For entrants in FY 2019

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) 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.

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.

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

^{*} Refer to the curriculum map in Sheet 4.

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

					Required		No. of	Type of course			_				_	is				
Type		,	Subject	type	No. of credits	Class subjects, etc.	credits	registratio n			_	_		_		grade				_
\vdash	Do	000	Saiona	Couraga	2		2	" Required		Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
	sic ses in ersit; ation	Intro	oduction to l	Jniversity Education	2	Introduction to University Education	2	Required	0											
	Ba Cour: Unive Educ	Area Courses Communication of University Entroduction to University Entroduction to University Entroductory Seminar for First-Year Area Courses Communication of Communica		for First-Year Students	2	Introductory Seminar for First-Year Students	2	Required	\circ											
		Peace Science Course Introduction to University Events Area Courses (No. Communication of the property of t		es	4	Courses in Arts and Humanities/SocialSciences	2	Elective/required	0	0										
		Peace Science Cours Introduction to University Introductory Seminar for First-Yes Area Courses (Non-English For Languages (Select one language from German, French Chinese) (note Information Course) Social Cooperation			4	Courses in Natural Sciences	2	Elective/required		\circ										
			2)	Communication Seminar	2	Communication Seminar I	1	Required	0											
				Communication Seminar	2	Communication Seminar II	1	Kequirea		0										
		es	(No	Communication I	2	CommunicationIA	1	Required	0											
ß	ts	uag	sh	Communication 1		Communication IB	1	Kequirea	0											
Subjects	ıjeα	ang	1g1i	Communication II	2.	Communication IIA	1	Required		0										
ubj	suk	tu T			۷	Communication IIB	1	Kequirea		0										
on S	mon	eig	_			Basic Foreign Language I	1		0											
atic	Сош	Fо			0	Basic Foreign Language II	1	P1+-	0											
Education						Basic Foreign Language III	1	Free elective		0										
						Basic Foreign Language IV	1			0										
Arts		Peace Science Course Introduction to University E Introductory Seminar for First-Year Area Courses (No Social Cooperation Courses Foundation Courses			2	Elements of Information Literacy(Note 4)	2	Required	0											
a1		Peace Science Cours Introduction to University Introductory Seminar for First-Yes Area Courses (N			2		1or2	Elective/required	0	0										
Liberal	Peace Science Course Introduction to University Introductory Seminar for First-Yea Area Courses (Notes as a communication of the communication communication communication communication communication communication communication communication courses) Non-English For Languages (Select one language from German, French Chinese) (note Information Course Health and Sports (Social Cooperation of Social Cooperation courses)			eration Courses	0		1or2	Free elective	0	0										
Li	Area Courses Area Courses Area Courses (Note 100				Psychology for Medical Care Workers(Note 5)	2			0											
					6	Statistics	2	Required		0										
	language from German, French Chinese) (note 3 Information Course Health and Sports Co			O	Anatomy for understanding human being I	1	Kequirea		0											
						Anatomy for understanding human being II	1			0										
	ī	Area Courses (Not September of the communication	Courage	2	Foundation physics for life science(Note 6)	2	Elective/required	0												
	1		Courses	۷	Foundation biology for life science(Note 7)	2	Liective/required	0												
						Species Biology	2		0											
					4	Basic Calculus	2	Elective/required	0											
						Basic Linear Algebra	2			0										
						2 subjects from the three	subjects	above												
Tot	Area Courses Area Courses (Note to be a communication of the communica	ation Subjects)	36																	

- 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 (6 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

	ype	yle							Year	in v	which	n the	sub	ject	is	taken	l	
Type	ect t	Lesson Style	Required No. of	Class subjects, etc.	No. of credits	Type of course registration	1st	grade	2nd	grade	3rd	grade	4th	grade	5th	grade	6th	grade
Ţ	Subject type	Lesso	credits		crearts	registration	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
				Practical English for Pharmaceutical Students	2				2									
				Introduction to Pharmaceutical Sciences	2	i		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	ĺ			2									
	ects			Biological Chemistry III	2				2									
	ubje			Public Health Chemistry I	2	ĺ			2									
	Specialized Subjects	ıre		Basic Kampo Medicine	2	İ			2									
	lize	Lecture	44	Microbiology	2	Required			2									
	cia	T		Public Health Chemistry II	2				2									
	Spe			Pharmaceutical Physical Chemistry	2				2									
	Basic			Bio-Analytical Science	2				2									
	Ba			Natural Products Chemistry	2					2								
				Biological Chemistry IV	2					2								
				Biopharmaceutics	2	İ				2								
				Biochemistry V	2					2								
				Organic Chemistry II A	1			1										
ts				Organic Chemistry II B	1			(1)										
ojec				Pharmacology I	2					2								
Sul				AnOutline of Pathology	2								2					
tion				Total(Basic Specialized Subjects)	44		2	8	22	10			2					
luca.				Japanese Pharmacopoeia	2												2	
Specialized Education Subjects		r.	4	Research PracticeA	1	Required					1							
ize		minar		Research PracticeB	1							1						
cial		Se	(2)	Practice for clinical food science	2	Free elective							2					
Spe				Total(Seminar)	6						1	1	2				2	
			(2)	Clinical food science	2	Free elective							2					
				Herbal medicine & Kampo medicine	2						2							
				Pharmacokinetics	2						2							
				Biochemistry VI	2						2							
				Biophysical Chemistry	2						2							
	cts			Antibiotics and Drug resistance	2						2							
	Specialized Subjects			Physiological Chemistry	2						2							
	ıS b			Organic Chemistry III	2						2							
	lize			Medicinal Organic Chemistry	2						2							
	cia.	re		Pharmacology II	2						2							
	Spe	Lecture	60	Industrial Pharmaceutics	2	Required						2						
		Le	30	Cell Motility	2	Required						2		L				
				Genetic Engineering	2]						2						
				Organic Chemistry IV	2							2						
				Public Health Chemistry III	2			<u> </u>				2						
				Biological Statistics	2			<u> </u>				2						
				Pharmacology III	2							2						
				Clinical Pharmacy	2			<u> </u>					2					
				Clinical Medicine and Pharmacotherapy I	2	ļ							2		<u> </u>			<u> </u>
				Pharmacotherapy A	2		<u> </u>	<u> </u>					2		<u> </u>			<u> </u>
				AnOutline of Immunology	2								2					

	ype	Style							Year	in v	which	n the	sub	ject	is t	aken		\neg
Type	Subject type	on St	Required No. of	Class subjects, etc.	No. of credits	Type of course registration	1st	grade	2nd	grade	3rd	grade	4th	grade	5th	grade	6th a	grade
	Subj	Lesson	credits			8	Spring	Fall										
				Clinical Medicine and Pharmacotherapy II	2								2					
				Pharmaceutical Affairs Related Laws	2								2					
				Clinical Pharmacology A	2									2				
				Pharmacotherapy B	2									2				
		é	20	Drug Informatics	2									2				
		Lecture	60	Clinical Medicine and Pharmacotherapy III	2	Required								2				
		Lec		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	3	
				Experiments in Analytical Chemistry	1					1								
cts				Training of Physical Chemistry	1					1								
bje	cts			Experiments in Organic Chemistry	1					1								
n Su	ıbje			Experiments of Cellular and Molecular Biology	1					1								
tio	d St			Experiments of Biological Chemistry	1					1								
Specialized Education Subjects	Specialized Subjects	a)		Experiments of Pharmacognosy	1						1							
d E	cia]	Practice	33	Experiments of Microbial Chemistry	1	Required					1							
lize	Spe	rac		Pharmacology Practice	1						1							
cia				Practice of Pharmaceutics	1						1							
Spe				Experiments of Public health Chemistry	1						1							
				Pharmacy Practice	3									3				
				Clerkship in Clinical PharmacyA	10										(į	0		
				Clerkship in Clinical PharmacyB	10										(į	0		
				Total (Practice)	33					5	5			3	2	0		
		ation		Special laboratory Works in Pharmaceutical Sciences I	2								2					
		Gradu		Special laboratory Works in Pharmaceutical Sciences II	2								2					
		for (10	Special laboratory Works in Clinical PharmacyI	2	Required										(2	2)	
		Study for Graduation		Special laboratory Works in Clinical PharmacyⅡ	2											(2	2)	
		Special S		Special laboratory Works in Clinical PharmacyⅢ	2											(2	2)	
		Spec		Total(Special Study for Graduation)	10								4			(3	
			T	Total(Specialized Subjects)	111					5	24		46			3	6	
			151	Total(Specialized Education Subjects)	155													

 $\ensuremath{\mathsf{NOTE}}\xspace$ The number enclosed in a circle indicates a required subject.

Graduation requirement	Required No. of credits
Liberal Arts Education Subjects	36
Specialized Education Subjects	151
Basic Specialized Subjects	44
Required Subjects	44
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
	(1)	To have a wide range of knowledge of liberal arts as well as basic understanding and knowledge of natural science and social science.	2. The learning attainment level is calculated as an average evaluation of grades based on designated	 Being able to clearly explain about general education subjects along with natural science and social science. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%. 	 Being able to explain about general education subjects along with natural science and social science. 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	characteristics and reaction of medicine and inorganic and organic compounds. 2. The learning attainment level is calculated as an	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%.	 Being able to explain about the basic structure, physical characteristics and reaction of medicine and inorganic and organic compounds. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
anding	(3)	Knowledge and understanding of the biological maintenance system of homeostasis and the ability to adjust to the environment. ●quality ⑤	homeostasis and dynamic adjustment. 2. The learning attainment level is calculated as an average evaluation of grades based on designated	 Being able to clearly explain about maintenance mechanism of ecosystem homeostasis and dynamic adjustment. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%. 	 Being able to explain about maintenance mechanism of ecosystem homeostasis and dynamic adjustment. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
dge and Understanding	(4)	Fundamental knowledge • understanding about proper drug treatment for major diseases related to various organ. • quality 6	organs from medical point of view. 2. The learning attainment level is calculated as an average evaluation of grades based on designated	 Being able to comprehensively explain appropriate medication to major diseases relating to various organs. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%. 	 Being able to explain appropriate medication to major diseases relating to various organs. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
Knowledge	(5)	environment, causes of environmental pollutants, and their influences on	human effects. 2. The learning attainment level is calculated as an	environmental contamination, and human effects. 2. The learning attainment level is calculated as an	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	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	team. 2. The learning attainment level is calculated as an	 Being able to make communication with other medical staff on medication. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%. 	 Being able to explain to other medical staff on medication. 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
nding	(8)	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.
e and Understanding	(9)	chemical structure.	 Being able to explain basic medical effects relating to chemical structures of medicine. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%. 	effects and chemical structures of medicine. 2. The learning attainment level is calculated as an	 Being able to explain basic medical effects and chemical structures of medicine. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
Knowledge	(10)	clinical test values. ● qualities⑥	 Being able to enumerate and explain major diseases assumed from abnormal clinical scores. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%. 	 Being able to enumerate and explain basic points of major diseases assumed from abnormal clinical scores. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%. 	 Being able to explain basic points of major diseases assumed from abnormal clinical scores. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(1)	Abilities of collecting necessary information of drug treatment her/him self. • quality 6	 Being able to collect necessary information on medication. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%. 	 Being able to enumerate and explain basic points necessary for medication. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%. 	 Being able to explain basic points necessary for medication. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(2)	poisoning, emergency procedure and detoxication of chemical substances. • quality 7	 Being able to explain and search for measures on poisoning, targeted organs, poisoning symptoms, emergency treatments and detoxification of chemical substances. 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%.
Abilities and Skills	(3)	effects) of madicine.	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%.	2.The learning attainment level is calculated as an average evaluation of grades based on designated	 Being able to enumerate basic matters relating to measures to decrease harmful effects (side effects) of medicine and explain them. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
Al	(4)	• 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)	synthesis in order to chemically transform medicine into a target	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
	(6)		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%.
and Skills	(7)	Ability and skills to measure drug blood level concerning major drugs. • quality 6	 Being able to construct experiment plan to measure representative drug blood level and measure them. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%. 	 Being able to measure representative drug blood level. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%. 	 Being able to conduct basic techniques to measure representative drug blood level. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
Abilities	(8)	The ability and skills of communication with medical teams relating to medication. • quality ③ ④	 Being able to make communication with other medical staff on medication as a member of medical team. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%. 	 Being able to make communication with other medical staff on medication. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%. 	 Being able to explain to other medical staff on medication. 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	 Being able to appropriately deal with contraindications or inappropriate prescription of medicine by themselves. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%. 	 Being able to appropriately deal with contraindications or inappropriate prescription of medicine. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%. 	 Being able to explain appropriate measures to contraindications or inappropriate prescription of medicine. 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%.	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	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%.
A	(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	 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. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%. 	national people. 2. The learning attainment level is calculated as an average evaluation of grades based on designated	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
ies	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 • •	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	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%.
Comprehensive Abilities	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. (2) 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	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	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%.
	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 ®	solution by themselves and conduct the research. 2. The learning attainment level is calculated as an average evaluation of grades based on designated	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%.	 Being able to conduct measures or research to solve issues to be solved in the professional area of pharmacist. 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
- Research ability
- Self-improvement
- 10 Educational skills

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

	ps between th		1	- T	15 UII				. 1081		JI 1 110															T																						
											K	nowledg	ge and I	Underst	tandir	ng										Eva	uation it	ems		Д	bilities	and Skills							$\overline{}$	Atti	itudes			Compr	ehensive	e Abilitie	.es	Total
C-1:			e of		(1)		(2)	((3)		(4)	(5)		(6)		(7)		(8	,	(9)		(10)		(1)		(2)		(3)		(4)	((5)	(6)	(7)	(8		(9)		(1)	((2)	(1	.)	(2)		(3)	weighte values o
Subject Classification	Subject Name	regi	irse strat G	rade Weig	shted Wei	eighted Weight ues of values	of values of	of values of	d Weighted f values of	Weighted values of	d Weighted f values of	Weighted V values of v	Weighted Walues of values	Veighted We alues of values	eighted W	Veighted Wei alues of valu	ighted Wiles of va	Veighted values of	Weighted W	Veighted Walues of values	Veighted We values of val	ues of valu	ighted W ues of va	Veighted We	reighted V	Weighted We values of val	ighted Weight ues of values	of values of	d Weighte of values of	weighted walues of	d Weighted of values of	d Weighted Weig f values of value o evaluatio evalu	hted Weighters of values of	weighted of values of	Weighted values of	Weighted Values of	Veighted Weigh values of values	ted Weighte values c	of Weighter	Weighted of values of	Weighted values of	Weighted values of	Weighted values of	Weighted V	Veighted Wei	ghted Weighte es of values o uatio evaluati	values of	evaluat
		10	on		ms in n it	tems n items	s in n items	n items in	in n items	n items in	in n items	n items in n the	n items n	items in n it	tems n	items in ite	ems n th	items in he	n items n	items in n	items n i	tems in n it	ems n	items in it	items n	n items in in it	ems n items	s in n items	n items i	in n items	n items in the	n items n ite the	ms in n items	n items in	n items	n items in the	n items n item	is in n items	n items	in n items	n items in the	n items	n items in the	n items	items in n ite	ems n items	s in n items	in the subject
				subje	ect	subject	t	subject		subject		subject	sı	ubject	SI	ubject	Sl	ubject	su	ubject	sul	oject	su	ubject	S	subject	subject		subject		subject	subje	ect	subject		subject	subjec	:t	subject		subject		subject	5	ubject	subject	Ċ	subjec
Liberal Arts Education Pe	eace Science Courses	2 Req	uired 3	-2T 10	00	1																																										100
Liberal Arts Education Intro	oduction to University Education	2 Req	uired 1	-1T 5	50	1						ш								_																			10	1	10	1	10	1	10	1 10	1	100
	oductory Seminar for First-Year Students	2 Req	uired 1	-1T																																			20	1	20	1	20	1	20	1 20	1	100
Liberal Arts Education Ar		8 Elective	required	-1T 10 2 -1T	00	1						\vdash																													4—							100
	ommunication Seminar	2 Req	uirea 2-	-3T						-								80	1																	20	1		4		4—							100
Liberal Arts Education Co		2 Req		1						-		+						80	1																	20	1		4		4—							100
Liberal Arts Education Co			uired	2								\vdash						70	1																	30	1				+-					+		100
	n-English Foreign Languages		elective 1							+								100	1					40	1														10		10	1			20	1 00		100
	formation Courses ealth and Sports Courses	2 Req		~2						-														40	1	-													10 50		50	1			20	1 20	1	100
	cial Cooperation Courses	_	/required 1									+																											20		20		20	1	20	1 20) 1	100
	oundation Courses	1.0		~2		50	1	50	1	+																													20			1	20	1	20	20		100
	tical English for Pharmaceutical Students	2 Req				- 50	1	- 50	1			+						80	1																	20	1		+-		\vdash							100
	oduction to Pharmaceutical Sciences	2 Req			.0	1										10	1		_					10	1		10	1								10	1		10	1	10	1	10	1	10	1 10) 1	100
	eneral Chemistry	2 Req			50	1 50	1																																		 							100
	narmaceutical Analysis	2 Req																											100	1											\vdash							100
Specialized Education Nu			uired 3			70	1																						20	1											\top					10	1	100
Specialized Education Or	rganic Chemistry IA	1 Req	uired 1	-2T		50	1																									5	0 1															100
Specialized Education Or	rganic Chemistry IB	1 Req	uired 1	-2T		50	1																									Ę	0 1															100
Specialized Education Bio	ochemistry I	2 Req	uired 3-	-1T				100	1																																							100
Specialized Education Bio	ochemistry II	2 Req	uired 3-	-1T				100	1																																							100
Specialized Education Bio	ological Chemistry III	2 Req	uired 3-	-2T				100	1																																							100
Specialized Education Pul	blic Health Chemistry I	2 Req	uired 3-	-1T								100	1																																			100
Specialized Education Ba	asic Kampo Medicine	2 Req	uired 3-	-1T		20	1	20	1	20	1			20	1					20	1																20) 1			Щ							120
Specialized Education Mi		2 Req		-2T				90	1			ш								_				10	1																4							100
	blic Health Chemistry II	2 Req								-		100	1																										4		4							100
	rmaceutical Physical Chemistry	2 Req				100				-		\vdash								_																					4—							100
	o-Analytical Science	2 Req				50				-		+																	50	1											4—							100
	tural Products Chemistry	2 Req		-4T		100) 1	100		-		\vdash								-																					+-					+		100
	ological Chemistry IV	2 Req		-3T -3T				100	1	\vdash		+		50	1					-+							50	1											_		\vdash					_		100
Specialized Education Biometric Biometric Biometric Biometric Biometric Biometric Biometric Biometric Biometric Biometric Biometric Biometric Biometric Biomet		2 Req		-4T				100	2.					30	1												30	1											+-		\vdash					_		100
	rganic Chemistry II A	1 Req				50	1	100	2																							Ę	0 1								\vdash							100
	rganic Chemistry II B		uired 2-			50																										Ę	0 1						+		\vdash							100
Specialized Education Ph			uired 4					30	1					20	1					15	1			20	1	15	1																					100
	nOutline of Pathology	2 Req		7				50	1	50	1																																					100
Specialized Education Jap	panese Pharmacopoeia	2 Req		-3T		20	1	20	1											20	1	20	1						10	1	10	1																100
Specialized Education Re	esearch PracticeA	1 Req	uired	5		10	1							10	1					10	1			10	1							1	0 1	10	1								20	1		20	1	100
Specialized Education Re	esearch PracticeB	1 Req	uired	6		10	1							10	1					10	1			10	1]	0 1	10	1								20	1		20	1	100
Specialized Education Prac	actice for clinical food science	2 Free	elective	7				40	1			$\perp \perp \uparrow$										40	1			20	1														4							100
Specialized Education C1	linical food science	2 Free	elective	7				50	1													50	1																		4							100
	bal medicine & Kampo medicine	2 Req				100	1																																		4_							100
Specialized Education Ph			uired 5-							_				50	1												50	1													4							100
Specialized Education Bio			uired 5-					100	2	-																															4—							100
	ophysical Chemistry	2 Req				100	1			1																															4—							100
	tibiotics and Drug resistance	2 Req		-2T				20		-		+ +								50	1			10	1		20	1								\vdash					_		-					100
	ysiological Chemistry	2 Req		-2T -2T		50	1	100	1	+		+ +																				,	0 1								4—							100
	rganic Chemistry III edicinal Organic Chemistry	2 Req		-2T		100				-		+ +																				į.	1								+-		 					100
Specialized Education Ph			uired 5			100	. 1			+				25	1					25	1			25	1		25	1											+		+							100
	dustrial Pharmaceutics	2 Req				100) 1														-						23	1													+-							100
Specialized Education Ce			uired 6			100	_	100	2																														+		+							100
	enetic Engineering	2 Req						100																																								100
	rganic Chemistry IV	2 Req		-3T		50	1																									Ę	0 1															100
Specialized Education Pub		2 Req		-3T										100	1																										\top							100
	ological Statistics	2 Req		6										80	1												20	1																				100
Specialized Education Ph		2 Req	uired 6-	-4T		30	1			15	1							10	1	15	1	15	1	15	1																							100
										-																										-												

																							E	Evaluati	on iten	ns																					$\overline{}$	
									Knov	wledge	e and U	nders	tandin	g														Abi	ilities aı	nd Skills									Att	itudes		(Compr	rehensi	ive Abili	ities		Total
	Type of	(1)	(2	2)	(3	3)	(4))	(5)		(6)		(7)		(8)		(9)		(10)		(1)	((2)	(3	3)	`	4)	(5)		(6)		(7)	`	8)	(9)		(1)		(2)	(1)		(2)		(3)	V	veighte values o
Subject Classification Subject Name Credits	course Grad registrat ion	Weighted values of evaluatio n items in the subject	evaluatio n items	evaluatio	evaluatio n items	evaluatio	evaluatio	Weighted V values of v evaluatio e n items in n the subject	evaluatio eva n items n it the	eighted Wilues of valuatio evitems in nie bject	valuatio eval items n ite the	luatio eva	raluatio ev items n th	eighted Weightes of valuatio evaluation tems in note be bject	uatio eva ms n it the	aluatio ev	raluatio ev items n th	valuatio ev	aluatio eval	uatio evalu ems in n iter	atio evalu	ghted Weight les of values of luatio evaluat ems in n items ject	tio evaluatio	evaluatio n items	evaluatio	evaluatio n items	evaluatio	evaluatio n items	evaluatio ev	Teighted Weigulues of valuatio evaluation items nite the subjections	natio evalu ms in n iter	atio evaluati	o evaluatio in n items	evaluatio	evaluatio n items	evaluatio	evaluatio n items	evaluatio	evaluatio	o evaluatio	evaluatio	evaluatio e	evaluatio e n items n t	evaluatio e	evaluatio evaluatio n items n items	aluatio evalı	eighted ues of aluatio n tems in	valuati
Specialized Education Clinical Pharmacy 2	Required 7-27	Γ				10	1	10	1			10	1	10	1			10	1	10	L											10	1	10	1	10	1	5	1	5	1							100
Specialized Education Clinical Medicine and Pharmacotherapy I 2	Required 7-1	Τ				10	1	10	1			10	1	10	1			10	1	10	L											10	1	10	1	10	1	5	1	5	1							100
Specialized Education Pharmacotherapy A 2	Required 7-1	Т						20	1										:	20	L		20	1	20	1										20	1											100
Specialized Education AnOutline of Immunology 2	Required 7-27	Γ				50	1	50	1																																							100
Specialized Education Clinical Medicine and Pharmacotherapy II 2	Required 7-1	Т				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 7-27	Γ		20	1					20	1	20	1	10	1												10	1	10	1								10	1									100
Specialized Education Clinical Pharmacology A 2	Required 8-37	Γ				10	1	10	1			10	1	10	1			10	1	10	L											10	1	10	1	10	1	5	1	5	1							100
Specialized Education Pharmacotherapy B 2	Required 8-37	Γ				10	1	10	1			10	1	10	1			10	1	10	L											10	1	10	1	10	1	5	1	5	1							100
Specialized Education Drug Informatics 2	Required 8-37	Γ										25	1	25	1	25	1				2	25 1																										100
Specialized Education Clinical Medicine and Pharmacotherapy III 2	Required 8-37	Γ				10	1	10	1			10	1	10	1			10	1	10	l											10	1	10	1	10	1	5	1	5	1							100
Specialized Education Clinical Pharmacology B 2	Required 11-1	Т				10	1	10	1			10	1	10	1			10	1	10	l											10	1	10	1	10	1	5	1	5	1							100
Specialized Education Clinical Pharmacology C 2	Required 11-1	Т				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 11-1	Т										50	1								5	50 1																										100
Specialized Education Clinical Evaluation 2	Required 12-3	Т																			1	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																									5	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									ш						100
Specialized Education Experiments of Public health Chemistry 1	Required 5																																									ш			-	100	1	100
Specialized Education Pharmacy Practice 3	Required 8							10	1												1	10 1							10	1				10	1	10	1	20	1	20	1			10	1			100
Specialized Education Clerkship in Clinical PharmacyA 10																																				20	3	20	3	20	3			40	3			100
Specialized Education Clerkship in Clinical PharmacyB 10	Required 9~1	.0																																		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								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								1	10 1	. 10	1									30	1			30	1	100
Specialized Education Special laboratory Works in Clinical Pharmacy I 2	Required 9~1																					15 1										15	1									35	1			35	1	100
Specialized Education Special laboratory Works in Clinical Pharmacy II 2	Required 9~1																					15 1										15	1									35	1			35	1	100
Specialized Education Special laboratory Works in Clinical Pharmacy III 2	Required 9~1																					15 1										15										35	1			35	1	100
Total		360	6	1350	26	1430	31	245	14	220	3 5	540	20	125	11	445	7	375	18 2	225 1	3 4	18	55	3	195	7	410	8	30	3	90 1	1 365	17	190	14	170	17	230	22	220	21	265	11	170	12	515	17	8920

Curriculum Map of Pharmaceutical Sciences Program

Sheet 4

A 1 . 1.	1	1	0.1	1	0.1	1	1.1	1	F.1	1	0.1	1
Academic achievements		grade	2nd			grade •		grade •	5th g			grade •
Evaluation items	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester
1. To have a wide range of knowledge of liberal arts as well as basic understanding and knowledge of natural science and social science.	Liberal Arts Education Subjects GPA	Liberal Arts Education Subjects GPA	Peace Science Courses(⊚)	Training of Physical Chemistry(©)								
	Introduction to University Education(©)	Area Courses(○)										
	Area Courses(○)	Introduction to Pharmaceutical Sciences (©)										
		General Chemistry(⊚)										
2. The basic knowledge and	Foundation Courses(〇)	Foundation Courses(\bigcirc)	Pharmaceutical Physical Chemistry(©)	Natural Products Chemistry(⊚)	Biophysical Chemistry(⊚)	Special laboratory	Works in Pharmaceu	tical Sciences I(⊚)				Japanese Pharmacopoei
understanding of basic structures, physical characters and reaction of	Organic Chemistry I A(©)	General Chemistry(⊚)	Nuclear Pharmacy(⊚)	Training of Physical Chemistry(©)	Medicinal Organic Chemistry(©)	Special laboratory	Works in Pharmaceut	ical Sciences ∏ (⊚)				
medicine and other inorganic and organic	Organic Chemistry I B (©)	Organic Chemistry II A (⊚)	Bio-Analytical Science(⊚)	Experiments in Organic Chemistry(©)	Organic ChemistryⅢ(◎)	Industrial Pharmaceutics(©)	Pharmaceutical Affairs Related Laws (©)					
compounds.		Organic Chemistry ∏B(⊚)	Basic Kampo Medicine(⊚)		Research PracticeA(⊚)	Organic Chemistry I V(⊚)						
•quality ⑤					Herbal medicine & Kampo medicine (⊚)	Research PracticeB(⊚)						
						Pharmacology III(⊚)						
3. Knowledge and understanding of the	Foundation Courses(○)	Foundation Courses(○)	Biochemistry I(◎)	Pharmacology I(©)	Biochemistry VI(©)		AnOutline of Pathology (©)	Clinical Pharmacology A(⊚)			Clinical Pharmacology B(©)	Japanese Pharmacopoe
biological maintenance system of		:		\$	Physiological Chemistry (©)			Pharmacotherapy B(⊚)			Clinical Pharmacology C()	
homeostasis and the ability to adjust to the environment.			•		Antibiotics and Drug resistance (⊚)	0 0101	Clinical food science (\triangle)					
• quality 5			Microbiology (②)	Biodicinistry ((())	Experiments of Microbial Chemistry(③)		Clinical Pharmacy(©)					
			Basic Kampo Medicine (©)				Clinical Medicine and Pharmacotherapy I()					
							AnOutline of Immunology (©)					
							Clinical Medicine and Pharmacotherapy II(③)					
4. Fundamental knowledge•			Basic Kampo Medicine(©)			Phormocology III (@)	AnOutline of Pathology (③)	Phormoon Proctice (6)			Clinical Pharmacology B(©)	
understanding about proper drug			Dasic Kampo Medicine ((())			r narmacology III (©)	Pharmacotherapy A(②)				Clinical Pharmacology B(©) Clinical Pharmacology C(©)	
treatment for major diseases related to											Clinical Pharmacology C(©)	
various organ.							Clinical Pharmacy()					
•quanty 6								Clinical Medicine and Pharmacotherapy III(©)				
							AnOutline of Immunology(◎)					
- 11 1							Clinical Medicine and Pharmacotherapy II(③)					
5. Understanding concerning preservation of the eco system and life			Public Health Chemistry I(©)				Pharmaceutical Affairs Related Laws (◎)					
environment, causes of environmental			Public Health Chemistry II(©)									
pollutants, and their influences on												
humans.												
• quality ⑦												
6. Knowledge and understanding about rational analyses of pharmacokinetics in			Basic Kampo Medicine(◎)	Pharmacology I(⊚)	Pharmacology II(⊚)	Research PracticeB(⊚)	Clinical Pharmacy(©)	Drug Informatics(⊚)			Pharmacoeconomics(◎)	
order to to understand quantitatively				Biopharmaceutics(⊚)	Research PracticeA(⊚)	Public Health Chemistry III (©)	Clinical Medicine and Pharmacotherapy I()	Clinical Pharmacology A(⊚)			Clinical Pharmacology B(⊚)	
madicinal effects or side effects.					Pharmacokinetics(⊚)	Biological Statistics(⊚)	Clinical Medicine and Pharmacotherapy II(③)	Pharmacotherapy B(⊚)			Clinical Pharmacology C(⊚)	
•quality 6							Pharmaceutical Affairs Related Laws (©)	Clinical Medicine and Pharmacotherapy III(©)				
7. The knowledge and understanding of		Introduction to Pharmaceutical Sciences(©)					Clinical Pharmacy(⊚)	Drug Informatics(⊚)			Clinical Pharmacology B(⊚)	
communication with medical teams relating to medication.							Clinical Medicine and Pharmacotherapy I(©)	Clinical Pharmacology A(⊚)			Clinical Pharmacology C(⊚)	
• quality ③ ④							Clinical Medicine and Pharmacotherapy II(©)	Pharmacotherapy B(⊚)				
							Pharmaceutical Affairs Related Laws (©)	Clinical Medicine and Pharmacotherapy III(⊚)				
8. Improving English comprehension to	English subject GPA	English subject GPA	English subject GPA	English subject GPA		Pharmacology III(⊚)		Drug Informatics(◎)			TOEIC	
acquire capacity of medical or chemical	TOEIC	Communication Seminar(©)										
English.		Communication II (©)										
		Non-English Foreign Languages(△)										
	Non-English Foreign Languages (△)											
9. The ability of considering basic			Basic Kampo Medicine(©)	Pharmacology I(©)	Pharmacology II(©)	Research PracticeB(©)	Clinical Pharmacy(©)	Clinical Pharmacology A(©)			Clinical Pharmacology B(©)	Japanese Pharmacopoei
pharmacological effects of medicine to					Research PracticeA(©)		Clinical Medicine and Pharmacotherapy I(③)				Clinical Pharmacology C(③)	
chemical structure.					Antibiotics and Drug resistance (©)			Clinical Medicine and Pharmacotherapy III(③)				
-quanty &					Experiments of Microbial Chemistry()						1	
10. Abilities • skills of citing speculated						Pharmacology III (@)	Pharmacotherapy A(⊚)	Clinical Pharmacology A (©)			Clinical Pharmacology B(©)	Iapanese Pharmacopoo
major diseases from aberration of clinical						i narmacology III (@)		Pharmacotherapy B(©)			Clinical Pharmacology C((③)	зараневе т пагшасорое.
test values.							Clinical food science (\triangle)	**			omnear i narmacology € (♥)	
•qualities6								Chinical Medicine and rharmacotherapy III(◎)				
						<u> </u>	Clinical Pharmacy (©)					
							Clinical Medicine and Pharmacotherapy I(③)					
							Clinical Medicine and Pharmacotherapy II(⊚)				<u> </u>	

Curriculum Map of Pharmaceutical Sciences Program

Sheet 4

		T		I		I		I				T	
	Academic achievements	1st ş	grade •	2nd	grade	3rd {	grade	4th	grade	5th g	rade	6th §	grade
	Evaluation items	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester
	1. Abilities of collecting necessary	Information Courses(⊚)	Introduction to Pharmaceutical Sciences(⊚)	Microbiology(◎)	Pharmacology I(⊚)	Pharmacology II(©)	Special laboratory	Works in Pharmaceut	ical Sciences I(©)	Specia	al laboratory Works	in Clinical Pharmacy 1	((())
	information of drug treatment her/him self.					Research PracticeA(©)	Special laboratory V	Works in Pharmaceut	ical Sciences Ⅱ (◎)	Specia	al laboratory Works	in Clinical Pharmacy I	I (©)
	• quality 6					Antibiotics and Drug resistance(©)	Pharmacology III(©)		Drug Informatics(◎)	Specia	al laboratory Works	in Clinical Pharmacy I	I (©)
							Research PracticeB(©)		Pharmacy Practice(◎)			Pharmacoeconomics (©)	Clinical Evaluation(@
	2. Being able to search for toxic doses,				Pharmacology I(©)			Research PracticePractice for clinical food science (△)					
	targeted organs, symptoms of poisoning,							Pharmacotherapy A(⊚)					
	emergency procedure and detoxication of chemical substances.												
	●quality ⑦												
	3. Abilities • skills of thinking ways of		Introduction to Pharmaceutical Sciences (◎)		Biopharmaceutics(©)	Pharmacology II(©)	Biological Statistics(©)	Pharmacotherapy A(©)					
	coping to reduce harmful effects(side					Pharmacokinetics (©)							
	effects) of madicine. ●quality ⑤					Antibiotics and Drug resistance (©)							
	•quanty •												
	4. To be able to handle major analysis		Pharmaceutical Analysis(©)	Nuclear Pharmacy(©)	Experiments of Biological Chemistry(©)	Experiments of Pharmacognosy (③)		Pharmaceutical Affairs Related Laws (©)					Japanese Pharmacopoeia (
	methods written in the Japanese		· marmaceatrear · marysis (@)	Bio-Analytical Science (©)	<u> </u>	Experiments of Microbial Chemistry(©)							gapanese i na macepeea
	Pharmacopoeia.			Dio 7 mary treat before (@/									
	●quality ⑤												
	5. Using available compounds as starting							Pharmacoutical Affaire Polated Louis (2)	Pharmacy Practice(◎)				Japanese Pharmacopoeia(
lls	materials, to be able to handle organic							r narmacedical Amairs Related Laws (©)	Tharmacy Fractice (©)			1	раранезе гнагнасороева (
	synthesis in order to chemically transform												
	medicine into a target substance. ●quality ⑤												
es s	•quanty •												
oiliti	6. Using available compounds as starting					a	C : 111	W 1 ' DI	: 10: 1(@)				
Ak	materials, to be able to handle organic		Organic Chemistry II A (③)		Experiments in Organic Chemistry(©)	Organic Chemistry III (③)	• •	Works in Pharmaceur					
	synthesis in order to chemically transform	Organic Chemistry I B(©)	Organic Chemistry II B ()			Research PracticeA(©)		Works in Pharmaceut	ical Sciences II (@)				
	medicine into a target substance.						Organic Chemistry IV (③)						
	•quality ⑤						Research PracticeB(⊚)						
	77 A1 114 1 1 111 4												(0)
	7. Ability and skills to measure drug blood level concerning major drugs.					Research PracticeA(©)		Works in Pharmaceu				in Clinical Pharmacy I	
	• quality 6							Works in Pharmaceut		-		in Clinical Pharmacy I	
						Pharmacology Practice(◎)	Research PracticeB(⊚)	Clinical Pharmacy(◎)		Specia	al laboratory Works	in Clinical Pharmacy II	I (©)
								Clinical Medicine and Pharmacotherapy I(③)				Clinical Pharmacology B(©)	
	O (T) 131: 1 131 6							Clinical Medicine and Pharmacotherapy II(③)				Clinical Pharmacology C(⊚)	
	8. The ability and skills of communication with medical teams relating to medication	Communication Seminar (©)	Communication Seminar(©)	Practical English for Pharmaceutical Students(©)				Clinical Pharmacy(©)				Clinical Pharmacology B(©)	
	with medical teams relating to medication. • quality ③ ④	Communication I (©)	Communication II (©)					Clinical Medicine and Pharmacotherapy I(©)				Clinical Pharmacology C(⊚)	
			Introduction to Pharmaceutical Sciences(©)					Clinical Medicine and Pharmacotherapy II(③)	Pharmacotherapy B(⊚)				
	0 00 100								Clinical Medicine and Pharmacotherapy III(©)				
	9. The ability and skills to appropriately deal with contraindication or			Basic Kampo Medicine (©)				Clinical Pharmacy(◎)	Pharmacy Practice(⊚)	Clerkship in Clinic		Clinical Pharmacology B(©)	
	inappropriate treatments of medicine.							Clinical Medicine and Pharmacotherapy I(©)		Clerkship in Clinic	al PharmacyB(◎)	Clinical Pharmacology C(⊚)	
	• quality 6							Clinical Medicine and Pharmacotherapy II(③)					
								Pharmacotherapy A(⊚)					
	1. Self-betterment of character formation as a medical professional: the appropriate		Health and Sports Courses(○)					Clinical Pharmacy(⊚)		Clerkship in Clinic		Clinical Pharmacology B(⊚)	
	as a medical professional: the appropriate action and attitude being aware of that a	Information Courses(◎)	Social Cooperation Courses(△)					Clinical Medicine and Pharmacotherapy I(©)	Clinical Pharmacology A(©)	Clerkship in Clinic	al PharmacyB(©)	Clinical Pharmacology C(⊚)	
	pharmacist is a professional relating to	Health and Sports Courses(〇)	Introduction to Pharmaceutical Sciences(©)					Clinical Medicine and Pharmacotherapy II(©)	Pharmacotherapy B(⊚)				
	human life. The knowledge and	Introduction to University Education (③)						Pharmaceutical Affairs Related Laws (©)	Clinical Medicine and Pharmacotherapy III(©)				
	understanding to have communication not only with ailing people but with other	Social Cooperation Courses (\triangle)											
des	medical staff in a medical team.												
itu	● quality ① ② ③ ④ ⑨												
Att													
	2. Ability to be a pharmacist who is relied	Introductory Seminar for First-Year Students(©)	Health and Sports Courses(〇)					Clinical Pharmacy(⊚)	Pharmacy Practice(©)	Clerkship in Clinic	al PharmacyA(⊚)	Clinical Pharmacology B(©)	
	on not only by a medical team but also by	Information Courses (◎)	Social Cooperation Courses(△)					Clinical Medicine and Pharmacotherapy I(⊚)		Clerkship in Clinic	al PharmacyB(©)	Clinical Pharmacology C(⊚)	
	patients. • quality ① ② ④		Introduction to Pharmaceutical Sciences (◎)					Clinical Medicine and Pharmacotherapy II(◎)	Pharmacotherapy B(©)				
		Introduction to University Education (◎)							Clinical Medicine and Pharmacotherapy III(③)				
		Social Cooperation Courses (△)											
		Lagoration Courses (Δ)		1	<u> </u>	1		1		l		l	

Curriculum Map of Pharmaceutical Sciences Program

α_1	
Sheet	Z
DIICCL	

Academic achievements	1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade	
Evaluation items	Spring semester	Fall semester	Spring semester Fall	semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester
1. Comprehensive problem-solving	$\hbox{Introductory Seminar for First-Year Students} (\textcircled{@}) \hbox{ Social Cooperation Courses} (\triangle)$,		Research PracticeA(©)	Special laboratory Works in Pharmaceut		tical Sciences I(⊚)	Special laboratory Works in		n Clinical Pharmacy I (©)	
ability and educational ability: Concerning the influences caused by numerous	Introduction to University Education (③)	Introduction to Pharmaceutical Sciences ()			Special laboratory Works in Pharmaceutical Science			cical Sciences II (⊚)	Special laboratory Works in Clinical Pharmacy II (◎)			[(◎)
chemical substances existing on the	Social Cooperation Courses (\triangle)					Research PracticeB(©)			Special laboratory Works in Clinical PharmacyⅢ(◎)			
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												
8												
2. Self-betterment of character formation		Social Cooperation Courses(△)						Pharmacy Practice(⊚)	Clerkship in Clinic	al PharmacyA(⊚)		
as a medical professional: the appropriate action and attitude being aware of that a	Information Courses(⊚)	Introduction to Pharmaceutical Sciences(⊚)							Clerkship in Clinical PharmacyB(⊚)			
pharmacist is a professional relating to	Introduction to University Education(◎)											
human life. The knowledge and understanding to have communication not	Social Cooperation Courses(△)											
only with ailing people but with other												
medical staff in a medical team.												
•quality ① ② ③ ④ ⑨												
2. The managed obilities the obilities to			(0)			0 1111		1.00				(8)
3. The research ability: the ability to select issues to be solved in the			Nuclear Pharmacy(O) Experiments of Cells	llular and Molecular Biology(⊚)	Research PracticeA(③) Special laboratory Works in Pharmaceutical Sciences I(③)			Special laboratory Works in Clinical Pharmacy I (O O O O O O O O O O O O O				
professional field of pharmacist and carry		Introduction to Pharmaceutical Sciences(©)		Experiments of Public health Chemistry (③) Special laboratory Works in Pharmaceutical Sciences II (⑥)				icai Sciences II (©)				
out measures and research to solve the	Introduction to University Education (⊚)				Experiments of Microbial Chemistry(③)	Special laboratory Works in Clin			in Clinical Pharmacy ll T	1((())		
issues.	Social Cooperation Courses(△)											
		<u> </u>			Liberal Arts Education Subjects	Basic Specialized Subjects	Specialized Education Subjects	Graduation Thesis	Clerkship in Clinical Pharmacy	(O) Required (O	】 ○) Elective/required	(△)Free electi

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