For entrants in FY 2018

Appended Form 1

Specifications for Major Program

Name of School (Program) [School of Pharmaceutical Sciences (Program of Pharmaceutical Sciences)]

Program name (Japanese)	薬学プログラム
(English)	Program of Pharmaceutical Sciences

1. Degree to be obtained: Bachelor of Pharmacy

2. Overview

The Program of Pharmaceutical Science aims to enable students to acquire the deep humanity and wide-ranging intelligence required to become a suitable practitioner in the field of the improvement of human health and welfare, to obtain fundamental knowledge, skills, and attitudes for working as a specialist, and to gain the capability to exercise scientific thinking abilities and creativity. Specifically, this program provides students education to allow them to acquire 1) the fundamental knowledge and skills required to become pharmacists who are capable of understanding and diagnosing a patient's condition, of judging prescriptions, and of taking responsibility for appropriate use of medicines and medical supplies; 2) the advanced skills required for exercising their creative thinking abilities to try to solve new problems actively and autonomously, as well as the opportunity to exercising those skills experimentally; 3) the advanced medical knowledge required to foster skills as pharmacists who have a high level of expertise and are capable of taking part in discussion in team medical care from a scientific point of view; and 4) the ethics and improved communication skills required of a clinical pharmacist.

This program is (highly systematically) designed to educate students to advance to graduate school and to acquire advanced knowledge and skills as expert pharmacists and ethics as medical staff, to join a trainee program in a medical institution to become pharmacists practically engaged in medical work, or to work as a researchers engaged in such fields as the development of new medicine in a pharmaceutical company or experts who work in public offices related to welfare and healthcare, including school pharmacists who are trusted by the community.

3. Diploma policy (policy for awarding degrees and goal of the program)

The Program of Pharmaceutical Science will approve the graduation of, and award the degree bachelor of pharmacy to, students who have acquired the capabilities described below, and earned the required credits defined for the educational course:

1) The fundamental skills and wide-ranging intelligence required for studying pharmacy, such as those related to physics, chemistry, biology, mathematics, and psychology for medical staff;

2) The fundamental knowledge and skills regarding such things as major reactions, separation methods, and structure determination methods, that are required for understanding the reactivity of chemical substances including medicines and biological materials, and the ability to explain and exercise that knowledge and those skills;

3) The fundamental knowledge and skills regarding the structure and mechanisms of function coordination in living bodies that are required for understanding the constitution of the living body at various levels, such as the individual body, an organ in the body, and a cell in the organ, and ability to explain and exercise that knowledge and those skills;

4) The fundamental knowledge, skills, and attitude regarding such matters as the effect of a medicine on a disease, mechanisms of action, and metabolic end result that are required for understanding the processes of the pharmacological

action of medicines, and the ability to explain and exercise that knowledge, those skills, and that attitude;

5) The capability to understand basic and applied knowledge of drug therapy, and to explain the standard methods of drug therapy for major diseases of every organ;

6) Fundamental knowledge, skills, and attitude regarding the effect of medicines and chemical substances on a human being and the effect of living environment and global ecosystem on human health, and the ability to explain and exercise that knowledge, those skills, and that attitude;

7) The fundamental knowledge, skills, and attitude regarding pharmacy itself, laws and institutions related to medicines, and economics and pharmacy businesses that are required for understanding the responsibilities and duties of pharmacists in society, and the ability to explain and exercise that knowledge, those skills, and that attitude;

8) The fundamental knowledge, skills, and attitude for the dispensing, formulation, and explanation of medicine instructions required for working as a member of a medical team, and the ability to explain and exercise that knowledge, those skills, and that attitude;

9) The ability to identify problems, and to indicate a way of solving them, to work as pharmacists who can flexibly cope with various needs of medical workers;

10) The fundamental capability to identify new information and knowledge, and to autonomously improve one's ability, in order to keep up with progress in pharmacology and medical areas; and

11) An understanding of the importance of development of juniors medical staff, and the ability to contribute to it by educating the pharmacists of the next generation.

4. Curriculum policy (policy for arranging and implementing the curriculum)

In the Program of Pharmaceutical Science, based on the program's educational philosophy, the curriculum (educational course) is arranged according to the policies described below in order to develop medical staff who have deep humanity and wide-ranging intelligence.

1) To allow students to acquire fundamental knowledge and basic study ability in a wide variety of areas, the curriculum provides the peace study subjects, fundamental subjects for university education, disciplinary subjects, foreign language subjects, information subjects, health and sports subjects, society-related subjects, and fundamental subjects, structured in such a way as to provide those subjects to the whole university;

2) To allow students to systematically learn the specialized methodology and knowledge, the curriculum provides subjects for early experience, humanism in communication, the structure and characteristics of materials, natural medicine resources, and the mechanisms and functionality of living bodies as specialized fundamental subjects;

3) The curriculum provides subjects regarding the effect of medicines, the pharmacokinetics of medicines, health and environment, the formulation and management of medicines, diseases and pathology, the business of pharmacists, laws related to medicines, and experimentation skills;

4) The curriculum provides a preparatory course for clinical exercises in the second semester in the fourth academic year, as a part of the practical education for pharmacists. Also, clinical exercises are provided for students who pass the common achievement examination after finishing the preparation course;

5) To allow students to integrate acquired knowledge and skills, and develop their scientific thinking abilities for solving problems and creating new value, the curriculum provides detailed guidance and instruction for graduation research that is performed by students as a required subject. Also an environment supportive of the graduation research of junior researchers is promoted;

6) Certain criteria are established for the allocation of students to laboratories, and for qualification for common achievement examinations; and

The achievement in education is evaluated based on grade scores for the subjects, and the level of achievement against the target defined for the Program of Pharmaceutical Science.

5. Start time and acceptance conditions

Students select (start) this program in the first year.

6. Obtainable qualifications

a) Qualification for national examination for pharmacists

b) Public health laboratory technician, technical supervisor in the office for the manufacture, import, and sale of medical devices, technical manager in a waste disposal plant, pollution control manager related to noise, dust, and vibration pollution, technical manager of environmental sanitation for buildings, and technical administrator for waterworks

7. Class subjects and their contents

For class subjects, refer to the subject table in Sheet 1. (The subject table is to be attached.)

For the details of the class subjects, refer to the syllabus that is published each academic year.

8. Academic achievement

The evaluation criteria are specified for each evaluation item for academic achievement, and the achievement level against these criteria is designated for each academic year.

The academic achievement, from when the student enters our university to the end of the last semester, is represented based on the average of evaluation scores for each evaluation item. The evaluation score for each subject is converted to a numerical value (S = 4, A = 3, B = 2, and C = 1) and the evaluation standard for the academic achievement is determined using these values while applying weightings.

Achievement evaluation	Numerical conversion
S (Excellent:90 or more points)	4
A (Very good: 80 - 89 points)	3
B (Good: 70 - 79 points)	2
C (Passed: 60 - 69 points)	1
Academic achievement	Evaluation standard
Excellent	3.00 - 4.00
Very Good	2.00 - 2.99
Good	1.00 - 1.99

* Refer to the relationship between evaluation items and evaluation criteria described in Sheet 2.

* Refer to the relationship between evaluation items and class subjects described in Sheet 3.

* Refer to the curriculum map in Sheet 4.

9. Graduation thesis (graduation research) (meaning, student allocation, timing, etc.)

○ Purpose

To enable students, through a topic of research, to acquire the capabilities for identifying something new, and solving problems based on a scientific point of view, required for comprehensively understanding pharmaceutical knowledge and contributing to the medical realm, as well as the attitude to endeavor to improve their capabilities throughout their

lives.

Students present the results of their research at the graduation thesis presentation assembly that is held in the middle of December in the sixth year.

○ Overview

1. Attitude required for research activity

Students are expected to understand the basic philosophy and attitude required for joining in research activities in the future.

2. Studying research activity

Students are expected to experience a series of research processes to achieve the aims of the research, and to acquire the basic knowledge, skills, and attitude required for research activities, in order to become capable of performing research by themselves in the future.

3. Encounter with undiscovered things

Students are expected to experience pleasure in research activities that consists of the joy of invention and discovery in their own research.

○ Student allocation timing and method

Students are allocated to the laboratory in the second semester of the third year. The allocation method and requirements are defined separately.

10. Responsibility

(1) Responsibility for PDCA (plan, do, check, and act) cycle

・ The faculty committee of the Program of Pharmaceutical Science (head: Koichiro Ozawa (who is in charge of educational affairs) is engaged in the processes of "plan" and "do."

・ For the processes of "check" and "act", the dean of the school consults with the responsible committee and carries out the required actions while taking the results of consultations into consideration.

(2) Evaluation of the program

・ Perspectives for evaluation of the program

This program is evaluated from the perspectives of "educational effectiveness" and "social effectiveness." The "educational effectiveness" is evaluated by the effects of implementation of the program on the educational achievement of students, based on such things as evaluation scores, evaluation of achievement, and GPA. The "social effectiveness" is evaluated by the social effectiveness of the program.

・Evaluation method (also describes relation to class evaluation)

In this program, achievement in the program is evaluated from the perspectives described above for students in the second semester of the sixth year. Also, it is evaluated for each year, taking evaluation by students into consideration by conducting questionnaires for students to evaluate the program each semester.

The "educational effectiveness" is comprehensively evaluated based on such things as the evaluation scores, evaluation of achievement, and GPA of the students who took the program.

The "social effectiveness" is evaluated based on such things as the rate of employment in hospitals, pharmacies, corporations (such as pharmaceutical companies) and public offices that have a close connection with the contents of this program. We regularly request a member of human resources staff in an organization that employs mainly students of this program to evaluate the program. In addition, we request graduates of this program to evaluate their own achievement and that of the program.

・Policy and method for feedback to students

The committee responsible regularly conducts inquiries and interviews of students in order to review and evaluate the program, submits the improvement plans for the program to the education evaluation committee, and reports the results of the plan to the bachelor course committee. Also, individual class subjects are reviewed and evaluated based on such things as evaluation of lectures by students, and the results of program evaluation, in order to improve the program. Results of the processes described above are fed back to students via the MOMIJI service. For comments provided by students in questionnaires for the evaluation of lectures, feedback is provided via the class improvement questionnaire in MOMIJI.

Table of Registration Standards for Liberal Arts Education Subjects

Program of Pharmaceutical Sciences

Type	Subject type				Required No. of credits	Class subjects, etc.	No. of credits	Type of course registration	Year in which the subject is taken(Note 1)									
									1st grade		2nd grade		3rd grade		4th grade		5th grade	6th grade
									Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Liberal Arts Education Subjects	Peace Science Courses				2		2	Required			○							
	Common subjects	Basic Courses in University Education	Introduction to University Education		2	Introduction to University Education	2	Required	○									
			Introductory Seminar for First-Year Students		2	Introductory Seminar for First-Year Students	2	Required	○									
		Area Courses			4	Courses in Arts and Humanities/SocialSciences	2	Elective/required	○	○								
			(Note 8)		4	Courses in Natural Sciences	2	Elective/required		○								
		Foreign Languages	English (Note 2)	Communication Seminar	2	Communication Seminar I	1	Required	○									
						Communication Seminar II	1			○								
				Communication I	2	CommunicationIA	1	Required	○									
						Communication IB	1		○									
				Communication II	2	Communication IIA	1	Required		○								
						Communication IIB	1			○								
				Communication III	2	Communication IIIA	1	Elective/required			○	○						
						Communication IIIB	1				○	○						
						Communication IIIC	1				○	○						
						2 subjects from the three subjects above												
			Non-English Foreign Languages (Select one language from German, French and Chinese)(note 3)		0	Basic Foreign Language I	1	Free elective	○									
						Basic Foreign Language I	1		○									
						Basic Foreign Language II	1			○								
						Basic Foreign Language II	1			○								
		Information Courses			2	Elements of Information Literacy(Note 4)	2	Required	○									
		Health and Sports Courses			2		1or2	Elective/required	○	○								
		Social Cooperation Courses			0		1or2	Free elective	○	○								
	Foundation Courses				6	Psychology for Medical Care Workers(Note 5)	2	Required		○								
						Statistics	2			○								
						Anatomy for understanding human being I	1			○								
						Anatomy for understanding human being II	1			○								
					2	Foundation physics for life science(Note 6)	2	Elective/required	○									
						Foundation biology for life science(Note 7)	2		○									
					4	Species Biology	2	Elective/required	○									
						Basic Calculus	2		○									
						Basic Linear Algebra	2			○								
						2 subjects from the three subjects above												
Total(Liberal Arts Education Subjects)					38													

Note 1: The indicated semester represents that in which students typically take the subject. If they have failed to earn the credit in the semester, it is allowed to take the subject after the semester. It is required to confirm the semester in which the subject is provided in the class schedule for liberal arts education subjects that is published every academic year, because some subjects might be provided in a semester other than that which is shown in this document.

Note 2: The credits for "Field Research in the English-speaking World" that are earned through such activities as a short-term study abroad, and those for "Online English Seminar A" and "Online English Seminar B" that are earned through a program of self-study, are accepted as the credit for English required for graduation (8 credits). Achievement in a foreign language skill test and language training might be accepted as credit. For the details, refer to the description regarding English subjects in the liberal arts education and the item "Credit based on Achievement in Foreign Language Skill Test" in the Students Handbook.

Note 3: Although 4 credits of "Basic Foreign Language" are not included as those required for graduation, it is recommended to earn those credits.

Note 4: It is required to take the subject "Elements of Information Literacy" that is provided in the first year. Only when failing to earn the credit for "Elements of Information Literacy" is the credit for the subject "Exercise in Information Literacy" accepted as that for the information subjects required for graduation (2 credits).

Note 5: It is required to take the subject "Psychology for Medical Care Workers" that is provided in the first year. Only when failing to earn the credit for "Psychology for Medical Care Workers" is the credit for the subject "Psychology A" or "Psychology B" accepted as that for the information subjects required for graduation (2 credits).

Note 6: Students who did not take the subject "Physics" in the National Center Test for University Admissions are required to take the subject "Foundation physics for life science."

Note 7: Students who did not take the subject "Biology" in the National Center Test for University Admissions are required to take the subject "Foundation biology for life science."

Note 8: Of the 4 credits required for the disciplinary subjects (Courses in Arts and Humanities/SocialSciences), 2 credits are required to be earned for the subject "Ethics."

Table of Registration Standards for Liberal Arts Education Subjects

Program of Pharmaceutical Sciences

Type	Subject type	Lesson Style	Required No. of credits	Class subjects, etc.	No. of credits	Type of course registration	Year in which the subject is taken											
							1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade	
							Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Specialized Education Subjects	Basic Specialized Subjects	Lecture	42	Introduction to Pharmaceutical Sciences	2	Required		②										
				General Chemistry	2			②										
				Pharmaceutical Analysis	2			②										
				Nuclear Pharmacy	2				②									
				Organic Chemistry ⅠA	1				①									
				Organic Chemistry ⅠB	1				①									
				Biochemistry Ⅰ	2				②									
				Biochemistry Ⅱ	2				②									
				Biological Chemistry Ⅲ	2				②									
				Public Health Chemistry Ⅰ	2				②									
				Basic Kampo Medicine	2				②									
				Microbiology	2				②									
				Public Health Chemistry Ⅱ	2				②									
				Pharmaceutical Physical Chemistry	2				②									
				Bio-Analytical Science	2				②									
				Natural Products Chemistry	2					②								
				Biological Chemistry Ⅳ	2					②								
				Biopharmaceutics	2					②								
				Biochemistry Ⅴ	2					②								
				Organic Chemistry ⅡA	1					①								
				Organic Chemistry ⅡB	1					①								
				Pharmacology Ⅰ	2					②								
				AnOutline of Pathology	2								②					
			Total(Basic Specialized Subjects)		42			6	22	12			2					
	Specialized Subjects	Seminar	4	Japanese Pharmacopoeia	2	Required											②	
				Research Practice A	1						①							
				Research Practice B	1							①						
			(2)	Practice for clinical food science	2	Free elective							2					
			Total(Seminar)		6						1	1	2				2	
		Lecture	(2)	Clinical food science	2	Free elective							2					
			60	Herbal medicine & Kampo medicine	2	Required					②							
				Pharmacokinetics	2						②							
				Biochemistry Ⅵ	2						②							
				Biophysical Chemistry	2						②							
				Antibiotics and Drug resistance	2						②							
				Physiological Chemistry	2						②							
				Organic Chemistry Ⅲ	2						②							
				Medicinal Organic Chemistry	2						②							
				Pharmacology Ⅱ	2						②							
				Industrial Pharmaceutics	2							②						
				Cell Motility	2							②						
				Genetic Engineering	2							②						
				Organic Chemistry Ⅳ	2							②						
				Public Health Chemistry Ⅲ	2							②						
				Biological Statistics	2							②						
				Pharmacology Ⅲ	2							②						
				Clinical Pharmacy	2								②					
				Clinical Medicine and Pharmacotherapy Ⅰ	2								②					
				Pharmacotherapy A	2								②					
				AnOutline of Immunology	2								②					

Type	Subject type	Lesson Style	Required No. of credits	Class subjects, etc.	No. of credits	Type of course registration	Year in which the subject is taken											
							1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade	
							Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Specialized Education Subjects	Specialized Subjects	Lecture	60	Clinical Medicine and Pharmacotherapy II	2	Required							②					
				Pharmaceutical Affairs Related Laws	2								②					
				Clinical Pharmacology A	2									②				
				Pharmacotherapy B	2									②				
				Drug Informatics	2									②				
				Clinical Medicine and Pharmacotherapy III	2									②				
				Clinical Pharmacology B	2										②			
				Clinical Pharmacology C	2										②			
				Pharmacoeconomics	2										②			
				Clinical Evaluation	2											②		
			Total(Lecture)		62						18	14	14	8	8			
		Practice	33	Experiments in Analytical Chemistry	1	Required				①								
				Training of Physical Chemistry	1					①								
				Experiments in Organic Chemistry	1					①								
				Experiments of Cellular and Molecular Biology	1					①								
				Experiments of Biological Chemistry	1					①								
				Experiments of Pharmacognosy	1						①							
				Experiments of Microbial Chemistry	1						①							
				Pharmacology Practice	1						①							
				Practice of Pharmaceutics	1						①							
				Experiments of Public health Chemistry	1						①							
				Pharmacy Practice	3									③				
				Clerkship in Clinical Pharmacy A	10										⑩			
				Clerkship in Clinical Pharmacy B	10										⑩			
			Total(Practice)		33					5	5			3	20			
		Special Study for Graduation	10	Special laboratory Works in Pharmaceutical Sciences I	2	Required							②					
				Special laboratory Works in Pharmaceutical Sciences II	2								②					
				Special laboratory Works in Clinical Pharmacy I	2										②			
				Special laboratory Works in Clinical Pharmacy II	2										②			
				Special laboratory Works in Clinical Pharmacy III	2										②			
			Total(Special Study for Graduation)		10								4		6			
			Total(Specialized Subjects)		111					5	24		46		36			
			149	Total(Specialized Education Subjects)	153													

NOTE: The number enclosed in a circle indicates a required subject.

Graduation requirement	Required No. of credits
Liberal Arts Education Subjects	38
Specialized Education Subjects	149
Basic Specialized Subjects	42
Required Subjects	42
Specialized Subjects	107
Required Subjects (Seminar)	4
Free elective subjects (Seminar)	(2)
Free elective subjects (Lecture)	(2)
Required Subjects (Lecture)	60
Required Subjects (Practice)	33
Required Subjects (Special Study for Graduation)	10
Total	187

Academic achievements of Pharmaceutical Sciences Program

Relationships between the evaluation items and evaluation criteria

Academic achievements			Evaluation criteria		
Evaluation items			Excellent	Very Good	Good
Knowledge and Understanding	(1)	To have a wide range of knowledge of liberal arts as well as basic understanding and knowledge of natural science and social science.	1. Being able to clearly explain from medical point of view about general education subjects along with natural science and social science. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to clearly explain about general education subjects along with natural science and social science. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain about general education subjects along with natural science and social science. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(2)	The basic knowledge and understanding of basic structures, physical characters and reaction of medicine and other inorganic and organic compounds. ●quality ⑤	1. Being able to explain clearly from medical point of view about the basic structure, physical characteristics and reaction of medicine and inorganic and organic compounds. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to explain clearly about the basic structure, physical characteristics and reaction of medicine and inorganic and organic compounds. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain about the basic structure, physical characteristics and reaction of medicine and inorganic and organic compounds. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(3)	Knowledge and understanding of the biological maintenance system of homeostasis and the ability to adjust to the environment. ●quality ⑤	1. Being able to clearly explain from medical point of view about maintenance mechanism of ecosystem homeostasis and dynamic adjustment. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to clearly explain about maintenance mechanism of ecosystem homeostasis and dynamic adjustment. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain about maintenance mechanism of ecosystem homeostasis and dynamic adjustment. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(4)	Fundamental knowledge・understanding about proper drug treatment for major diseases related to various organ. ●quality ⑥	1. Being able to comprehensively explain appropriate medication to major diseases relating to various organs from medical point of view. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to comprehensively explain appropriate medication to major diseases relating to various organs. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain appropriate medication to major diseases relating to various organs. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(5)	Understanding concerning preservation of the eco system and life environment, causes of environmental pollutants, and their influences on humans. ●quality ⑦	1. Being able to explain from medical point of view about ecosystem, preservation of living environment, components of environmental contamination, and human effects. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to clearly explain about ecosystem, preservation of living environment, components of environmental contamination, and human effects. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain from about ecosystem, preservation of living environment, components of environmental contamination, and human effects. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(6)	Knowledge and understanding about rational analyses of pharmacokinetics in order to to understand quantitatively madicinal effects or side effects. ●quality ⑥	1. Being able to comprehensively explain from medical point of view about the logical analysis of pharmacokinetics to understand medical effects and side effects quantitatively.	1. Being able to comprehensively explain the logical analysis of pharmacokinetics to understand medical effects and side effects quantitatively. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain the logical analysis of pharmacokinetics to understand medical effects and side effects quantitatively. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(7)	The knowledge and understanding of communication with medical teams relating to medication. ●quality ③ ④	1. Being able to make communication with other medical staff on medication as a member of medical team. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to make communication with other medical staff on medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain to other medical staff on medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.

Academic achievements			Evaluation criteria		
Evaluation items			Excellent	Very Good	Good
Knowledge and Understanding	(8)	Improving English comprehension to acquire capacity of medical or chemical English.	The level of achievement will be assessed based on a formula that includes the average points calculated based on the student's TOEIC score and an evaluation in class. 80% is minimum.	The level of achievement will be assessed based on a formula that includes the average points calculated based on the student's TOEIC score and an evaluation in class. 70% is minimum.	The level of achievement will be assessed based on a formula that includes the average points calculated based on the student's TOEIC score and an evaluation in class.
	(9)	The ability of considering basic pharmacological effects of medicine to chemical structure. ●quality ⑤	1. Being able to explain basic medical effects relating to chemical structures of medicine. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to enumerate and explain basic medical effects and chemical structures of medicine. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain basic medical effects and chemical structures of medicine. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(10)	Abilities・skills of citing speculated major diseases from aberration of clinical test values. ●qualities⑥	1. Being able to enumerate and explain major diseases assumed from abnormal clinical scores. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to enumerate and explain basic points of major diseases assumed from abnormal clinical scores. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain basic points of major diseases assumed from abnormal clinical scores. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
Abilities and Skills	(1)	Abilities of collecting necessary information of drug treatment her/him self. ●quality ⑥	1. Being able to collect necessary information on medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to enumerate and explain basic points necessary for medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain basic points necessary for medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(2)	Being able to search for toxic doses, targeted organs, symptoms of poisoning, emergency procedure and detoxication of chemical substances. ●quality ⑦	1. Being able to explain and search for measures on poisoning, targeted organs, poisoning symptoms, emergency treatments and detoxification of chemical substances. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to search for measures on poisoning, targeted organs, poisoning symptoms, emergency treatments and detoxification of chemical substances. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain search measures on poisoning, targeted organs, poisoning symptoms, emergency treatments and detoxification of chemical substances. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(3)	Abilities・skills of thinking ways of coping to reduce harmful effects(side effects) of madicine. ●quality ⑤	1. Being able to enumerate basic matters relating to measures to decrease harmful effects (side effects) of medicine and conduct ways of solution. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to enumerate basic matters relating to measures to decrease harmful effects (side effects) of medicine and explain ways of solution. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to enumerate basic matters relating to measures to decrease harmful effects (side effects) of medicine and explain them. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(4)	To be able to handle major analysis methods written in the Japanese Pharmacopoeia. ●quality ⑤	1. Being able to construct experimental ways and analyze representative official medicine of Japanese Pharmacopoeia. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to analyze representative official medicine of Japanese Pharmacopoeia. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to analyze representative official medicine of Japanese Pharmacopoeia. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(5)	Using available compounds as starting materials, to be able to handle organic synthesis in order to chemically transform medicine into a target substance. ●quality ⑤	1. Being able to plan organic synthesis to have chemical conversion into desired compounds including medicine from compounds hard to get and synthesize them. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to conduct organic synthesis to have chemical conversion into desired compounds including medicine from compounds hard to get. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to use basic techniques of organic synthesis to have chemical conversion into desired compounds including medicine from compounds hard to get. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.

Academic achievements			Evaluation criteria		
Evaluation items			Excellent	Very Good	Good
Abilities and Skills	(6)	Using available compounds as starting materials, to be able to handle organic synthesis in order to chemically transform medicine into a target substance. ●quality ⑤	1. Being able to plan organic synthesis to have chemical conversion into desired compounds including medicine from compounds hard to get and synthesize them. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to conduct organic synthesis to have chemical conversion into desired compounds including medicine from compounds hard to get. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to use basic techniques of organic synthesis to have chemical conversion into desired compounds including medicine from compounds hard to get. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(7)	Ability and skills to measure drug blood level concerning major drugs. ●quality ⑥	1. Being able to construct experiment plan to measure representative drug blood level and measure them. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to measure representative drug blood level. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to conduct basic techniques to measure representative drug blood level. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(8)	The ability and skills of communication with medical teams relating to medication. ●quality ③ ④	1. Being able to make communication with other medical staff on medication as a member of medical team. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to make communication with other medical staff on medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain to other medical staff on medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(9)	The ability and skills to appropriately deal with contraindication or inappropriate treatments of medicine. ●quality ⑥	1. Being able to appropriately deal with contraindications or inappropriate prescription of medicine by themselves. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to appropriately deal with contraindications or inappropriate prescription of medicine. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain appropriate measures to contraindications or inappropriate prescription of medicine. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
Attitudes	(1)	Self-betterment of character formation as a medical professional : the appropriate action and attitude being aware of that a pharmacist is a professional relating to human life. The knowledge and understanding to have communication not only with ailing people but with other medical staff in a medical team. ●quality ① ② ③ ④ ⑨	1. Being aware that a pharmacist is a professional relating to human life, being able to have an attitude to take the appropriate mind and make appropriate communication not only with ailing people but with patients and other medical staff as a member of a medical team. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being aware that a pharmacist is a professional relating to human life, Bing able to have an attitude to take the appropriate mind and make communication not only with ailing people but with patients and other medical staff as a member of a medical team. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being aware that a pharmacist is a professional relating to human life, having had an attitude to take the appropriate mind and make communication not only with ailing people but with patients and other medical staff as a member of a medical team. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(2)	Ability to be a pharmacist who is relied on not only by a medical team but also by citizens; the ability to be considerate of patients. ●quality ① ② ④	1. Being able to always keep the existence of patients and take action to become a reliable pharmacist not only from medical teams but also from national people. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to always keep the existence of patients and try to take action to become a reliable pharmacist not only from medical teams but also from national people. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to always keep the existence of patients and explain necessary matters to become a reliable pharmacist not only from medical teams but also from national people. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.

Academic achievements			Evaluation criteria		
Evaluation items			Excellent	Very Good	Good
Comprehensive Abilities	(1)	Comprehensive problem-solving ability and educational ability: Concerning the influences caused by numerous chemical substances existing on the earth, to be able to analyze and argue about the survival of the human race. Also, to have the ability and skills to give instruction to youth. ●quality ⑤ ⑩	1. Being able as a pharmacist or medical researcher to analyze effects of various kinds of chemical substances on earth to humans, generally estimate ways of survival of humans, actively try to find the solution of the issues and advise the next generation. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able as a pharmacist or medical researcher to analyze effects of various kinds of chemical substances on earth to humans and try to find solution for survival of humans, and advise the next generation. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Having acquired an attitude as a pharmacist or medical researcher to analyze effects of various kinds of chemical substances on earth to humans and try to find solution for survival of humans, and being able to advise the next generation. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(2)	Self-betterment of character formation as a medical professional : the appropriate action and attitude being aware of that a pharmacist is a professional relating to human life. The knowledge and understanding to have communication not only with ailing people but with other medical staff in a medical team. ●quality ① ② ③ ④ ⑨	1. Being aware that a pharmacist is a professional relating to human life, being able to have an attitude to take the appropriate mind and make appropriate communication not only with ailing people but with patients and other medical staff as a member of a medical team. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being aware that a pharmacist is a professional relating to human life, Bing able to have an attitude to take the appropriate mind and make communication not only with ailing people but with patients and other medical staff as a member of a medical team. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being aware that a pharmacist is a professional relating to human life, having had an attitude to take the appropriate mind and make communication not only with ailing people but with patients and other medical staff as a member of a medical team. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(3)	The research ability: the ability to select issues to be solved in the professional field of pharmacist and carry out measures and research to solve the issues. ●quality ⑧	1. Being able to select issues to be solved in the professional area of pharmacist, plan the ways of solution by themselves and conduct the research. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to select issues to be solved in the professional area of pharmacist and conduct ways or research to solve the issues. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to conduct measures or research to solve issues to be solved in the professional area of pharmacist. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.

Role of liberal arts education in this major program

The liberal arts education in this program aims to build the academic foundation required for the specialized education, foster the ethics required by medical staff, and develop the linguistic ability required for coping with globalization and having a concern for peace. Also, students are expected to develop their scientific intelligence and capabilities for problem solving based on their ability to collect, analyze, and criticize information through the liberal arts education in this program. Through this education, students are enabled to foster a deep humanity and wide-ranging intelligence.

● Fundamental qualities required for pharmacists

① Attitude as a pharmacist
② Viewpoint oriented to patients and ordinary citizens
③ Communication skills
④ Participation in team medical care
⑤ Basic scientific knowledge and skills
⑥ Practical capabilities regarding pharmacotherapy
⑦ Practical capabilities for health and medical care in the local community
⑧ Research ability
⑨ Self-improvement
⑩ Educational skills

Relationships between the evaluation items and class subjects(Program of Pharmaceutical Sciences)

Subject Classification	Subject Name	Credits	Type of course registration	Grade	Evaluation items																																																Total weighted values of evaluation items in the subject
					Knowledge and Understanding																				Abilities and Skills																		Attitudes				Comprehensive Abilities						
					(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)		(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(1)		(2)		(1)		(2)		(3)		
					Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	
Liberal Arts Education	Peace Science Courses	2	Required	1-2T	100	1																																														100
Liberal Arts Education	Introduction to University Education	2	Required	1-1T	50	1																																	10	1	10	1	10	1	10	1	10	1	100
Liberal Arts Education	Introductory Seminar for First-Year Students	2	Required	1-1T																																			20	1	20	1	20	1	20	1	20	1	100
Liberal Arts Education	Area Courses	8	Elective/required	1-1T 2	100	1																																													100
Liberal Arts Education	Communication Seminar	2	Required	1-1T 2-3T															80	1																			20	1													100
Liberal Arts Education	Communication Ⅰ	2	Required	1															80	1																			20	1													100
Liberal Arts Education	Communication Ⅱ	2	Required	2															70	1																			30	1													100
Liberal Arts Education	CommunicationⅢ	2	Elective/required	3-1T 4-3T															70	1																			30	1													100
Liberal Arts Education	Non-English Foreign Languages	0	Free elective	1～2															100	1																																	100
Liberal Arts Education	Information Courses	2	Required	1-1T																					40	1																	10	1	10	1			20	1	20	1	100
Liberal Arts Education	Health and Sports Courses	2	Elective/required	1～2																																							50	1	50	1							100
Liberal Arts Education	Social Cooperation Courses	0	Free elective	1～2																																							20	1	20	1	20	1	20	1	20	1	100
Liberal Arts Education	Foundation Courses	12	Elective/required	1～2			50	1	50	1																																											100
Specialized Education	Introduction to Pharmaceutical Sciences	2	Required	2-3T	10	1											10	1							10	1			10	1									10	1			10	1	10	1	10	1	10	1	10	1	100
Specialized Education	General Chemistry	2	Required	2-4T	50	1	50	1																																													100
Specialized Education	Pharmaceutical Analysis	2	Required	2-4T																											100	1																					100
Specialized Education	Nuclear Pharmacy	2	Required	3-2T			70	1																							20	1																			10	1	100
Specialized Education	Organic Chemistry IA	1	Required	3-1T			50	1																											50	1																	100
Specialized Education	Organic Chemistry IB	1	Required	3-2T			50	1																											50	1																	100
Specialized Education	Biochemistry I	2	Required	3-1T					100	1																																											100
Specialized Education	Biochemistry II	2	Required	3-1T					100	1																																											100
Specialized Education	Biological Chemistry III	2	Required	3-2T					100	1																																											100
Specialized Education	Public Health Chemistry I	2	Required	3-1T									100	1																																							100
Specialized Education	Basic Kampo Medicine	2	Required	3-1T			20	1	20	1	20	1			20	1					20	1																			20	1											120
Specialized Education	Microbiology	2	Required	3-2T					90	1															10	1																											100
Specialized Education	Public Health Chemistry II	2	Required	3-2T									100	1																																							100
Specialized Education	Pharmaceutical Physical Chemistry	2	Required	3-1T			100	1																																													100
Specialized Education	Bio-Analytical Science	2	Required	3-2T			50	1																							50	1																					100
Specialized Education	Natural Products Chemistry	2	Required	4-4T			100	1																																													100
Specialized Education	Biological Chemistry IV	2	Required	4-3T					100	1																																											100
Specialized Education	Biopharmaceutics	2	Required	4-3T											50	1													50	1																							100
Specialized Education	Biochemistry V	2	Required	4-4T					100	2																																											100
Specialized Education	Organic Chemistry Ⅱ A	1	Required	4-3T			50	1																											50	1																	100
Specialized Education	Organic Chemistry Ⅱ B	1	Required	4-4T			50	1																											50	1																	100
Specialized Education	Pharmacology I	2	Required	4-3T					30	1					20	1					15	1			20	1	15	1																									100
Specialized Education	AnOutline of Pathology	2	Required	7					50	1	50	1																																									100
Specialized Education	Japanese Pharmacopoeia	2	Required	12-3T			20	1	20	1											20	1	20	1							10	1	10	1																			100
Specialized Education	Research PracticeA	1	Free elective	5			10	1							10	1					10	1			10	1									10	1	10	1									20	1			20	1	100
Specialized Education	Research PracticeB	1	Free elective	6			10	1							10	1					10	1			10	1									10	1	10	1									20	1			20	1	100
Specialized Education	Practice for clinical food science	2	Free elective	7					40	1													40	1			20	1																									100
Specialized Education	Clinical food science	2	Free elective	7					50	1													50	1																													100
Specialized Education	Herbal medicine & Kampo medicine	2	Required	5-1T			100	1																																													100
Specialized Education	Pharmacokinetics	2	Required	5-1T											50	1													50	1																							100
Specialized Education	Biochemistry VI	2	Required	5-1T					100	2																																											100
Specialized Education	Biophysical Chemistry	2	Required	5-1T			100	1																																													100
Specialized Education	Antibiotics and Drug resistance	2	Required	5-2T					20	1											50	1			10	1			20	1																							100
Specialized Education	Physiological Chemistry	2	Required	5-2T					100	1																																											100
Specialized Education	Organic Chemistry III	2	Required	5-2T			50	1																											50	1																	100
Specialized Education	Medicinal Organic Chemistry	2	Required	5-2T			100	1																																													100
Specialized Education	Pharmacology II	2	Required	5-1T											25	1					25	1			25	1			25	1																							100
Specialized Education	Industrial Pharmaceutics	2	Required	6-4T			100	1																																													100
Specialized Education	Cell Motility	2	Required	6-4T					100	2																																											100
Specialized Education	Genetic Engineering	2	Required	6-3T					100	1																																											100
Specialized Education	Organic Chemistry IV	2	Required	6-3T			50	1																											50	1																	100
Specialized Education	Public Health Chemistry III	2	Required	6-3T											100	1																																					100
Specialized Education	Biological Statistics	2	Required	6											80	1													20	1																							100
Specialized Education	Pharmacology III	2	Required	6-4T			30	1			15	1							10	1	15	1	15	1	15	1																											100

Subject Classification	Subject Name	Credits	Type of course registration	Grade	Evaluation items																																																Total weighted values of evaluation items in the subject
					Knowledge and Understanding																				Abilities and Skills																		Attitudes				Comprehensive Abilities						
					(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)		(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(1)		(2)		(1)		(2)		(3)		
					Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	
Specialized Education	Clinical Pharmacy	2	Required	7-2T					10	1	10	1			10	1	10	1			10	1	10	1													10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Clinical Medicine and Pharmacotherapy I	2	Required	7-1T					10	1	10	1			10	1	10	1			10	1	10	1													10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Pharmacotherapy A	2	Required	7-1T							20	1											20	1			20	1	20	1											20	1											100
Specialized Education	AnOutline of Immunology	2	Required	7-2T					50	1	50	1																																									100
Specialized Education	Clinical Medicine and Pharmacotherapy II	2	Required	7-1T					10	1	10	1			10	1	10	1			10	1	10	1													10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Pharmaceutical Affairs Related Laws	2	Required	7-2T			20	1					20	1	20	1	10	1													10	1	10	1									10	1									100
Specialized Education	Clinical Pharmacology A	2	Required	8-3T					10	1	10	1			10	1	10	1			10	1	10	1													10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Pharmacotherapy B	2	Required	8-3T					10	1	10	1			10	1	10	1			10	1	10	1													10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Drug Informatics	2	Required	8-3T											25	1	25	1	25	1					25	1																											100
Specialized Education	Clinical Medicine and Pharmacotherapy III	2	Required	8-3T					10	1	10	1			10	1	10	1			10	1	10	1													10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Clinical Pharmacology B	2	Required	11-1T					10	1	10	1			10	1	10	1			10	1	10	1													10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Clinical Pharmacology C	2	Required	11-1T					10	1	10	1			10	1	10	1			10	1	10	1													10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Pharmacoeconomics	2	Required	11-1T											50	1									50	1																											100
Specialized Education	Clinical Evaluation	2	Required	12-3T																					100	1																											100
Specialized Education	Experiments in Analytical Chemistry	1	Required	4																	100	1																															100
Specialized Education	Training of Physical Chemistry	1	Required	4	50	1	50	1																																													100
Specialized Education	Experiments in Organic Chemistry	1	Required	4			50	1																											50	1																	100
Specialized Education	Experiments of Cellular and Molecular Biology	1	Required	4																																															100	2	100
Specialized Education	Experiments of Biological Chemistry	1	Required	4																											100	1																					100
Specialized Education	Experiments of Pharmacognosy	1	Required	5																											100	1																					100
Specialized Education	Experiments of Microbial Chemistry	1	Required	5					30	1											30	1									20	1																			20	1	100
Specialized Education	Pharmacology Practice	1	Required	5																																	100	1															100
Specialized Education	Practice of Pharmaceutics	1	Required	5																																	100	1															100
Specialized Education	Experiments of Public health Chemistry	1	Required	5																																															100	1	100
Specialized Education	Pharmacy Practice	3	Required	8							10	1													10	1							10	1					10	1	10	1	20	1	20	1			10	1			100
Specialized Education	Clerkship in Clinical PharmacyA	10	Required	9〜10																																					20	3	20	3	20	3			40	3			100
Specialized Education	Clerkship in Clinical PharmacyB	10	Required	9〜10																																					20	3	20	3	20	3			40	3			100
Specialized Education	Special laboratory Works in Pharmaceutical Sciences I	2	Required	6〜8			10	1																	10	1									10	1	10	1									30	1			30	1	100
Specialized Education	Special laboratory Works in Pharmaceutical Sciences II	2	Required	6〜8			10	1																	10	1									10	1	10	1									30	1			30	1	100
Specialized Education	Special laboratory Works in Clinical Pharmacy I	2	Required	9〜12																					15	1											15	1									35	1			35	1	100
Specialized Education	Special laboratory Works in Clinical Pharmacy II	2	Required	9〜12																					15	1											15	1									35	1			35	1	100
Specialized Education	Special laboratory Works in Clinical Pharmacy III	2	Required	9〜12																					15	1											15	1									35	1			35	1	100
Total					360	6	1350	26	1430	31	245	14	220	3	540	20	125	11	435	7	375	18	225	13	400	18	55	3	195	7	410	8	30	3	390	11	365	17	200	14	170	17	230	22	220	21	265	11	170	12	515	17	8920

Curriculum Map of Pharmaceutical Sciences Program

Sheet 4

	Academic achievements / Evaluation items	1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade	
		Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester
Knowledge and Understanding	1. To have a wide range of knowledge of liberal arts as well as basic understanding and knowledge of natural science and social science. ●quality ⑤	Liberal Arts Education Subjects GPA	Liberal Arts Education Subjects GPA		Training of Physical Chemistry(◎)								
		Peace Science Courses(◎)	Area Courses(○)										
		Introduction to University Education(◎)	Introduction to Pharmaceutical Sciences(◎)										
		Area Courses(○)	General Chemistry(◎)										
	2. The basic knowledge and understanding of basic structures, physical characters and reaction of medicine and other inorganic and organic compounds. ●quality ⑤	Foundation Courses(○)	Foundation Courses(○)	Pharmaceutical Physical Chemistry(◎)	Natural Products Chemistry(◎)	Biophysical Chemistry(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎)						Japanese Pharmacopoeia(◎)
			General Chemistry(◎)	Organic Chemistry ⅠA(◎)	Organic Chemistry ⅡA(◎)	Medicinal Organic Chemistry(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅱ(◎)						
				Organic Chemistry ⅠB(◎)	Organic Chemistry ⅡB(◎)	Organic ChemistryⅢ(◎)	Industrial Pharmaceutics(◎)	Pharmaceutical Affairs Related Laws(◎)					
				Nuclear Pharmacy(◎)	Training of Physical Chemistry(◎)	Research PracticeA(△)	Organic ChemistryⅣ(◎)						
				Bio-Analytical Science(◎)	Experiments in Organic Chemistry(◎)	Herbal medicine & Kampo medicine(◎)	Research PracticeB(△)						
				Basic Kampo Medicine(◎)			Pharmacology Ⅲ(◎)						
	3. Knowledge and understanding of the biological maintenance system of homeostasis and the ability to adjust to the environment. ●quality ⑤	Foundation Courses(○)	Foundation Courses(○)	Biochemistry Ⅰ(◎)	Pharmacology Ⅰ(◎)	Biochemistry Ⅵ(◎)	Cell Motility(◎)	AnOutline of Pathology(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology B(◎)	Japanese Pharmacopoeia(◎)
				Biochemistry Ⅱ(◎)	Biological Chemistry Ⅳ(◎)	Physiological Chemistry(◎)	Genetic Engineering(◎)	Research PracticePractice for clinical food science(△)	Pharmacotherapy B(◎)			Clinical Pharmacology C(◎)	
				Biological Chemistry Ⅲ(◎)	Biochemistry Ⅴ(◎)	Antibiotics and Drug resistance(◎)		Clinical food science(△)	Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
				Microbiology(◎)		Experiments of Microbial Chemistry(◎)		Clinical Pharmacy(◎)					
				Basic Kampo Medicine(◎)				Clinical Medicine and Pharmacotherapy Ⅰ(◎)					
								AnOutline of Immunology(◎)					
								Clinical Medicine and Pharmacotherapy Ⅱ(◎)					
	4. Fundamental knowledge・understanding about proper drug treatment for major diseases related to various organ. ●quality ⑥			Basic Kampo Medicine(◎)			Pharmacology Ⅲ(◎)	AnOutline of Pathology(◎)	Pharmacy Practice(◎)			Clinical Pharmacology B(◎)	
								Pharmacotherapy A(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology C(◎)	
								Clinical Pharmacy(◎)	Pharmacotherapy B(◎)				
								Clinical Medicine and Pharmacotherapy Ⅰ(◎)	Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
								AnOutline of Immunology(◎)					
								Clinical Medicine and Pharmacotherapy Ⅱ(◎)					
	5. Understanding concerning preservation of the eco system and life environment, causes of environmental pollutants, and their influences on humans. ●quality ⑦			Public Health Chemistry Ⅰ(◎)				Pharmaceutical Affairs Related Laws(◎)					
				Public Health Chemistry Ⅱ(◎)									
	6. Knowledge and understanding about rational analyses of pharmacokinetics in order to to understand quantitatively madicinal effects or side effects. ●quality ⑥			Basic Kampo Medicine(◎)	Pharmacology Ⅰ(◎)	Pharmacology Ⅱ(◎)	Research PracticeB(△)	Clinical Pharmacy(◎)	Drug Informatics(◎)			Pharmacoeconomics(◎)	
					Biopharmaceutics(◎)	Research PracticeA(△)	Public Health Chemistry Ⅲ (◎)	Clinical Medicine and Pharmacotherapy Ⅰ(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology B(◎)	
						Pharmacokinetics(◎)	Biological Statistics(◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)	Pharmacotherapy B(◎)			Clinical Pharmacology C(◎)	
								Pharmaceutical Affairs Related Laws(◎)	Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
	7. The knowledge and understanding of communication with medical teams relating to medication. ●quality ③ ④		Introduction to Pharmaceutical Sciences(◎)					Clinical Pharmacy(◎)	Drug Informatics(◎)			Clinical Pharmacology B(◎)	
								Clinical Medicine and Pharmacotherapy Ⅰ(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology C(◎)	
								Clinical Medicine and Pharmacotherapy Ⅱ(◎)	Pharmacotherapy B(◎)				
								Pharmaceutical Affairs Related Laws(◎)	Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
	8. Improving English comprehension to acquire capacity of medical or chemical English.	English subject GPA	English subject GPA	English subject GPA	English subject GPA		Pharmacology Ⅲ(◎)		Drug Informatics(◎)			TOEIC	
		TOEIC	Communication Seminar(◎)	CommunicationⅢ(○)	CommunicationⅢ(○)								
		Communication Seminar(◎)	CommunicationⅡ(◎)										
		CommunicationⅠ(◎)	Non-English Foreign Languages(△)										
		Non-English Foreign Languages(△)											
	9. The ability of considering basic pharmacological effects of medicine to chemical structure. ●quality ⑤			Basic Kampo Medicine(◎)	Pharmacology Ⅰ(◎)	Pharmacology Ⅱ(◎)	Research PracticeB(△)	Clinical Pharmacy(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology B(◎)	Japanese Pharmacopoeia(◎)
					Experiments in Analytical Chemistry(◎)	Research PracticeA(△)	Pharmacology Ⅲ(◎)	Clinical Medicine and Pharmacotherapy Ⅰ(◎)	Pharmacotherapy B(◎)			Clinical Pharmacology C(◎)	
						Antibiotics and Drug resistance(◎)		Clinical Medicine and Pharmacotherapy Ⅱ(◎)	Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
						Experiments of Microbial Chemistry(◎)							
	10. Abilities・skills of citing speculated major diseases from aberration of clinical test values. ●qualities⑥						Pharmacology Ⅲ(◎)	Pharmacotherapy A(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology B(◎)	Japanese Pharmacopoeia(◎)
								Research PracticePractice for clinical food science(△)	Pharmacotherapy B(◎)			Clinical Pharmacology C(◎)	
								Clinical food science(△)	Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
								Clinical Pharmacy(◎)					
								Clinical Medicine and Pharmacotherapy Ⅰ(◎)					
								Clinical Medicine and Pharmacotherapy Ⅱ(◎)					

Curriculum Map of Pharmaceutical Sciences Program

Sheet 4

	Academic achievements / Evaluation items	1st grade Spring semester	1st grade Fall semester	2nd grade Spring semester	2nd grade Fall semester	3rd grade Spring semester	3rd grade Fall semester	4th grade Spring semester	4th grade Fall semester	5th grade Spring semester	5th grade Fall semester	6th grade Spring semester	6th grade Fall semester
Abilities and Skills	1. Abilities of collecting necessary information of drug treatment her/him self. ●quality ⑥	Information Courses(◎)	Introduction to Pharmaceutical Sciences(◎)	Microbiology(◎)	Pharmacology I(◎)	Pharmacology II(◎)	Special laboratory Works in Pharmaceutical Sciences I(◎)			Special laboratory Works in Clinical Pharmacy I (◎)			
						Research PracticeA(△)	Special laboratory Works in Pharmaceutical Sciences II (◎)			Special laboratory Works in Clinical Pharmacy II (◎)			
						Antibiotics and Drug resistance(◎)	Pharmacology III(◎)		Drug Informatics(◎)	Special laboratory Works in Clinical Pharmacy III (◎)			
							Research PracticeB(△)		Pharmacy Practice(◎)			Pharmacoeconomics(◎)	Clinical Evaluation(◎)
	2. Being able to search for toxic doses, targeted organs, symptoms of poisoning, emergency procedure and detoxication of chemical substances. ●quality ⑦				Pharmacology I(◎)			Research PracticePractice for clinical food science(△)					
								Pharmacotherapy A(◎)					
	3. Abilities・skills of thinking ways of coping to reduce harmful effects(side effects) of madicine. ●quality ⑤		Introduction to Pharmaceutical Sciences(◎)		Biopharmaceutics(◎)	Pharmacology II(◎)	Biological Statistics(◎)	Pharmacotherapy A(◎)					
						Pharmacokinetics(◎)							
						Antibiotics and Drug resistance(◎)							
	4. To be able to handle major analysis methods written in the Japanese Pharmacopoeia. ●quality ⑤		Pharmaceutical Analysis(◎)	Nuclear Pharmacy(◎)	Experiments of Biological Chemistry(◎)	Experiments of Pharmacognosy(◎)		Pharmaceutical Affairs Related Laws(◎)					Japanese Pharmacopoeia(◎)
				Bio-Analytical Science(◎)		Experiments of Microbial Chemistry(◎)							
	5. Using available compounds as starting materials, to be able to handle organic synthesis in order to chemically transform medicine into a target substance. ●quality ⑤							Pharmaceutical Affairs Related Laws(◎)	Pharmacy Practice(◎)				Japanese Pharmacopoeia(◎)
	6. Using available compounds as starting materials, to be able to handle organic synthesis in order to chemically transform medicine into a target substance. ●quality ⑤			Organic Chemistry I A(◎)	Organic Chemistry II A(◎)	Organic Chemistry III (◎)	Special laboratory Works in Pharmaceutical Sciences I(◎)						
				Organic Chemistry I B(◎)	Organic Chemistry II B(◎)	Research PracticeA(△)	Special laboratory Works in Pharmaceutical Sciences II (◎)						
					Experiments in Organic Chemistry(◎)		Organic ChemistryIV(◎)						
							Research PracticeB(△)						
	7. Ability and skills to measure drug blood level concerning major drugs. ●quality ⑥					Research PracticeA(△)	Special laboratory Works in Pharmaceutical Sciences I(◎)			Special laboratory Works in Clinical Pharmacy I (◎)			
						Practice of Pharmaceutics(◎)	Special laboratory Works in Pharmaceutical Sciences II (◎)			Special laboratory Works in Clinical Pharmacy II (◎)			
						Pharmacology Practice(◎)	Research PracticeB(△)	Clinical Pharmacy(◎)	Clinical Pharmacology A(◎)	Special laboratory Works in Clinical Pharmacy III (◎)			
								Clinical Medicine and Pharmacotherapy I(◎)	Pharmacotherapy B(◎)			Clinical Pharmacology B(◎)	
								Clinical Medicine and Pharmacotherapy II(◎)	Clinical Medicine and Pharmacotherapy III(◎)			Clinical Pharmacology C(◎)	
	8. The ability and skills of communication with medical teams relating to medication. ●quality ③ ④	Communication Seminar(◎)	Communication Seminar(◎)	Communication III (○)	Communication III (○)			Clinical Pharmacy(◎)	Pharmacy Practice(◎)			Clinical Pharmacology B(◎)	
		Communication I (◎)	Communication II (◎)					Clinical Medicine and Pharmacotherapy I(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology C(◎)	
			Introduction to Pharmaceutical Sciences(◎)					Clinical Medicine and Pharmacotherapy II(◎)	Pharmacotherapy B(◎)				
									Clinical Medicine and Pharmacotherapy III(◎)				
	9. The ability and skills to appropriately deal with contraindication or inappropriate treatments of medicine. ●quality ⑥			Basic Kampo Medicine(◎)				Clinical Pharmacy(◎)	Pharmacy Practice(◎)	Clerkship in Clinical PharmacyA(◎)		Clinical Pharmacology B(◎)	
								Clinical Medicine and Pharmacotherapy I(◎)	Clinical Pharmacology A(◎)	Clerkship in Clinical PharmacyB(◎)		Clinical Pharmacology C(◎)	
								Clinical Medicine and Pharmacotherapy II(◎)	Pharmacotherapy B(◎)				
								Pharmacotherapy A(◎)	Clinical Medicine and Pharmacotherapy III(◎)				
Attitudes	1. Self-betterment of character formation as a medical professional : the appropriate action and attitude being aware of that a pharmacist is a professional relating to human life. The knowledge and understanding to have communication not only with ailing people but with other medical staff in a medical team. ●quality ① ② ③ ④ ⑨	Introductory Seminar for First-Year Students(◎)	Health and Sports Courses(○)					Clinical Pharmacy(◎)	Pharmacy Practice(◎)	Clerkship in Clinical PharmacyA(◎)		Clinical Pharmacology B(◎)	
		Information Courses(◎)	Social Cooperation Courses(△)					Clinical Medicine and Pharmacotherapy I(◎)	Clinical Pharmacology A(◎)	Clerkship in Clinical PharmacyB(◎)		Clinical Pharmacology C(◎)	
		Health and Sports Courses(○)	Introduction to Pharmaceutical Sciences(◎)					Clinical Medicine and Pharmacotherapy II(◎)	Pharmacotherapy B(◎)				
		Introduction to University Education(◎)						Pharmaceutical Affairs Related Laws(◎)	Clinical Medicine and Pharmacotherapy III(◎)				
		Social Cooperation Courses(△)											
	2. Ability to be a pharmacist who is relied on not only by a medical team but also by citizens; the ability to be considerate of patients. ●quality ① ② ④	Introductory Seminar for First-Year Students(◎)	Health and Sports Courses(○)					Clinical Pharmacy(◎)	Pharmacy Practice(◎)	Clerkship in Clinical PharmacyA(◎)		Clinical Pharmacology B(◎)	
		Information Courses(◎)	Social Cooperation Courses(△)					Clinical Medicine and Pharmacotherapy I(◎)	Clinical Pharmacology A(◎)	Clerkship in Clinical PharmacyB(◎)		Clinical Pharmacology C(◎)	
		Health and Sports Courses(○)	Introduction to Pharmaceutical Sciences(◎)					Clinical Medicine and Pharmacotherapy II(◎)	Pharmacotherapy B(◎)				
		Introduction to University Education(◎)							Clinical Medicine and Pharmacotherapy III(◎)				
		Social Cooperation Courses(△)											

Curriculum Map of Pharmaceutical Sciences Program

Academic achievements / Evaluation items	1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade	
	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester
Comprehensive Abilities 1. Comprehensive problem-solving ability and educational ability: Concerning the influences caused by numerous chemical substances existing on the earth, to be able to analyze and argue about the survival of the human race. Also, to have the ability and skills to give instruction to youth. ●quality ⑤ ⑩	Introductory Seminar for First-Year Students(◎) Introduction to University Education(◎) Social Cooperation Courses(△)	Social Cooperation Courses(△) Introduction to Pharmaceutical Sciences(◎)			Research PracticeA(△)	Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎) Special laboratory Works in Pharmaceutical Sciences Ⅱ(◎) Research PracticeB(△)			Special laboratory Works in Clinical Pharmacy Ⅰ(◎) Special laboratory Works in Clinical Pharmacy Ⅱ(◎) Special laboratory Works in Clinical PharmacyⅢ(◎)			
2. Self-betterment of character formation as a medical professional : the appropriate action and attitude being aware of that a pharmacist is a professional relating to human life. The knowledge and understanding to have communication not only with ailing people but with other medical staff in a medical team. ●quality ① ② ③ ④ ⑨	Introductory Seminar for First-Year Students(◎) Information Courses(◎) Introduction to University Education(◎) Social Cooperation Courses(△)	Social Cooperation Courses(△) Introduction to Pharmaceutical Sciences(◎)						Pharmacy Practice(◎)	Clerkship in Clinical PharmacyA(◎) Clerkship in Clinical PharmacyB(◎)			
3. The research ability: the ability to select issues to be solved in the professional field of pharmacist and carry out measures and research to solve the issues. ●quality ⑧	Introductory Seminar for First-Year Students(◎) Information Courses(◎) Introduction to University Education(◎) Social Cooperation Courses(△)	Social Cooperation Courses(△) Introduction to Pharmaceutical Sciences(◎)	Nuclear Pharmacy(◎)	Experiments of Cellular and Molecular Biology(◎)	Research PracticeA(△) Experiments of Public health Chemistry(◎) Experiments of Microbial Chemistry(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎) Special laboratory Works in Pharmaceutical Sciences Ⅱ(◎) Research PracticeB(△)			Special laboratory Works in Clinical Pharmacy Ⅰ(◎) Special laboratory Works in Clinical Pharmacy Ⅱ(◎) Special laboratory Works in Clinical PharmacyⅢ(◎)			

Liberal Arts Education Subjects / Basic Specialized Subjects / Specialized Education Subjects / Graduation Thesis / Clerkship in Clinical Pharmacy　(◎)Required　(○)Elective/required　(△)Free elective

● Fundamental qualities required for pharmacists

① Attitude as a pharmacist
② Viewpoint oriented to patients and ordinary citizens
③ Communication skills
④ Participation in team medical care
⑤ Basic scientific knowledge and skills
⑥ Practical capabilities regarding pharmacotherapy
⑦ Practical capabilities for health and medical care in the local community
⑧ Research ability
⑨ Self-improvement
⑩ Educational skills