

# Ph.D. Program

Medical Life Science  
&  
Integrative Oriental and Western Medical Sciences

Graduate School of Medicine and  
Pharmaceutical Sciences for Education

(Second Recruitment)

## **Application and Admission Information**

**For Admission in April 2018**

**University of Toyama**

**December. 2017**

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The University of Toyama will accept applications for admission to its Medical Life Science Program and Integrative Oriental and Western Medical Sciences Program, Graduate School of Medicine and Pharmaceutical Sciences for Education for April Admission of the 2018 academic year twice. Information on the second application period is contained in this packet. Information regarding the first application was announced at the end of August 2017.

# Ph.D. Program Application and Admission Information

## Admission Policy

PhD courses of Medical Life Science and Integrative Oriental and Western Medical Sciences seeks the following prospective students:

- Those who wish to engage in the cutting-edge research in the field of medicine and medical Science.
- Those who are determined to and capable of working in research and education in the field of medicine and medical science and wish to contribute to the field at home and abroad in the future.
- Those who have already acquired fundamental advanced knowledge in other research fields and who aim to conduct the most current research in the field of medicine and medical science.

## 1. Programs and Seats Available

Program	Programs and Seats Available	Remarks
Medical Life Science	18 students	This number includes working students (a few), and at the first recruitments
Integrative Oriental and Western Medical Sciences	7 students	

Notes:

- Applicants should consult with a professor in their area of study prior to submitting their applications.
- The Graduate School of Medicine and Pharmaceutical Sciences for Education extends preferential treatment under Article 14 of the Standards for Establishing Graduate Schools by providing special consideration to working students as a means of making graduate education more accessible. Such consideration includes the scheduling of classes and research guidance in the evenings or other specific times and periods to avoid conflicts with work schedules if such is considered necessary from an educational standpoint.  
Working students are defined as individuals who are currently working and who plan to continue working following admission at medical care facilities, including resident physicians, education and research institutions, or companies.

## 2. Eligibility

The following individuals are eligible to apply:

- (1) Individuals who have graduated from a medical, dental, or six-year pharmaceutical, veterinary medicine college or students scheduled to graduate in March 2018.
- (2) Individuals with a bachelor of medicine, dentistry, pharmaceutical or veterinary medicine conferred by the National Institution for Academic Degrees and Quality Enhancement of Higher Education under Article 104, Paragraph 4 of School Education Act, or who are scheduled to fulfill said requirement by March 2018.
- (3) Individuals who have completed 18 years of formal education abroad culminating in graduation from a medical, dental, or six-year pharmaceutical, veterinary medicine college, or who are scheduled to fulfill said requirement by March 2018.

- (4) Individuals who have completed 18 years of formal education provided by an educational institution in a foreign country, including periods of correspondence or distance study while residing in Japan, culminating in the completion of a medical, dental, or six-year pharmaceutical, veterinary medicine college, or individuals scheduled to fulfill said requirement by March 2018.
- (5) Individuals with a degree in medical, dental, or six-year pharmaceutical, veterinary medicine college from a foreign university located in Japan which is authorized by their home countries as educational institutions (whose graduates are regarded as having completed 18 years of school education in their home countries) and designated as such by the Minister of Education, Culture, Sports, Science and Technology, or individuals scheduled to fulfill said requirement by March 2018.
- (6) Individuals who have completed an educational program (limited to Medicine, Dentistry, Pharmaceutical Sciences and Veterinary Medicine) of five years or more at a university or an educational institution in a foreign country (which has been evaluated for its educational and research activities by an institute certified by the government or its related organization, or an equivalent thereof designated by the Minister of Education, Culture, Sports, Science and Technology, Japan) (including individuals who have completed a correspondence course offered by the foreign educational institution while residing in Japan, and individuals who have completed an educational program at an educational institution authorized by the School Education System and designated as such by the Minister of Education, Culture, Sports, Science and Technology, Japan) and have been conferred a degree which is equivalent to a Bachelor's degree, or will be conferred said degree by March 2018.
- (7) Individuals designated by the Minister of Education, Culture, Sports, Science and Technology.  
(1955 Ministry of Education Ordinance No.39)
- [1] Individuals who have graduated after completing the medical or dental program from the faculty of medicine or dentistry of a university under the previous University Order (Imperial Order No. 388 of 1918)
- [2] Individuals who have graduated from the National Defense Medical College under the Defense Agency Establishment Law (Law No. 164 of 1954)
- [3] Applicants who fall under any of the following items and have been determined to have a level of academic ability equal to or higher than that of a graduate of a medical, dental, pharmaceutical or veterinary medicine college
- a) Individuals who have completed a master's program in such fields as science and engineering, and those who are eligible for a degree
- b) Individuals who have been enrolled for two years or longer in a Ph.D. program that involves no distinction between a two-year master's level section and a three-year doctoral level section, who have acquired 30 credits and received the required research instruction [including individuals who fall under Article 6, item (1) of the Degree Regulations (Ordinance of the Ministry of Education, Science and Culture No. 9 of 1953) prior to the revision by the Ministerial Ordinance on the Partial Revision of the Degree Regulations (Ordinance of the Ministry of Education, Science and Culture No. 29 of 1974)]
- c) Individuals who have graduated from a college other than a medical, dental, pharmaceutical, or veterinary medicine college, or have completed 16 years of a school curriculum in a foreign country as stipulated in the School Education Act; and who have subsequently been engaged in research at universities, research

institutes, or other establishments for two years or longer; and have been approved by the University of Toyama Graduate School of Medicine and Pharmaceutical Sciences for Education based on their achievements in graduate schools or other postgraduate programs.

- (8) Individuals who have been enrolled in the Doctoral Course of another Graduate School (limited to a course of four years) in accordance with the provisions of School Education Law Article 102, Paragraph 2 and have been deemed by the Graduate School to have the academic ability required to study at the Graduate School.
- (9) Applicants 24 years of age or older at the time of entrance who have taken the preliminary qualification screening and have been determined to have a level of academic ability equal to or higher than that of a graduate of a medical, dental, or six-year pharmaceutical, veterinary medicine college by the University of Toyama Graduate School of Medicine and Pharmaceutical Sciences for Education.
- (10) Applicants who have been enrolled in a medical, dental or six-year pharmaceutical, veterinary medicine college for four years or longer, including individuals determined to be eligible by the Ministry of Education, Culture, Sports, Science and Technology and regarded by the University of Toyama Graduate School of Medicine and Pharmaceutical Sciences for Education as having acquired the necessary credits and having attained the appropriate level of academic achievement during the period of enrollment.

Note:

- It is desirable that a person who corresponds to Qualification for Application (1) and has graduated from the medical or dental department obtain a license as a medical doctor or dentist.
- A person “specified by the Minister of Education, Culture, Sports, Science and Technology” in the Qualification for Application (10) includes a person who has completed an equivalent course in another country. For more information, please contact the Examination Section of the Admissions Office for Educational Affairs Division (Sugitani Campus).
- Applicants who fall into categories (7)~(10) are required to undergo preliminary qualification screening in advance. Please contact the Examination Section of the Admissions Office for Educational Affairs Group (Sugitani Campus), at the University of Toyama by Friday, January 5, 2018 for details regarding the examination.

### 3. Application Procedures

#### (1) Submission of Application

Applicants are required to **make payment of the examination fee via bank transfer** by the below-listed application deadline. Regarding the application, enclose the required documents in an envelope and write the statement provided in item 2 below on the front of the envelope **in red ink**. Submit by **registered express mail**.

##### 1) Application Period

**From January 15, 2018(Mon) to February 15, 2018(Thu) (postmarked)**

Send application forms and related documents to:

Educational Affairs Division of Medicine and Pharmaceutical Sciences Majors (in charge of admission), University of Toyama, 2630 Sugitani, Toyama 930-0194

Telephone: (076) 434-7658 From abroad: +81-76-434-7658

See (3) Method of Examination Fee Payment for reference. Students enrolled in a University

of Toyama Graduate School for Education who wish to enter a Ph.D. program in the Graduate School Medicine and Pharmaceutical Sciences for Education are not required to pay the examination fee.

2) Matters to be written on the envelope

“Contains Application for the Graduate School of Medicine and Pharmaceutical Sciences for Education (Ph.D. Program Admission)”

(2) Documents to be Submitted

Document		Notes
1	Application Form	Fill out the designated forms.
2	Certificate of (Expected) Bachelor's Degree	The certificate must be signed by the President or Faculty Dean of the issuing university. (Graduates of or students currently enrolled at University of Toyama are not required to submit this document.)
3	Certificate of (Expected) Master's Degree	The certificate must be signed by the President or Graduate School Dean of the issuing university. (This applies only to applicants who have or are scheduled to complete a master's program)
4	Official Transcripts (sealed)	The sealed transcripts must include all courses taken while enrolled at the issuing university and be signed by the President or Faculty Dean of the issuing university. (Applicants who have or will complete a master's program must include sealed transcripts signed by the Dean of the relevant graduate school.)
5	Examination Admission Card/ Photograph Card	Use the designated form. Affix a frontal photograph of yourself from the waist up to the space indicated on the photograph card. Hats should not be worn and the photograph must have been taken within three months prior to the submission of the application. (Photo size: 4 cm long × 3 cm wide)
6	Examination Fee Wire Transfer Receipt	After making the wire transfer payment of the examination fee using the designated form, affix the wire transfer receipt you receive from the bank to the prescribed form and submit. Applicants enrolled at a University of Toyama Graduate School for Education wishing to enter a Ph.D. program at the Graduate School of Medicine and Pharmaceutical Sciences for Education are not required to pay the examination fee.
7	Approval for Examination	Applicants who are enrolled in a graduate program at a school other than University of Toyama or who are employed at a public office or private company are required to submit approval for examination signed by the Dean of their graduate school or their immediate supervisor at work. (There is no designated format.)
8	Copy of the Certificate of Residence	Foreign nationals currently residing in Japan should attach a Copy of the Certificate of Residence issued by the city, town, village or special ward in which they reside.
9	A Stamped, Self-Addressed Envelope	This is required to issue an Examination Admission Card to each applicant. Affix a 362 yen postage stamp (for express mail) and write your postal code, address and name in the addressee space of a No.3-long size envelope (23.5 cm × 12 cm).

10	Mailing Label (for a notification of acceptance)	Use the designated form. Include postal code, address and name.
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(3) Method of Examination Fee Payment

Make the examination fee (**30,000 yen**) payment as described below.

Note: Applicants falling into any of the following categories are not required to pay the examination fee.

○ Applicants applying for April 2018 admission

Applicants scheduled to complete a master's program  
m at a University of Toyama Graduate School in March 2018.

**Payment deadline: 3:00 PM on February 15, 2018(Thu)**

Fill in the wire transfer form designated by the University of Toyama and make the wire transfer at your nearest bank, credit union, or agricultural cooperative handling wire transfers.

Payment of the examination fee cannot be made through ATMs (automatic teller machines) or the Japan Post Bank.

The examination fee refunds will only be made for the reasons listed below.

- 1) In the event that the individual does not in fact apply to the University of Toyama after paying the examination fee (e.g. Said applicants did not submit an application or the application submitted was not accepted.),
- 2) In the event of a double payment, and
- 3) In the event of a payment exceeding the required amount.

Note: When applying to the University of Toyama for an examination fee refund, affix the Examination Fee Payment receipt to the designated Examination Fee Refund Request Form and mail it to the University of Toyama at:

Accounting Division , Financial Affairs Division, University of Toyama  
3190 Gofuku, Toyama City, Toyama, 930-8555, Japan  
TEL: 076-445-6053 (for domestic)/ +81-76-445-6053 (from overseas)

(4) Applicants with Disabilities

Individuals with disabilities are requested to notify the Examination Section of the Admissions Office for Educational Affairs Division (Sugitani Campus) at the University of Toyama prior to the submission of the application if there is a need for a special consideration when taking the examination or attending school.

Applicants requesting special consideration may be required to submit doctor's note or documents indicating the matters listed below.

- Type and level of disability
- Matters requiring special consideration for the examination
- Matters requiring special consideration for school attendance, and
- Daily life status and other matters, as needed.

1) Deadline for notification: Friday January 5, 2018

2) Contact:

Educational Affairs Division of Medicine and Pharmaceutical Sciences Majors (in charge of admission), University of Toyama, 2630 Sugitani, Toyama 930-0194  
Telephone: (076) 434-7658 From abroad: +81-76-434-7658

#### 4. Selection Method

Applicants are selected based on their transcripts, and performance on both a written and oral examination.

(1) Written Examination

A written examination will be given to evaluate the applicant's English language ability.

(Only English-Japanese paper dictionaries can be used during the examination. No electronic dictionaries or medical dictionaries in any medium are allowed to be used.)

Note: Non-native English speaking foreign nationals who would like to use a dictionary during the examination are asked to notify the Examination Section of the Admissions Office for Educational Affairs Group (Sugitani Campus) at the University of Toyama in advance.

(2) Oral Examination

An oral examination will be given on the area of study that the applicant wishes to pursue.

(3) Examination Date, Time and Place

Date	Time	Subject	Place
March 1 2018(Thu)	9:30 ~ 11:00	Written examination of English language ability	Sugitani Campus, University of Toyama
	13:00 ~	Oral examination	2630 Sugitani, Toyama City, Toyama, Japan

#### 5. Notification of Acceptance

The Examination Admission Numbers of successful applicants will be posted **at 3:00 PM on , March 9, 2018 (Fri)** on the notice board in front of the entrance of the research building of the Faculty of Medicine at the Sugitani Campus of the University of Toyama. The Graduate School of Medicine and Pharmaceutical Sciences for Education will also promptly send notification of acceptance to successful applicants.

Telephone and facsimile inquiries will not be accepted.

#### 6. Admission Procedures

Admission procedures are shown below. Enrollment forms and details will be sent to successful applicants.

(1) Enrollment **March 22, 2018,(Tue)**(scheduled)

(2) Place: University of Toyama Sugitani Campus

(3) Documents Required for Enrollment

Notification of acceptance, a photograph (4 cm long × 3 cm wide in color), a written oath (on the designated form), etc.

(4) Enrollment Fees

a) Enrollment Fee: **282,000 yen (plan)**

Note 1: The above is the currently valid enrollment fee. Should the enrollment fee be revised, the new enrollment fee will go into effect as of the time of the revision.

Note 2: The enrollment fee received by the University of Toyama cannot be refunded for any reason.

b) Other

1) Students who have difficulties paying the enrollment fee may be exempted from or granted a postponement for the payment upon screening.

2) **The tuition fee shall be paid following enrollment.** Notification of the amount and method

of payment will be provided during enrollment procedures.

Tuition for FY 2017: 535,800 yen

3) Scholarships are available through the Japan Student Services Organization.

4) Students are required to pay the cost of obtaining Personal Accident Insurance for Students Pursuing Education and Research.

(5) Notes

Students who have not completed the enrollment procedures on the designated date will be considered to have declined enrollment.

## 7. Privacy Policy

The University of Toyama handles all personal information in accordance with the Act on the Protection of Personal Information Held by Independent Administrative Agencies, etc. and the University of Toyama Policies on Personal Information Protection.

(1) Names, addresses, and other personal information that the University of Toyama obtains from applicants will be used for 1) the selection of students (accepting applications and providing examinations), 2) announcement of successful applicants, 3) admission procedures, 4) investigation and research for the selection process, and 5) other related operations.

(2) Personal information obtained from the students who have completed the admission procedures will be used for preparatory education before admission and 1) matters related to instruction and administration (registration, instruction, etc.), 2) student assistance (health management, application for scholarships and tuition exemptions, employment assistance, etc.), and 3) the collection of tuition after admission.

(3) The names and addresses of successful applicants may be used to facilitate contact by organizations related to after-school activities, the alumni association, the support association, and the student cooperative association of the University of Toyama.

Note: If you are a successful applicant and would not like to be contacted by the above-mentioned organizations, please notify the Examination Section of the Admissions Office for Educational Affairs Division (Sugitani Campus) at the University of Toyama.

(4) The University of Toyama may partially outsource operations to commissioned companies (hereinafter referred to as “Contractors”). We may supply said Contractors with all or part of the personal information obtained through the application process as required for the execution of their contracted business.

## 8. Notes

(1) Incomplete applications may not be processed.

(2) Once submitted, application forms cannot be returned for any reasons.

(3) Falsification of information submitted during the application process may result in rejection of the application or cancellation of enrollment.

(4) For inquiries, please contact the following office:

Educational Affairs Division of Medicine and Pharmaceutical Sciences Majors (in charge of admission), University of Toyama, 2630 Sugitani, Toyama 930-0194

Telephone: (076) 434-7658 From abroad: +81-76-434-7658

# Overview of the University of Toyama Graduate School of Medicine and Pharmaceutical Sciences for Education (Ph.D. Program)

## 1. Objectives

While the cultivation of human resources engaged in medical care requires the establishment of a highly advanced educational system that drives academic progress in each field, it is also a social necessity that professionals in the fields of medical and pharmaceutical sciences cooperate so that they may utilize their knowledge and skill to deliver comprehensive benefits to the public. In order to cultivate human resources equipped with such an innovative spirit and comprehensive judgment, the University of Toyama integrated the Graduate School of Medicine and Graduate School of Pharmaceutical Sciences and established the Graduate School of Medicine and Pharmaceutical Sciences for Education to establish a system for providing high-level education.

The Graduate School of Medicine and Pharmaceutical Sciences for Education sets the goal of developing students with a high degree of expertise as well as broad knowledge and vast imagination based on the spirit of respect for human dignity through our distinctive research and education provided resulting from the integration of the fields of medical sciences, nursing, and pharmaceutical sciences, and cultivating human resources equipped with comprehensive judgment capable of contributing to society and the advancement of academic research as highly-skilled medical professionals and researchers for medical education.

## 2. Degree and Credit Requirements

### (1) Programs and Period of Study

1. The University of Toyama Graduate School of Medicine and Pharmaceutical Sciences for Education (Ph.D. Program) has four programs, Medical Life Science, Integrative Oriental and Western Medical Sciences, and Pharmaceutical Science.
2. Courses in the Medical Life Science and the Integrative Oriental and Western Medical Sciences are four years in length and the Pharmaceutical Life Science course is three years in length.

### (2) Degree Requirements

Degree requirements for Medical Life Science and Integrative Oriental and Western Medical Sciences (Ph.D. Program) are as shown in the following chart.

Subject          Program	Elective			Required			Total
	Lecture			Practice	Common Theory	Special Research	
	Subjects in major field	Subjects in other fields (provided by the student's Graduate School for Education)	Subjects provided by other Graduate Schools for Education *				

Medical Life Sciences Integrative Oriental and Western Medical Sciences	4 or more credits	2 or more credits	2 or more credits	4 credits	4 credits	14 credits	30 or more credits
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\* Graduate School of Innovative Life Science, Graduate School of Science and Engineering for Education

### 3. Program Overview

#### ○ Medical Life Science

The Division of Medical Life Science carries out basic research on organs in life activity systems, the pathophysiological identification of the onset of disorders, and the development of preventive and therapeutic methods in an organic and cross-sectoral manner. The Division of Medical Life Science commits its resources to cultivating human resources capable of dealing comprehensively with a wide range of areas, such as the pathophysiological identification of the onset of disorders in the central nervous, sensory, musculoskeletal, and cardiorespiratory systems, interactions between drugs and living matter, and functional recovery and reassembly.

We also work to clarify the relationship between environmental factors surrounding humankind such as living matter and natural society in the environmental biological defense system, and the onset of developmental disorders, disease, and aging, at the molecular and epidemiological levels utilizing interdisciplinary methods, and offer comprehensive education and carry out research on diseases and their causes, prevention and treatment.

Furthermore, we strive to develop translational research which can serve as a bridge for fundamental research and clinical application, through which we cultivate medical professionals capable of implementing the most advanced medical technologies and contributing to the sophistication of medical care. We place a special focus on the cultivation of human resources capable of establishing medical care based on individual characteristics and enhancing patient-oriented nursing structures for the purpose of developing preventive medicine and therapies for an aging society with fewer children and establishing health and medical care sciences that respond to changes in lifestyles and the social environment.

#### ○ Integrative Oriental and Western Medical Sciences

The Division of Integrative Oriental and Western Medical Sciences carries out research to clarify the efficacy and mechanism of the action of Oriental medicine utilizing the most advanced technology in Western medicine with a goal of cultivating human resources who have broad perspectives and are capable of leading the fields of medicine and medical care using the knowledge of both Oriental and Western medicine.

### 4. List of Subjects

As is shown Appendix I.

### 5. List of Instructors and Areas of Research

As is shown in Appendix II .

## **6. Preferential Treatment**

Preferential treatment is extended to eligible students following submission of a study plan and consultation with their advisors. Preferential treatment allows students to schedule classes and research sessions in the evenings from 6:05 PM to 9:10 PM on weekdays (from Monday through Friday). Depending on the subject, classes and research time may be scheduled on Saturdays, during summer vacation, etc.

Time schedule for classes is listed below.

Class I: 8:45 – 10:15 AM

Class II: 10:30 – 12:00 AM

Class III: 1:00 – 2:30 PM

Class IV: 2:45 – 4:15 PM

Class V: 4:30 – 6:00 PM

Class VI: 6:05 – 7:35 PM

Class VII: 7:40 – 9:10 PM

## **7. Conferral of Degree**

### **○ Medical Life Science & Integrative Oriental and Western Medical Sciences**

(1) The degree offered is a Doctorate in Medical Science

(2) The requirement for the doctoral degree is enrollment in the University of Toyama Graduate School for a period of four or more years, 30 or more credits obtained in accordance with the (2) Degree Requirements listed in 2. Degree and Credit Requirements, receipt of the required research instruction, and successful completion of a screening of and final examination relating to their doctoral dissertation. However, a doctorate may be conferred on students who have been enrolled in a University of Toyama Graduate School for a period of three years or longer, who have achieved excellent research results, and who have met the prescribed requirements.

In addition, students may apply for an extension of the standard period for completion of the program (four years).

## Medical Life Science

Name of Subjects	Target Year	Credits			Remarks
		Required	Electives within the Major	Electives outside the major	
Cardiology	1 ~ 4		2		
Locomotor System-Regulation	1 ~ 4		2		
Neuro-Otology	1 ~ 4		2		
Oral Oncology	1 ~ 4		2		
Pain Management	1 ~ 4		2		
Cardiovascular Surgery	1 ~ 4		2		
Advanced study of brain science	1 ~ 4		2		
Molecular Pathophysiology of Gastroenterology	1 ~ 4		2		
Molecular Targets for Gastrointestinal Malignancy	1 ~ 4		2		
Endocrinology of Urogenital Organs	1 ~ 4		2		
Clinical and Molecular Pathomechanical Science	1 ~ 4		2		
Tumor pathology	1 ~ 4		2		
Molecular Radiation Oncology	1 ~ 4		2		
Surgical Oncology of Digestive System	1 ~ 4		2		
Infectious Prophylaxis	1 ~ 4		2		
Virology I	1 ~ 4		2		
Virology II	1 ~ 4		2		
Social Epidemiology	1 ~ 4		2		
Environmental Medicine	1 ~ 4		2		
Legal Medicine	1 ~ 4		2		
Life-style-related Diseases —Obesity, Metabolic Syndrome and Diabetes—	1 ~ 4		2		
Clinical Allergology	1 ~ 4		2		
Pathophysiology in Heart Failure	1 ~ 4		2		
Locomotor System-Functional Pathophysiology	1 ~ 4		2		
Pathology of Speech, Language and Hearing	1 ~ 4		2		
Electro Surgical Medicine	1 ~ 4		2		
Mechanisms of General Anesthetics	1 ~ 4		2		
Genetic Engineering of Embryos	1 ~ 4		2		
Theory and Practice in Medical Communication	1 ~ 4		2		
Therapeutics of Urogenital Tumors	1 ~ 4		2		

Biomolecular Information Processing	1 ~ 4		2		
Research Technique and Instrumental Analysis	1 ~ 4		2		
Bioorganic and Organic Structural Chemistry I	1 ~ 4		2		
Bioorganic and Organic Structural Chemistry II	1 ~ 4		2		
Cognitive Neuroscience	1 ~ 4		2		
Diagnostic pathology	1 ~ 4		2		
Advanced Course on Radiation Medical Sciences	1 ~ 4		2		
Special Lectures on Diagnostic Radiology	1 ~ 4		2		
Oncology Etiology	1 ~ 4		2		
Molecular Caediology	1 ~ 4		2		
Lecture of Human Immunodeficiency Virus Infection	1 ~ 4		2		
Theoretical Epidemiology	1 ~ 4		2		
Advanced course on lipid nutrition	1 ~ 4		2		
Biosynthesis of Blood Group Carbohydrate Chains and it's Gene Regulation	1 ~ 4		2		
Autoimmune Disease	1 ~ 4		2		
Advanced Infectious Immunology	1 ~ 4		2		
Laboratory Animals Science	1 ~ 4		2		
(Special lecture for) Regenerative Medicine	1 ~ 4		2		
(Special lecture for) Emergency and Disaster Medicine	1 ~ 4		2		
Resuscitation Medicine Healthcare	1 ~ 4		2		
Clinical and Molecular Oncology	1 ~ 4		2		
Function-based Molecular Immunology	1 ~ 4		2		
Function-based Cellular Immunology	1 ~ 4		2		
General Medicine	1 ~ 4	4			
Seminar for Medical Life Science	1 ~ 4	4			
Thesis Research for Medical Life Science	1 ~ 4	14			
Research Ethics and Methods	1 ~ 4			1	e-learning
Japanese Language • Culture for International Students	1 ~ 4			4	*For foreign students only
Total		22	106	5	

Integrative Oriental and Western Medical Sciences

Name of Subjects	Target Year	Credits			Remarks
		Required	Electives within the Major	Electives outside the major	
Neuropharmacology	1 ~ 4		2		
Functional Mechanisms of WAKAN-YAKU (Japanese Herbal Medicine)	1 ~ 4		2		
Physiology and pathology of the eye	1 ~ 4		2		
Dermatologic Allergology	1 ~ 4		2		
Reproductive Immunology	1 ~ 4		2		
Perinatal Medicine	1 ~ 4		2		
Control of Cardio-Respiratory System	1 ~ 4		2		
Strategy of Treatment in Japanese Oriental Medicine	1 ~ 4		2		
Introduction to Clinical Biostatistics	1 ~ 4		1		
Designing Clinical Research	1 ~ 4		1		
General Medicine	1 ~ 4	4			
Seminar for Integrative Oriental & Western Medical Sciences	1 ~ 4	4			
Thesis Research for Integrative Oriental & Western Medical Sciences	1 ~ 4	14			
Research Ethics and Methods	1 ~ 4			1	e-learning
Japanese Language · Culture for International Students	1 ~ 4			4	*For foreign students only
Total		22	18	5	

Appendix II

List of Instructors and Areas of Research

Medical Life Science

Department	Director	Areas of Research
Regenerative Medicine	Professor Toshio Nikaïdo	<ul style="list-style-type: none"> <li>• Histological research about tissue regeneration</li> <li>• Molecular biological research about tissue regeneration</li> <li>• Research about cancer stem cells</li> <li>• Histological and developmental research about placenta, amnion membrane and embryo-derived tissues</li> <li>• Tissue engineering using human cells</li> <li>• Research about immune cells related with immune-feedback mechanism- especially about microenvironments</li> <li>• Histological and morphological research using immunohistochemistry and electromicroscopes</li> </ul>
Molecular Immunology	N/A	
Clinical Infectious Diseases	Professor Yoshihiro Yamamoto	<ul style="list-style-type: none"> <li>• Establishing Surveillance System of MRSA with Molecular Microbiology</li> <li>• Exploring Factors for Selection of antimicrobials against Chronic Pseudomonas Infection</li> <li>• Analysis of Prognosticator of Non tuberculous Mycobacteriosis</li> <li>• Study of Drug-Resistance Mechanism of Deep-seated Fungus Infection</li> <li>• Gene Therapy for HIV infection</li> </ul>
Clinical Virology	Professor Kimiyasu Shiraki (will be retired in March 2018)	<ul style="list-style-type: none"> <li>• Pathogenesis of herpes zoster and elucidation of its pain</li> <li>• Latency and neurological diseases caused by human herpesviruses</li> <li>• Development of new anti-influenza drug of T-705</li> <li>• Mechanism of action of herbal medicines (Kakkon-to)</li> </ul>
Epidemiology & Health Policy	Professor Michikazu Sekine	<p>We conduct several longitudinal studies of Japanese adults and children. The Japanese civil servants study is an ongoing follow-up study of Japanese civil servants. This study is an international collaborative study with the British civil servants study (the Whitehall II study) and the Finnish civil servants study (the Helsinki Health Study). The Toyama study is a birth cohort study of approximately 10000 Japanese children. The Toyama dementia study is an ageing and gerontological study of approximately 1000 adults aged 65 or more.</p> <p>Postgraduate students become members of the research units and are involved in each step of epidemiological research (i.e. study planning, and conducting, data analysis, and manuscript writing and publishing).</p> <p>Current research topics are in the following.</p> <p>Socioeconomic and sex inequalities in physical and mental health of Japanese civil servants with international comparisons</p> <ul style="list-style-type: none"> <li>• Associations of psychosocial stress at work, work-life balances, health behaviors, and personality characteristics with health of Japanese civil servants with international comparisons</li> <li>• Associations of social environments, parental factors, and lifestyle factors with health (e.g. QOL, sleep quality, and obesity) of Japanese children</li> </ul> <p>Epidemiological study on dementia</p>

Public Health & Environmental Medicine	Professor Hidekuni Inadera	<ul style="list-style-type: none"> <li>• Epidemiological Study on Children's Environmental Health</li> <li>• Fundamental Study of Environmental Chemicals</li> <li>• Prevention of Life-style related Diseases</li> <li>• Occupational and Environmental Health</li> </ul>
Legal Medicine	Professor Naoki Nishida	<ul style="list-style-type: none"> <li>• Pathological and molecular analysis of sudden death in various conditions.</li> <li>• Pathology of cardiovascular and central nervous system by aging or various diseases.</li> <li>• Pathological and epidemiological study for preventing suicide.</li> <li>• Analysis of medical accident.</li> </ul>
Cardiology and Nephrology	Professor Koichiro Kinugawa	<ul style="list-style-type: none"> <li>• Establishment of optimization protocol for the treatment of heart failure using various biomarkers</li> <li>• Development of non-invasive home tele-monitoring system in order to minimization of re-hospitalization by heart failure</li> <li>• Mechanisms of sympathetic nerve inhibition by non-pharmacological therapy for heart failure</li> <li>• Introduction of novel staging of heart failure by cardiopulmonary function</li> <li>• Development of novel strategy for heart failure to alter cardiac-specific gene expression</li> <li>• Investigation of relationship between beta-adrenergic receptors and reversibility of myocardial remodeling</li> <li>• Exploitation of factors to determine the viability of renal collecting tubules</li> <li>• Effect of renal denervation on autonomic disorders in heart failure model</li> <li>• Mechanisms of onset of atrial fibrillation</li> </ul>
Pediatric Developmental Medicine	Professor Yuichi Adachi	<ul style="list-style-type: none"> <li>• Mechanisms of immunotherapy for allergic diseases</li> <li>• Association between allergic diseases and environmental factors</li> <li>• Genetic analysis of cardiac sudden death, fatal arrhythmia and cardiomyopathy</li> <li>• Neurodevelopmental outcome following cardiac surgery</li> <li>• Immunological diagnosis and treatment of childhood leukemia</li> <li>• Molecular mechanisms of the relationship between low birth weight and adult metabolic diseases</li> </ul>
Cardiothoracic Surgery	Professor Naoki Yoshimura	<ul style="list-style-type: none"> <li>• Surgical approach for arrhythmia</li> <li>• Clinical and biological research of lung cancer</li> <li>• Surgical approach for atherosclerosis</li> <li>• Surgery for ischemic heart disease</li> <li>• Mechanical assist for congestive heart failure</li> <li>• Surgery for congenital heart disease</li> </ul>
Orthopaedics and Locomotor System Science	Professor Tomoatsu Kimura	<ul style="list-style-type: none"> <li>• Developmental biology of cartilaginous tissues</li> <li>• Pathomechanism of joint and spine diseases</li> <li>• Regenerative medicine for cartilage and intervertebral disc</li> <li>• Genetic and clinical analysis of spinal disorders</li> <li>• Research on joint damage and therapeutic strategy for arthritic diseases</li> <li>• Bone and soft tissue tumors</li> </ul>
Otorhinolaryngology - Head and Neck Surgery	Professor Hideo Shojaku	<ul style="list-style-type: none"> <li>• Clinical and electrophysiological studies of inner ear disorders</li> <li>• Clinical application of amnion membrane in otolaryngology</li> <li>• Brain imaging in response to auditory, vestibular and olfactory stimulations</li> <li>• Development of minimally invasive examination in vestibular system</li> <li>• Clinical studies of diagnosis and treatment in head and neck cancer</li> </ul>

Anesthesiology and management during perioperative period	Professor Mitsuaki Yamazaki	<ul style="list-style-type: none"> <li>• Electrophysiological studies of anesthetics on central nervous system</li> <li>• Research on analgesic actions and side effects in analgesic agents</li> <li>• Research on mechanisms and medical treatments of neuropathic pain</li> <li>• Effects of anesthetics and cardiovascular agents on septic model</li> </ul>
Diagnostic Pathology	Professor Johji Imura	<ul style="list-style-type: none"> <li>• Analysis of the mechanisms to affect the invasion and/or the metastatic mechanism in the neoplastic cells.</li> <li>• Molecular pathological study about the mechanism on the construction and/or the polarity of neoplastic cells.</li> <li>• Molecular pathological study on the base of the pathological/cytological diagnosis.</li> <li>• Transcriptional mechanism in the neoplastic cells.</li> <li>• Acquiring the molecules in the neoplastic cells, and applying them for the pathological diagnosis.</li> <li>• Elucidation of the immune system abnormalities in the inflammatory bowel disease.</li> </ul>
Gastroenterology, Hematology and Medical Oncology	Professor Toshiro Sugiyama (will be retired in March 2018)	<ul style="list-style-type: none"> <li>• Carcinogenic mechanism of gastric cancer by H.pylori infection and the chemoprevention</li> <li>• Distribution and function of TRP family in gastrointestinal tract and the related functional diseases</li> <li>• Molecular mechanism of development of GIST</li> <li>• New intensive chemotherapy to GI cancer with RIST or PBSCT</li> <li>• Immuno-pathogenesis of inflammatory bowel diseases and identification of novel therapeutic target molecule</li> <li>• Mechanism from viral hepatitis and NASH to hepatocellular carcinoma</li> <li>• Immunomodulation for successful bone marrow transplantation in hematopoietic malignancy</li> </ul>
Diagnostic and Therapeutic Radiology	Professor Kyo Noguchi	<ul style="list-style-type: none"> <li>• Development of new CT imaging technique for brain diseases</li> <li>• Development of new MR imaging technique for brain diseases</li> <li>• Assessment of brain function by MR imaging Assessment of therapeutic response of tumor by functional imaging</li> </ul>
Department of Surgery & Science	Professor Tsutomu Fujii	<ul style="list-style-type: none"> <li>• Clinicopathological analysis of the progression of gastrointestinal cancer</li> <li>• Molecular-biological analysis of human cancers</li> <li>• Analysis of biological response and its regulation of the surgical stress</li> <li>• Clinical research for gastrointestinal and endocrine cancer</li> <li>• Biomarker research on gastrointestinal cancer, and development of precision medicine</li> <li>• Development of novel surgical technique</li> </ul>
Urology	Professor Hiroshi Kitamura	<ul style="list-style-type: none"> <li>• Biomarker research on urological cancers</li> <li>• Development of immunotherapy for urological cancers</li> <li>• Cancer stem cell research on urologic cancers</li> <li>• Growth factor research on prostate cancer</li> <li>• Basic research on impaired spermatogenesis</li> <li>• Research on vascular epithelial cells in erectile dysfunction</li> <li>• Research on Heat Shock Protein in acute/chronic rejection after renal transplantation</li> </ul>
Comprehensive Oral Sciences	Professor Makoto Noguchi	<ul style="list-style-type: none"> <li>• Bone invasion of oral cancer and local immune system</li> <li>• Immunosuppressive population in oral cancer microenvironment</li> <li>• Novel strategy for management of oral cancer targeting on cancer stem cells</li> <li>• Mechanism of jaw osteonecrosis induced by bone-modifying agents</li> <li>• Regenerative medicine in oral and maxillofacial reconstruction</li> <li>• Rehabilitation of oral functions</li> </ul>

Clinical Laboratory and Molecular Pathology	Professor Isao Kitajima	<ul style="list-style-type: none"> <li>• Development of a rapid measurement system for Nuclear factor-kappa B. NF-κB is a transcription factor, which regulates various processes of acute and chronic inflammatory diseases. NF-κB activity correlated with some of the biomarkers in metabolic syndrome and infectious diseases. To measure the NF-κB activity in lymphocytes isolated from patients, we are developing a rapid measurement system using fluorescence correlation spectroscopy (FCS). This system would provide a new clinical index to monitor inflammatory conditions.</li> <li>• Acquiring the earliest possible identification of pathogenic microorganisms is critical for selecting the appropriate antimicrobial therapy in infected patients. We herein report the novel "melting temperature (T<sub>m</sub>) mapping method" for rapidly identifying the dominant bacteria in a clinical sample from sterile sites.</li> </ul>
Crisis Medicine and Patient Safety	Professor Hiroshi Okudera	<ul style="list-style-type: none"> <li>• Fundamental and Applied Research of Crisis Medicine</li> <li>• Basic and Clinical Research of Neurological Resuscitation</li> <li>• Field Study of Mass Gathering Medicine</li> <li>• Investigation of Regional Resource Management on Emergency System in Japan</li> <li>• Development of Japan Triage and Acuity Scale (JTAS)</li> <li>• Education Course of Crisis Medicine</li> <li>• Ethical issues in Patient Safety Research</li> </ul>
Diabetes and metabolism, rheumatic and respiratory diseases	Professor Kazuyuki Tobe	<ul style="list-style-type: none"> <li>• Dissection of the pathogenesis of type 2 diabetes and metabolic syndrome. Development of the methods to treat and prevent them.</li> <li>• Dissection of genetic factors of type 2 diabetes, rheumatoid arthritis and asthma. Development of tailor-made therapy.</li> <li>• The role of Sirtuin family proteins, longevity genes, in the development of metabolic syndrome and type 2 diabetes.</li> <li>• Dissection of the pathogenesis of rheumatic diseases, lung and rheumatic diseases.</li> <li>• The development of methods to detect lung cancers at an earlier stage.</li> <li>• The effects of gut microbiome on glucose metabolism.</li> </ul>
Neurology	Professor Yuji Nakatsuji	<ul style="list-style-type: none"> <li>• Investigation of the pathomechanisms of multiple sclerosis/NMO to establish new prophylactic and therapeutic strategies.</li> <li>• Development of novel prophylaxis and therapies against neurological diseases by means of intestinal immunity.</li> <li>• Investigation of biomarkers for the diagnosis and treatment of neurological diseases.</li> </ul>
Clinical Oncology	Professor Ryuji Hayashi	<ul style="list-style-type: none"> <li>• The research of cancer immunology, the role of Sirt1 family protein for the marrow derived suppressor cells.</li> <li>• The research of lung cancer development based on COPD or interstitial pneumonia.</li> <li>• The uncovering of the risk factors for lung cancer development in nonsmokers.</li> <li>• The effect of palliative therapy on prognosis of cancer patients.</li> <li>• The role of tertiary hospital and clinics correlation on clinical care for cancer patients.</li> </ul>

Integrative Oriental and Western Medical Sciences

Department	Director	Areas of Research
Molecular and Medical Pharmacology	Professor Yuichi Hattori	<ul style="list-style-type: none"> <li>▪ Search for therapeutic agents to treat septic syndrome using animal models</li> <li>▪ Development of prevention and treatment of diabetic cardiovascular complications that specifically target endothelial dysfunction</li> <li>▪ Analysis of pathological regulatory mechanisms on intestinal mucosal inflammation</li> </ul>
Dermatology	Professor Tadamichi Shimizu	<ul style="list-style-type: none"> <li>▪ Mechanism of the inflammatory skin diseases including atopic dermatitis</li> <li>▪ Mechanism of photoaging and photocarcinogenesis</li> <li>▪ Pathology of the skin lymphoma</li> <li>▪ Molecular mechanism of keratinization</li> <li>▪ Mechanism of the wound healing</li> </ul>
Obstetrics and Gynecology	Professor Shigeru Saito	<ul style="list-style-type: none"> <li>▪ Basic reproductive immunology and clinical reproductive immunology</li> <li>▪ Reproductive endocrinology and cytokine network</li> <li>▪ Growth and differentiation of trophoblast</li> <li>▪ Clinical pathology in gynecological cancer</li> <li>▪ Preterm labor</li> <li>▪ Preeclampsia</li> <li>▪ Recurrent pregnancy loss</li> </ul>
Ophthalmology	Professor Atsushi Hayashi	<ul style="list-style-type: none"> <li>▪ Inhibition of ocular angiogenesis and drug delivery</li> <li>▪ Ophthalmic application of hyper-dried amniotic membrane</li> <li>▪ Rapid diagnosis and treatment of ocular infectious diseases</li> <li>▪ Neuroprotection of retinal degeneration</li> <li>▪ Gene expression and biomarker research on ocular tumors</li> </ul>
Japanese Oriental Medicine (Kampo Medicine)	Professor Yutaka Shimada	<ul style="list-style-type: none"> <li>▪ Improving effects of Kampo medicines and their action mechanisms on microcirculation, vascular endothelial dysfunction and arteriosclerosis, etc.</li> <li>▪ Protective effects of Kampo medicines and their action mechanisms on cell and organ damages induced by neurological, hypertensive and diabetic diseases, etc.</li> <li>▪ Immunomodulating and defensive effects of Kampo medicines and their action mechanisms on immunological, allergic and infectious diseases, etc.</li> </ul>
Biostatistics and Clinical Epidemiology	Professor Hideki Origasa	<ul style="list-style-type: none"> <li>▪ Statistical analysis of clinical trials data and epidemiological data</li> <li>▪ Development and evaluation of risk prediction models</li> <li>▪ Meta-analysis: methods and applications</li> <li>▪ QOL evaluations: methods and applications</li> <li>▪ Pharmaco-epidemiological research</li> <li>▪ Research on statistical education</li> </ul>