineering, biomedical materials, reproductive medicine and bioinformatics.						
				Each Summary					
No.	Date	)		Theme			Summa	ry	
1									
Req	uired Textbo	ooks							
Reading list									
Information concerning enrollment									
Assessment methods and criteria/ratios			Students are obligated to attend 15 or more lectures and submit reports. The attendance can be extended to four years at maximum. Grading will be based on the reports.						
Langu	uage of instru	uction	lecture in English + English textbook						

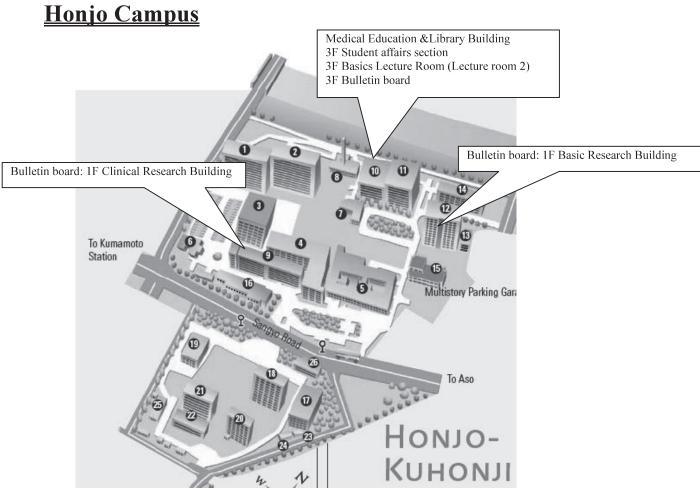
Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
	2016whole year	Graduate School of Medical Sciences(22200)	1,	, 2, 3, 4	2	other	
	Cour	se name(Theme)			Instr	uctor	
Practice on Devel	opmental Biology ar evelopmental Biolo	nd Regenerative Medicine III(Practice "Enshut gy and Regenerative Medicine III)	ı" on	on OGAWA Minetaro, NISHIMURA Yasuharu, INOMATA Yukihiro, NAKAO Mitsuyoshi, ITO Takaaki			
		Goals with their ratio					
Under construction	n · · · · 100%						
Teaching Sty	le 演習						
Class metho	d Students other rela	attend domestic or international conferences ted research fields, and present findings obta	on devined fr	velopmenta om their ov	l biology, reger vn research.	nerative medicine and	
Class objectiv	present re	During the process of conducting research on developmental and regenerative medicine, it is necessary to present research findings and discuss with other scientists at domestic and international conferences. This practice aims at expanding capability to make a productive discussion on a subject presented by other researchers and to present and discuss own findings in an effective manner at an academic conference.					
Goals		Students are expected to acquire skills to make a productive discussion on a subject presented by other researchers and to present and discuss own findings in an effective manner at an academic conference.					
Class outlin	other rela present fi appropria	Students attend domestic or international conferences on developmental biology, regenerative medicine and other related research fields. In addition to discuss on the subjects presented by other researchers, students will present findings obtained from their own research in poster or oral sessions. The instructors listed above appropriately support discussions and preparations of presentation. Students finally write a report that includes the state of achievement of the activities at the conferences.					
		Each Summary					
No. Dat	е	Theme		Summary			
1							
Required Textb	ooks						
Reading lis							
Information conc enrollment	erning						
Assessment metho criteria/ratio	ds and developm	Students are obligated to attend and make a presentation in domestic or international conferences on developmental biology and regenerative medicine. Length of the activities at the conferences should be 4 days or more in sum total. Student should present their own research findings at least once in any of the conferences they attend. The attendance can be extended to four years at maximum. Grading will be based on the final report.					
Language of instr	uction lecture in	English + English textbook					

Class numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period
	2016whole year	Graduate School of Medical Sciences(22210)	1,	2, 3, 4	2	other
	Course	e name(Theme)			Instr	uctor
Practical Training of Developmental Biology and Regenerative Medicine(Practical Training "Jisshuu" on Developmental Biology and Regenerative Medicine)  Oda Kunimasa, NAKAO Mi Satoru, Itou Takaaki, NISHIN Satoru, Itou Takaaki, NISHIN Saitou Noriko, ESAKI Masatosl Hatakeyama Jiyun, Niimori I Yasuhisa						
		Goals with their ratio				
Under constructio	n · · · · 100%					
Teaching Styl	e 実習					
Class method	Each trainir lectured, th	ng course will be held in a laboratory in charg en practical handling will be trained. Results	ge. Firs	st, the princ liscussions	ciple of a metho must be surmm	od or a technique will be narized in a report.
Class objectiv	medicine, whistology. Fes practically. methods an in specific r	Various experimental methods and techniques are applied in the field of developmental biology and regenerative medicine, which is an interdisciplinary research based on cell biology, molecular biology, immunology and histology. For researchers in the field, it is required to learn such experimental methods and techniques practically. Even for researcher outside the filed, it is important to understand a background of the experimental methods and techniques, since it gives us a multilateral viewpoint and would support to resolve various problems in specific research fields. Principles and practical procedures for several important experimental methods and techniques were trained in practical training of Developmental Biology and Regenerative Medicine.				
Goals	Students ar important e	e expected to acquire competence to understand principles and practical procedures for several experimental methods and to perform them by themselves.				
Class outline	Time-lap Induction Handling Histologi Fraction Isolation Two-pho Lipofect	Scanning electron microscopy (Brain Morphogenesis) Time-lapse imaging of living culture cells (Molecular Pharmacology) Induction of immunocytes from ES cells (Immunogenetics) Handling of developing neural tissues and cells (Developmental Neurobiology) Histological stain and its interpretation (Pathology and Experimental Medicine) Fractionation and isolation of cells by FACS (Cell Differentiation) Isolation of RNA/DNA and quantification by PCR (Medical Cell Biology) Operant conditioning test, Open field test, Fear-conditioning test (Molecular Physiology) Two-photon fluorescence microscopy for neurons (Sensory and Cognitive Physiology) Lipofection, Western blot (Kidney Development) Induction of protein expression in bacteria, protein purification (Molecular Cell Biology)				
	In this cou	se, sessions in Practical Training of Metabol	ism an	ıd Cardiova	scular Medicin	e could also be selected.
		Each Summary				
No. Date	e	Theme			Summa	ry
1	Schedule o separately.	f each session will be forwarded to you		ents of eacl rately.	h session will b	e forwarded to you
Required Textbo	ooks					
Reading list						
Information concerning enrollment						
Assessment metho criteria/ratio	ds and student's ur s be evaluate	Students must participate in at least 8 sessions and submit reports for each session. Grading will be based on the student's understanding of the subject matter as well as activities in the classes. The students' understanding will be evaluated on the basis of reports to be scored from 0 to 100 for each session. Final grades will be based on the average of the top 8 scores.				
Language of instru	uction lecture in E	nglish + English textbook				

## 13. Endocrinology and Metabolism Course

	numbering code	Semester	Course belonging/Course code	Yea	ar/Grade	Credit	Day,Period	
		2016whole year	Graduate School of Medical Sciences(22250)	1,	, 2, 3, 4	2	other	
Course name(Theme)						Instr	uctor	
		Practical Training	g of Metabolic Medicine()		Shoke	i Mitsuyama, K	Kato, Hirotaka Matsui, azuya Yamagata, Seiji mohara, Tomohiro Sawa	
			Goals with their ratio					
Under construction ···· 100%								
Т	eaching Styl	e 実習						
(	Class method		g course will be held in a laboratory in char, hen practical handling will be trained. Resul					
Class objectives		es Medicine, w pharmacold methods an background support to r important e	Various experimental methods and techniques are applied in the field of Metabolism and Cardiovascular Medicine, which is an interdisciplinary research based on epidemiology, internal medicine, pathology, pharmacology, histology and cell biology. For researchers in the field, it is required to learn such experimental methods and techniques practically. Even for researcher outside the filed, it is important to understand a background of the experimental methods and techniques, since it gives us a multilateral viewpoint and would support to resolve various problems in spesific research fields. Principles and practical procedures for several important experimental methods and techniques were trained in practical training of Metabolism and Cardiovascular Medicine.					
	Goals	Principles a practical tra	Principles and practical procedures for several important experimental methods and techniques were trained in practical training of Metabolism and Cardiovascular Medicine.					
,	Class outline	Introduct Introduct Metabolic Metabolic Metabolic Metabolic Metabolic Metabolic Oxidative	Following methods and techniques are trained: Introduction of epidemiology: Epidemiological and statistical analysis (Public Health) Introduction of metabolic analysis: Method of analyzing metabolic disease (Molecular Laboratory Medicine) Metabolic analysis 1: Blood pressure and cardiac rate (Pharmacology and Molecular Therapeutics) Metabolic analysis 2: Blood insulin (Medical Biochemistry) Metabolic analysis 3: Whole body metabolism, CT (Molecular Genetics) Metabolic analysis 3: Cardiovascular disease model (Cardiovascular Medicine) Histological analysis: Histopathology, Immunohistochemistry (Cell Pathology) Oxidative stress analysis: Measurements of reactive oxygen species (Microbiology) In this course, sessions in Practical training of Developmental Biology and Regenerative Medicine also could be selected.					
			Each Summary					
No.	Date	9	Theme	Summary				
1		Introduction	n of epidemiology	Epide	emiological	al and statistical analysis (Public Health)		
2		Introduction	n of metabolic analysis		od of analy ratory Med		disease (Molecular	
3		Metabolic a	nalysis 1		d pressure a cular Thera		e (Pharmacology and	
4		Metabolic a	nalysis 2	Blood	d insulin (M	edical Biochen	nistry)	
5		Metabolic a	nalysis 3	Whol	e body met	abolism, CT (M	Iolecular Genetics)	
6		Metabolic a	nalysis 4	Card	iovascular d	disease model (	(Cardiovascular Medicine)	
7		Histological	analysis	Histo	pathology,	Immunohistoc	hemistry (Cell Pathology)	
8		Oxidative st	ress analysis	Meas	surements o	of reactive oxyg	en species (Microbiology)	
Req	uired Textbo	ooks Textbooks a	are not specified, and handouts for each pra	ctice v	vill be distri	buted.		
	Reading list							
Inforn	nation conce enrollment	erning						
	ment metho criteria/ratio		Grading will be based on active class participation and discuttion and the final report. In the report, results and comments concerning at least 8 sessions sould be summarized in one or two A4 sheets.					
Langu	uage of instru	uction lecture in Ja	panese + Japanese textbook					

## 14. Campus map and lecture room location



- 1. West Tower
- 2. East Tower
- 3. Central Examination Building
- 4. Outpatient Examination and Clinical Research Building
- 5. Administration Building
- 6. Yamazaki Hall
- 7. Former Emergency Building
- 8. Facility Management Building
- 9. Clinical Research Building
- 10. Medical Educational & Library Building
- 11.General Medical Research Building
- 12. Basic Research Building
- 13. The Center for Medical Education and Research
- 14. Dormitory for Nurses
- 15. Multistory Parking Garage 1
- 16. Multistory Parking Garage 2
- 17. Institute of Resource Development and Analysis (Center for Animal Resources & Development)
- 18. Center for AIDS Research, Institute of Resource Development and Analysis
- 19. Lecture Building
- 20. Institute of Molecular Embryology and Genetics
- 21. Institute of Resource Development and Analysis (Gene Technology Center / Radioisotope Center)
- 22. Academic Common Honjo-1
- 23. Club Room
- 24. Club Room
- 25. Club Room
- 26. Higo Iiku Monument Hall