For entrants in FY 2020

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 mpsdnody, an organ in th

xercise 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

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.

* 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: Teruo Kuroda (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

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	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	44	Practical English for Pharmaceutical Students	2	Required				②								
				Introduction to Pharmaceutical Sciences	2			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)		44		4	10	18	10			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					
			62	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							
				Pharmacology IV	2							②						
				Clinical Pharmacy	2								②					
				Clinical Medicine and Pharmacotherapy I	2								②					
				Pharmacotherapy A	2								②					
				AnOutline of Immunology	2								②					

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
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

Curriculum Map of Pharmaceutical Sciences Program

Sheet 4

Knowledge and Understanding

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
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 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(◎)	Basic Kampo Medicine(◎)	Biophysical Chemistry(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎)						Japanese Pharmacopoeia(◎)
	Organic Chemistry ⅠA(◎)	Organic Chemistry ⅡA(◎)	Nuclear Pharmacy(◎)	Training of Physical Chemistry(◎)	Medicinal Organic Chemistry(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅱ (◎)						
	Organic Chemistry ⅠB(◎)	Organic Chemistry ⅡB(◎)	Bio-Analytical Science(◎)	Experiments in Organic Chemistry(◎)	Research PracticeA(◎)	Industrial Pharmaceutics(◎)	Pharmaceutical Affairs Related Laws(◎)					
	General Chemistry(◎)		Natural Products Chemistry(◎)	Organic ChemistryⅣ(◎)	Herbal medicine & Kampo medicine(◎)	Research PracticeB(◎)						
			Organic ChemistryⅢ(◎)		Pharmacology Ⅲ(◎)	Pharmacology Ⅳ(◎)						
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(○)	Biological Chemistry Ⅲ(◎)	Pharmacology Ⅰ(◎)	Physiological Chemistry(◎)	Cell Motility(◎)	AnOutline of Pathology(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology B(◎)	Japanese Pharmacopoeia(◎)
		Biochemistry Ⅰ(◎)	Microbiology(◎)	Biochemistry Ⅴ(◎)	Antibiotics and Drug resistance(◎)	Genetic Engineering(◎)	Research PracticePractice for clinical food science(△)	Clinical Medicine and Pharmacotherapy Ⅲ(◎)			Clinical Pharmacology C(◎)	
		Biochemistry Ⅱ(◎)	Biological Chemistry Ⅳ(◎)	Basic Kampo Medicine(◎)	Experiments of Microbial Chemistry(◎)		Clinical food science(△)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)				
				Biochemistry Ⅵ(◎)			Clinical Pharmacy(◎)					
							Clinical Medicine and Pharmacotherapy Ⅰ(◎)					
							AnOutline of Immunology(◎)					
							Pharmacotherapy B(◎)					
4. Fundamental knowledge・understanding about proper drug treatment for major diseases related to various organ. ●quality ⑥				Basic Kampo Medicine(◎)	Pharmacology Ⅲ(◎)	Pharmacology Ⅳ(◎)	AnOutline of Pathology(◎)	Pharmacy Practice(◎)			Clinical Pharmacology B(◎)	
							Pharmacotherapy A(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology C(◎)	
							Clinical Pharmacy(◎)	Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
							Clinical Medicine and Pharmacotherapy Ⅰ(◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)				
							AnOutline of Immunology(◎)					
							Pharmacotherapy B(◎)					
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				Pharmacology Ⅰ(◎)	Research PracticeA(◎)	Research PracticeB(◎)	Clinical Pharmacy(◎)	Drug Informatics(◎)			Clinical Pharmacology B(◎)	
				Biopharmaceutics(◎)	Pharmacokinetics(◎)	Public Health Chemistry Ⅲ (◎)	Clinical Medicine and Pharmacotherapy Ⅰ(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology C(◎)	
				Basic Kampo Medicine(◎)		Biological Statistics(◎)	Pharmacotherapy B(◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)				
				Pharmacology Ⅱ(◎)			Pharmaceutical Affairs Related Laws(◎)	Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
							Pharmacoeconomics(◎)					
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(◎)	
							Pharmacotherapy B(◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)				
							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(◎)	Pharmacology Ⅳ(◎)		Drug Informatics(◎)			TOEIC	
	TOEIC	Communication Seminar(◎)		Practical English for Pharmaceutical Students(◎)								
	Communication Seminar(◎)	Communication Ⅱ (◎)										
	Communication Ⅰ (◎)	Non-English Foreign Languages(△)										
	Non-English Foreign Languages(△)											
9. The ability of considering basic pharmacological effects of medicine to chemical structure. ●quality ⑤				Pharmacology Ⅰ(◎)	Research PracticeA(◎)	Research PracticeB(◎)	Clinical Pharmacy(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology B(◎)	Japanese Pharmacopoeia(◎)
				Basic Kampo Medicine(◎)	Antibiotics and Drug resistance(◎)	Pharmacology Ⅳ(◎)	Clinical Medicine and Pharmacotherapy Ⅰ(◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)			Clinical Pharmacology C(◎)	
				Experiments in Analytical Chemistry(◎)	Experiments of Microbial Chemistry(◎)		Pharmacotherapy B(◎)	Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
				Pharmacology Ⅱ(◎)	Pharmacology Ⅲ(◎)							
10. Abilities・skills of citing speculated major diseases from aberration of clinical test values. ●qualities⑥					Pharmacology Ⅲ(◎)	Pharmacology Ⅳ(◎)	Pharmacotherapy A(◎)	Clinical Pharmacology A(◎)			Clinical Pharmacology B(◎)	Japanese Pharmacopoeia(◎)
							Research PracticePractice for clinical food science(△)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)			Clinical Pharmacology C(◎)	
							Clinical food science(△)	Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
							Clinical Pharmacy(◎)					
							Clinical Medicine and Pharmacotherapy Ⅰ(◎)					
							Pharmacotherapy B(◎)					

Curriculum Map of Pharmaceutical Sciences Program

	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 and Data Science Courses(◎)	Introduction to Pharmaceutical Sciences(◎)	Microbiology(◎)	Pharmacology Ⅰ(◎)	Research PracticeA(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎)			Special laboratory Works in Clinical Pharmacy Ⅰ (◎)			
					Pharmacology Ⅱ(◎)	Antibiotics and Drug resistance(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅱ (◎)			Special laboratory Works in Clinical Pharmacy Ⅱ (◎)			
						Pharmacology Ⅲ(◎)	Research PracticeB(◎)	Pharmacoeconomics(◎)	Drug Informatics(◎)	Special laboratory Works in Clinical Pharmacy Ⅲ (◎)			
							Pharmacology Ⅳ(◎)		Clinical Evaluation(◎)				
									Pharmacy Practice(◎)				
	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(◎)	Pharmacokinetics(◎)	Biological Statistics(◎)	Pharmacotherapy A(◎)					
					Pharmacology Ⅱ(◎)	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(◎)	Experiments in Organic Chemistry(◎)	Research PracticeA(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎)						
		Organic Chemistry Ⅰ B(◎)	Organic Chemistry Ⅱ B(◎)		Organic Chemistry Ⅳ(◎)		Special laboratory Works in Pharmaceutical Sciences Ⅱ (◎)						
							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(◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)			Clinical Pharmacology B(◎)	
								Pharmacotherapy B(◎)	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(◎)		Practical English for Pharmaceutical Students(◎)			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(◎)					Pharmacotherapy B(◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)				
									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(◎)	
								Pharmacotherapy B(◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)				
								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 and Data Science 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(◎)					Pharmacotherapy B(◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)				
		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 and Data Science 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(◎)					Pharmacotherapy B(◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)				
		Introduction to University Education(◎)							Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
		Social Cooperation Courses(△)											