As of April 1, 2025

For entrants in FY 2025

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 Pharmaceutical Science

2. Overview

The Program of Pharmaceutical Sciences aims to foster students who are able to develop a new field of knowledge and contribute to local/global communities having a rich humanity by reinventing themselves looking ahead the future society based on the tradition of the pharmaceutical sciences. 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 and suggesting 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; 4) the ethics and improved communication skills required of a clinical pharmacist; and 5) the research abilities to orient them toward the world-leading researches in the pharmaceutical sciences and to enable them to contribute to the development of new drug therapy.

This program is highly systematically designed to foster students who will advance to graduate school and to acquire advanced knowledge and skills as expert pharmacists and ethics as medical staff while expecting them to become practical pharmacists in a medical institution, or to work as 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 Sciences will approve the graduation of, and award the degree bachelor of pharmaceutical science 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 pharmaceutical sciences, 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 properties 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, explanation of medicine instructions and assistance for prescription designing 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 pharmaceutical and other sciences and medicine;

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)

Program of Pharmaceutical Sciences

Policy for design, education and learning method of curriculum

In the Program of Pharmaceutical Sciences, the curriculum (educational course) is arranged according to the policies described below in order to develop medical staff who have abilities mentioned in the diploma policy and have deep humanity and wide-ranging intelligence.

1) To allow students to acquire fundamental knowledge such as physics, biology, mathematics and “Psychology for Medical Care Workers” as well as basic study ability in a wide variety of areas, the curriculum provides the peace study subjects, basic subjects for university education, disciplinary subjects, foreign language subjects, information and data science 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 in the 1st and 2nd year;

2) To allow students to understand the fundamental characteristics on medicines and chemical substances including biological materials, and to learn the fundamental knowledge about typical reactions, separation methods, configuration determination methods, etc., the curriculum provides subjects on the structure and characteristics of materials besides natural medicine resources such as Organic Chemistry and Analytical Chemistry. After learning lectures about these subjects, the curriculum also provides the practical training subjects;

3) To allow students to understand structures of living organisms at the level of individuals, organs and cells, and to learn the fundamental knowledge on the structures and functional regulations of living organisms, the curriculum provides subjects related to the structures and functions of living organisms such as Biochemistry as the Basic

Specialized Subjects in the 1st and 2nd year, and subjects including more advanced contents like Physiological Chemistry and Cellular Biology as Specialized Subjects in the 3rd year. After taking lectures on these subjects, the practical training subjects are prepared for the fall semester in the 2nd year and the spring semester in the 3rd year in order to acquire the technical skills based on knowledge;

4) To allow students to understand the process of pharmacological actions of medicines, and to get the fundamental knowledge about the medicine's actions to diseases, the action mechanism and in vivo fate, the curriculum provides subjects related to the actions and the in vivo fate of medicines such as Pharmacology and Biopharmaceutics as the Basic Specialized Subjects in the 1st and 2nd year, and subjects including more advanced contents like Pharmacokinetics as the Specialized Subjects in the 3rd year. After taking lectures on these subjects, the practical training subjects are prepared for the fall semester in the 2nd year and the spring semester in the 3rd year in order to acquire the technical skills based on knowledge;

5) To allow students to understand the basic and advanced knowledge about the pharmacotherapy, and to learn the knowledge enough to explain the pharmacotherapy to major diseases regarding all organs, the curriculum provides the lecture subjects related to the diseases and the conditions such as Clinical Pharmacy and Pharmacotherapy in the 4th year, and group learning subjects as Program-based Learning like Clinical Pharmacology in the 5th and 6th year. The Pharmacy Practice is prepared for the fall semester in the 4th year while the Clerkships in Clinical Pharmacy are provided in the 5th year. In order to cultivate these abilities, a Seminar Subject (Japanese Pharmacopoeia) is given in the 6th year;

6) To allow students to learn the fundamental knowledge about effects of medicine and chemical substance to the human as well as the human health with the living environments and/or global ecosystem, the curriculum provides Lecture Subjects related to the health and the environment such as Public Health Chemistry in the 2nd and 3rd year. The practical training subjects are prepared for the 3rd year in order to acquire the technical skills and the attitudes based on knowledge;

7) To allow students to understand the social responsibilities and duties of pharmacists, and to learn the fundamental knowledge about laws, systems and economies regarding pharmacy and drugs as well as services at pharmacies, the curriculum provides Lecture Subjects related to the pharmacist services and the pharmaceutical affairs law such as Pharmaceutical Affairs Related Laws and Pharmacoeconomics in the 4th year. The Pharmacy Practice is prepared for the fall semester in the 4th year, and the Clerkships in Clinical Pharmacy are given in the 5th year in order to acquire more practical skills and the attitudes;

8) To allow students to learn the fundamental knowledge required to the pharmacist services such as drug dispensing, formulation and medication counseling in order to participate in the medical care as a team member, the curriculum provides Lecture Subjects related to the formulation adjustment and the drug management like Industrial Pharmaceutics and Drug Informatics in the 3rd and 4th year. The Pharmacy Practice is prepared for the fall semester in the 4th year, and the Clerkships in Clinical Pharmacy are given in the 5th year in order to acquire more practical skills and the attitudes;

9) To allow students to acquire the essential abilities to find and solve problems to be active as a pharmacist who can deal flexibly with the multiple needs required as a provider of medical care, the curriculum provides Seminar Subjects: Research Practices for the fall semester in the 3rd year, subjects including basic contents: Special laboratory Works in Pharmaceutical Sciences I -II for the fall semester in the 3rd year and in the whole 4th year, and subjects including more advanced contents: Special laboratory Works in Clinical Pharmacy I – III as the Specialized Study for

Graduation, well-instructing students individually;

10) To allow students to acquire the fundamental abilities required to keep improving themselves grasping the new knowledge, information, science and technology in order to deal with progresses of pharmacy, sciences and medical cares, the curriculum provides a more professional foreign language subject: Practical English for Pharmaceutical Students in the 2nd year in addition to the Foreign Languages Subjects in the 1st and 2nd year. Besides, The Specialized Study for Graduation Subjects: Special laboratory Works in Pharmaceutical Sciences I – II and Special laboratory Works in Clinical Pharmacy I – III are provided from the fall semester in the 3rd year, well-instructing individually;

11) To allow students to understand the importance of teaching younger people and to acquire the abilities to carry it out in order to foster the next-generation pharmacists, the curriculum creates an environment in which students support the Specialized Study for Graduation of younger members in the same laboratory;

Evaluation Policy for Learning Achievements

The learning achievements are evaluated by the suitable ways to each learning method of the curriculum based on the above Curriculum policy 1) to 11), and the program aims to achieve the Diploma policy. Basically, the Lecture Subjects are evaluated by written-examinations or written-examinations besides report assignments. The Practice Subjects are evaluated comprehensively by report assignments, practice notes, etc. The participatory learning subjects are evaluated by report assignments and presentation. The Seminar Subjects are evaluated by written-examinations, report assignments or presentation. The Pharmacy Practice is evaluated by written and practical skills examination. The Clerkships in Clinical Pharmacy are evaluated by practice notes and presentation. The Specialized Study for Graduation Subjects are evaluated by a rubric determined separately.

Besides these evaluations, students are appraised by their attainment of the goals set by the Program of Pharmaceutical Sciences.

To promote the systematic learning, the program sets a certain standard for the assignment to laboratories. To take the Clerkships in Clinical Pharmacy, the Common Achievement Test which is also set a certain standard is assigned.

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 Sciences (head: Norimitsu Morioka (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 annual report for the program to the Education Quality Assurance committee, and reports the Annual Report to the Bachelor Course Committee. Also, individual class subjects are reviewed and evaluated based on such things as evaluation of lectures by students, and the results of program evaluation, in order to improve the program. Results of the processes described above are fed back to students via the MOMIJI service. For comments provided by students in questionnaires for the evaluation of lectures, feedback is provided via the class improvement questionnaire in MOMIJI.

Table of Registration Standards for Liberal Arts Education Subjects

Program of Pharmaceutical Sciences

Type	Subject type				Required No. of credits	Class subjects, etc.	No. of credits	Type of course registration	Year in which the subject is taken(Note 1)											
									1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade	
									Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Liberal Arts Education Subjects	Peace Science Courses				2		2	Required			○									
	Basic Courses in University Education	Introduction to University Education			2	Introduction to University Education	2	Required	○											
		Introductory Seminar for First-Year Students			2	Introductory Seminar for First-Year Students	2	Required	○											
		Advanced Seminar			0	Advanced Seminar	2	Free elective	○	○										
	Common subjects	Area Courses			4	Courses in Arts and Humanities/SocialSciences	2	Elective/required	○	○										
		(Note 9)			4	Courses in Natural Sciences	2	Elective/required		○										
		Foreign Languages	English (Note 2,3)	Communication Seminar	2	Communication Seminar I	1	Required	○											
						Communication Seminar II	1			○										
				Communication I	2	CommunicationIA	1	Required	○											
						Communication IB	1		○											
				Communication II	2	Communication IIA	1	Required		○										
						Communication IIB	1			○										
			Non-English Foreign Languages (Select one language from German, French and Chinese)(note 4,5)		0	Basic Foreign Language Ⅰ	1	Free elective	○											
						Basic Foreign Language II	1		○											
						Basic Foreign Language III	1			○										
						Basic Foreign Language IV	1			○										
		Information and Data Science Courses			4	Introduction to Information and Data Sciences	2	Required	○											
						Fundamental Data Science	2			○										
		Health and Sports Courses			2		1or2	Elective/required	○	○										
		Social Cooperation Courses			0		1or2	Free elective	○	○										
	Foundation Courses				2	Psychology for Medical Care Workers(Note 6)	2	Required		○										
					2	Foundation physics for life science(Note 7)	2	Elective/required	○											
						Foundation biology for life science(Note 8)	2		○											
					6	Species Biology	2	Required	○											
						Basic Calculus	2		○											
						Basic Linear Algebra	2			○										
Total(Liberal Arts Education 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 6 credits for English subjects esential for the graduation could be replaced with the credits of the subjects those language of instruction in the syllabuses are "E:English". For the details, refer to pages of the liberal arts education in the Students Handbook.

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

Note 5: Achievement in a foreign language skill test and language training might be accepted as credit. For the details, refer to the description regarding foreign language subjects in the liberal arts education and the item "Credit based on Achievement in Foreign Language Skill Test" in the Students Handbook.

Note 6: 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 7: Students who did not take the subject "Physics" in the Common Test for University Admissions are required to take the subject "Foundation physics for life science."

Note 8: Students who did not take the subject "Biology" in the Common Test for University Admissions are required to take the subject "Foundation biology for life science."

Note 9: Of the 4 credits required for the disciplinary subjects (Courses in Arts and Humanities/SocialSciences), 2 credits are required to be earned for the subject "Ethics."

Table of Registration Standards for Liberal Arts Education Subjects

Program of Pharmaceutical Sciences

Type	Subject type	Lesson Style	Required No. of credits	Class subjects, etc.	No. of credits	Type of course registration	Year in which the subject is taken											
							1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade	
							Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Specialized Education Subjects	Basic Specialized Subjects	Lecture	45	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								
				Functional Morphology	2				②									
				Outline of Pathology	1								①					
				Total(Basic Specialized Subjects)	45		4	10	18	12			1					
	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					

Type	Subject type	Lesson Style	Required No. of credits	Class subjects, etc.	No. of credits	Type of course registration	Year in which the subject is taken											
							1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade	
							Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Specialized Education Subjects	Specialized Subjects	Lecture	62	Clinical Medicine and Pharmacotherapy II	2	Required								②				
				Pharmaceutical Affairs Related Laws	2								②					
				Clinical Pharmacology A	2									②				
				Pharmacotherapy B	2								②					
				Drug Informatics	2									②				
				Clinical Medicine and Pharmacotherapy III	2									②				
				Clinical Pharmacology B	2										②			
				Clinical Pharmacology C	2										②			
				Pharmacoeconomics	2								②					
				Clinical Evaluation	2									②				
			Total(Lecture)		64				2	6	14	12	16	10	4			
		Practice	33	Experiments in Analytical Chemistry	1	Required				①								
				Training of Physical Chemistry	1					①								
				Experiments in Organic Chemistry	1					①								
				Experiments of Cellular and Molecular Biology	1					①								
				Experiments of Biological Chemistry	1					①								
				Experiments of Pharmacognosy	1						①							
				Experiments of Microbial Chemistry	1						①							
				Pharmacology Practice	1						①							
				Practice of Pharmaceutics	1						①							
				Experiments of Environmental Health Science	1						①							
				Pharmacy Practice	3									③				
				Clerkship in Clinical Pharmacy A	10										⑩			
				Clerkship in Clinical Pharmacy B	10										⑩			
			Total(Practice)		33					5	5			3	20			
		Special Study for Graduation	10	Special laboratory Works in Pharmaceutical Sciences I	2	Required							②					
				Special laboratory Works in Pharmaceutical Sciences II	2								②					
				Special laboratory Works in Clinical Pharmacy I	2										②			
				Special laboratory Works in Clinical Pharmacy II	2										②			
				Special laboratory Works in Clinical Pharmacy III	2										②			
			Total(Special Study for Graduation)		10								4		6			
			Total(Specialized Subjects)		113				2	11	20		48		32			
			154	Total(Specialized Education Subjects)	158													

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

Graduation requirement	Required No. of credits
Liberal Arts Education Subjects	36
Specialized Education Subjects	154
Basic Specialized Subjects	45
Required Subjects	45
Specialized Subjects	109
Required Subjects (Seminar)	4
Free elective subjects (Seminar)	(2)
Free elective subjects (Lecture)	(2)
Required Subjects (Lecture)	62
Required Subjects (Practice)	33
Required Subjects (Special Study for Graduation)	10
Total	190

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 ④	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 ④	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 ⑦	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 ⑩	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 ⑤ ⑦	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. 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 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 ⑧ ⑨	1. Being able to make communication with other medical staff on medication as a member of medical team. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to make communication with other medical staff on medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain to other medical staff on medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.

Academic achievements			Evaluation criteria		
Evaluation items			Excellent	Very Good	Good
Knowledge and Understanding	(8)	Improving English comprehension to acquire capacity of medical or chemical English.	The level of achievement will be assessed based on a formula that includes the average points calculated based on the student's TOEIC score and an evaluation in class. 80% is minimum.	The level of achievement will be assessed based on a formula that includes the average points calculated based on the student's TOEIC score and an evaluation in class. 70% is minimum.	The level of achievement will be assessed based on a formula that includes the average points calculated based on the student's TOEIC score and an evaluation in class. 60% is minimum..
	(9)	The ability of considering basic pharmacological effects of medicine to chemical structure. ●quality ④	1. Being able to explain basic medical effects relating to chemical structures of medicine. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to enumerate and explain basic medical effects and chemical structures of medicine. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain basic medical effects and chemical structures of medicine. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(10)	Abilities・skills of citing speculated major diseases from aberration of clinical test values. ●quality ⑤ ⑦	1. Being able to enumerate and explain major diseases assumed from abnormal clinical scores. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to enumerate and explain basic points of major diseases assumed from abnormal clinical scores. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain basic points of major diseases assumed from abnormal clinical scores. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(11)	Knowledge of advanced cutting-edge technology that is advancing day by day and its application in medical care. ●quality ⑥	1. Being able to explain in an easy-to-understand manner from the perspective of a medical professional about advanced cutting-edge technology that is advancing day by day and its use in medical care. 2. Achievement level is calculated as the average grade of class performance using a predetermined	1. Being able to explain in an easy-to-understand manner the advanced cutting-edge technologies that are advancing day by day and their use in medical care. 2. Achievement level is calculated as the average grade of class performance using a predetermined formula. The standard is 70% or more.	1. Being able to explain in an easy-to-understand manner the advanced cutting-edge technologies that are advancing day by day and their use in medical care. 2. Achievement level is calculated as the average grade of class performance using a predetermined formula. The standard is 60% or more.
Abilities and Skills	(1)	Abilities of collecting necessary information of drug treatment her/him self and utilize it. ●quality ⑤ ⑥ ⑦	1. Being able to collect necessary information on medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to enumerate and explain basic points necessary for medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain basic points necessary for medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(2)	Being able to search for toxic doses, targeted organs, symptoms of poisoning, emergency procedure and detoxication of chemical substances. ●quality ⑩	1. Being able to explain and search for measures on poisoning, targeted organs, poisoning symptoms, emergency treatments and detoxification of chemical substances. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to search for measures on poisoning, targeted organs, poisoning symptoms, emergency treatments and detoxification of chemical substances. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain search measures on poisoning, targeted organs, poisoning symptoms, emergency treatments and detoxification of chemical substances. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(3)	Abilities・skills of thinking ways of coping to reduce harmful effects(side effects) of madicine. ●quality ④	1. Being able to enumerate basic matters relating to measures to decrease harmful effects (side effects) of medicine and conduct ways of solution. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to enumerate basic matters relating to measures to decrease harmful effects (side effects) of medicine and explain ways of solution. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to enumerate basic matters relating to measures to decrease harmful effects (side effects) of medicine and explain them. 2.The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(4)	To be able to handle major analysis methods written in the Japanese Pharmacopoeia. ●quality ④	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%.

Academic achievements			Evaluation criteria		
Evaluation items			Excellent	Very Good	Good
	(5)	To be able to handle quality control based on major testing methodology related to pharmaceutical formulations stipulated in the Japanese Pharmacopoeia. ●quality ④	1. Being able to construct ways of experiments on representative testing and quality management on drug formulation of Japanese Pharmacopoeia and conduct 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 construct ways of experiments on representative testing and organize the quality management on drug formulation 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 construct ways of experiments on representative testing on drug formulation 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%.
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 ④	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 ⑦	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 ⑧ ⑨	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 ④	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 ⑧ 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, Being 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 ⑨	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 ③ ④	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 ⑧ 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, being 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 ④ ⑤ ⑦	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 Professionalism

② Attitude to comprehensively view patients and consumers

③ A lifelong commitment to learning together

④ Scientific inquiry

⑤ Problem-solving ability based on specialized knowledge

⑥ Ability to utilize information and science and technology

⑦ Practical ability in drug treatment

⑧ Communication skills

⑨ Multi-disciplinary collaboration ability

⑩ Understanding the role of medicine in society

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

Subject Classification	Subject Name	Credits	Type of course registration	Grade	Main Subject	Evaluation items: Knowledge and Understanding (1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)		(11)	
						Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items
Liberal Arts Education	Peace Science Courses	2	Required	3-2T		100	1																				
Liberal Arts Education	Introduction to University Education	2	Required	1-1T		50	1																				
Liberal Arts Education	Introductory Seminar for First-Year Students	2	Required	1-1T																							
Liberal Arts Education	Area Courses	8	Elective/required	1〜2		100	1																				
Liberal Arts Education	Communication Seminar	2	Required	1-1T 2-3T																80	1						
Liberal Arts Education	Communication I	2	Required	1																80	1						
Liberal Arts Education	Communication II	2	Required	2																70	1						
Liberal Arts Education	Non-English Foreign Languages	0	Free elective	1〜2																100	1						
Liberal Arts Education	Information and Data Science Courses	2	Required Elective/required	1〜2																							
Liberal Arts Education	Health and Sports Courses	2	Elective/required	1〜2																							
Liberal Arts Education	Social Cooperation Courses	0	Free elective	1〜2																							
Liberal Arts Education	Foundation Courses	10	Elective/required	1〜2		50	1	10	1	25	1							15	1								
Specialized Education	Practical English for Pharmaceutical Students	2	Required	4-3T																80	1						
Specialized Education	Introduction to Pharmaceutical Sciences	2	Required	2-3T	○	5	1											10	1							5	1
Specialized Education	General Chemistry	2	Required	1-2T	○	50	1	50	1																		
Specialized Education	Pharmaceutical Analysis	2	Required	2-4T	○																						
Specialized Education	Nuclear Pharmacy	2	Required	3-1T	○			70	1																		
Specialized Education	Organic Chemistry IA	1	Required	1-1T	○			50	1																		
Specialized Education	Organic Chemistry IB	1	Required	1-2T	○			50	1																		
Specialized Education	Biochemistry I	2	Required	2-3T	○					100	1																
Specialized Education	Biochemistry II	2	Required	2-4T	○					100	1																
Specialized Education	Biological Chemistry III	2	Required	3-1T	○					100	1																
Specialized Education	Public Health Chemistry I	2	Required	3-1T	○									100	1												
Specialized Education	Basic Kampo Medicine	2	Required	4-4T	○			20	1	20	1	20	1			20	1					20	1				
Specialized Education	Microbiology	2	Required	4-4T	○					90	1																
Specialized Education	Public Health Chemistry II	2	Required	3-2T	○									100	1												
Specialized Education	Pharmaceutical Physical Chemistry	2	Required	3-1T	○			100	1																		
Specialized Education	Bio-Analytical Science	2	Required	3-2T	○			50	1																		
Specialized Education	Natural Products Chemistry	2	Required	3-1T	○			100	1																		
Specialized Education	Biological Chemistry IV	2	Required	3-2T	○					100	1																
Specialized Education	Biopharmaceutics	2	Required	4-3T	○											50	1										
Specialized Education	Biochemistry V	2	Required	4-3T	○					100	2																
Specialized Education	Organic Chemistry II A	1	Required	2-3T	○			50	1																		
Specialized Education	Organic Chemistry II B	1	Required	2-4T	○			50	1																		
Specialized Education	Pharmacology I	2	Required	4-3T	○					30	1					20	1					15	1				
Specialized Education	Functional Morphology	2	Required	3-2T	○							100	1														
Specialized Education	Outline of Pathology	1	Required	7						50	1	50	1														
Specialized Education	Japanese Pharmacopoeia	2	Required	12-3T	○			20	1	20	1											20	1	20	1		
Specialized Education	Research PracticeA	1	Required	5	○			10	1							10	1					10	1				
Specialized Education	Research PracticeB	1	Required	6	○			10	1							10	1					10	1				
Specialized Education	Practice for clinical food science	2	Free elective	7						40	1													40	1		
Specialized Education	Clinical food science	2	Free elective	7						50	1													50	1		
Specialized Education	Herbal medicine & Kampo medicine	2	Required	5-1T	○			100	1																		
Specialized Education	Pharmacokinetics	2	Required	5-1T	○											50	1										
Specialized Education	Biochemistry VI	2	Required	4-4T	○					100	2																
Specialized Education	Biophysical Chemistry	2	Required	5-2T	○			100	1																		
Specialized Education	Antibiotics and Drug resistance	2	Required	5-2T	○					20	1											50	1				
Specialized Education	Physiological Chemistry	2	Required	5-2T	○					100	1																
Specialized Education	Organic Chemistry III	2	Required	3-1T	○			50	1																		
Specialized Education	Medicinal Organic Chemistry	2	Required	5-2T	○			50	1													50	1				
Specialized Education	Pharmacology II	2	Required	4-4T	○											25	1					25	1				
Specialized Education	Industrial Pharmaceutics	2	Required	6-4T	○			100	1																		
Specialized Education	Cell Motility	2	Required	6-4T	○					100	2																
Specialized Education	Genetic Engineering	2	Required	6-3T	○					100	1																
Specialized Education	Organic Chemistry IV	2	Required	4-3T	○			50	1																		
Specialized Education	Public Health Chemistry III	2	Required	6-3T	○											100	1										
Specialized Education	Biological Statistics	2	Required	6												80	1										
Specialized Education	Pharmacology III	2	Required	5-1T	○			30	1			15	1							10	1	15	1	15	1		
Specialized Education	Pharmacology IV	2	Required	6-3T	○			30	1			15	1							10	1	15	1	15	1		
Specialized Education	Clinical Pharmacy	2	Required	7-2T	○					10	1	10	1			10	1	10	1			10	1	10	1		
Specialized Education	Clinical Medicine and Pharmacotherapy I	2	Required	7-1T	○					10	1	10	1			10	1	10	1			10	1	10	1		
Specialized Education	Pharmacotherapy A	2	Required	7-1T	○							20	1											20	1		
Specialized Education	AnOutline of Immunology	2	Required	7-2T						50	1	50	1														

Subject Name	Abilities and Skills (1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		Attitudes (1)		(2)		Comprehensive Abilities (1)		(2)		(3)		Total weighted values of evaluation items in the subject
	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	
Peace Science Courses																													100
Introduction to University Education																			10	1	10	1	10	1	10	1	10	1	100
Introductory Seminar for First-Year Students																			20	1	20	1	20	1	20	1	20	1	100
Area Courses																													100
Communication Seminar															20	1													100
Communication I															20	1													100
Communication II															30	1													100
Non-English Foreign Languages																													100
Information and Data Science Courses	40	1																	10	1	10	1			20	1	20	1	100
Health and Sports Courses																			50	1	50	1							100
Social Cooperation Courses																			20	1	20	1	20	1	20	1	20	1	100
Foundation Courses																													100
Practical English for Pharmaceutical Students															20	1													100
Introduction to Pharmaceutical Sciences	10	1			10	1									10	1			10	1	10	1	10	1	10	1	10	1	95
General Chemistry																													100
Pharmaceutical Analysis							100	1																					100
Nuclear Pharmacy							20	1																			10	1	100
Organic Chemistry IA											50	1																	100
Organic Chemistry IB											50	1																	100
Biochemistry I																													100
Biochemistry II																													100
Biological Chemistry III																													100
Public Health Chemistry I																													100
Basic Kampo Medicine																	20	1											120
Microbiology	10	1																											100
Public Health Chemistry II																													100
Pharmaceutical Physical Chemistry																													100
Bio-Analytical Science							50	1																					100
Natural Products Chemistry																													100
Biological Chemistry IV																													100
Biopharmaceutics					50	1																							100
Biochemistry V																													100
Organic Chemistry II A											50	1																	100
Organic Chemistry II B											50	1																	100
Pharmacology I	20	1	15	1																									100
Functional Morphology																													100
Outline of Pathology																													100
Japanese Pharmacopoeia							10	1	10	1																			100
Research PracticeA	10	1									10	1	10	1									20	1			20	1	100
Research PracticeB	10	1									10	1	10	1									20	1			20	1	100
Practice for clinical food science			20	1																									100
Clinical food science																													100
Herbal medicine & Kampo medicine																													100
Pharmacokinetics					50	1																							100
Biochemistry VI																													100
Biophysical Chemistry																													100
Antibiotics and Drug resistance	10	1			20	1																							100
Physiological Chemistry																													100
Organic Chemistry III											50	1																	100
Medicinal Organic Chemistry																													100
Pharmacology II	25	1			25	1																							100
Industrial Pharmaceutics																													100
Cell Motility																													100
Genetic Engineering																													100
Organic Chemistry IV											50	1																	100
Public Health Chemistry III																													100
Biological Statistics					20	1																							100
Pharmacology III	15	1																											100
Pharmacology IV	15	1																											100
Clinical Pharmacy													10	1	10	1	10	1	5	1	5	1							100
Clinical Medicine and Pharmacotherapy I													10	1	10	1	10	1	5	1	5	1							100
Pharmacotherapy A			20	1	20	1											20	1											100
AnOutline of Immunology																													100

Subject Classification	Subject Name	Credits	Type of course registration	Grade	Main Subject	Evaluation items																																																		Total weighted values of evaluation items in the subject
						Knowledge and Understanding																						Abilities and Skills																		Attitudes				Comprehensive Abilities						
						(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)		(11)		(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(1)		(2)		(1)		(2)		(3)		
						Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	Weighted values of evaluation items in the subject	Weighted values of evaluation items	
Specialized Education	Clinical Medicine and Pharmacotherapy II	2	Required	8-3T	○					10	1	10	1			10	1	10	1			10	1	10	1															10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Pharmaceutical Affairs Related Laws	2	Required	7-2T				20	1					20	1	20	1	10	1															10	1	10	1									10	1									100
Specialized Education	Clinical Pharmacology A	2	Required	8-3T	○					10	1	10	1			10	1	10	1			10	1	10	1															10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Pharmacotherapy B	2	Required	7-1T	○					10	1	10	1			10	1	10	1			10	1	10	1															10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Drug Informatics	2	Required	8-3T	○											25	1	25	1	25	1							25	1																											100
Specialized Education	Clinical Medicine and Pharmacotherapy III	2	Required	8-3T	○					10	1	10	1			10	1	10	1			10	1	10	1															10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Clinical Pharmacology B	2	Required	11-1T	○					10	1	10	1			10	1	10	1			10	1	10	1															10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Clinical Pharmacology C	2	Required	11-1T	○					10	1	10	1			10	1	10	1			10	1	10	1															10	1	10	1	10	1	5	1	5	1							100
Specialized Education	Pharmacoeconomics	2	Required	7-1T	○											50	1											50	1																											100
Specialized Education	Clinical Evaluation	2	Required	8-3T	○																							100	1																											100
Specialized Education	Experiments in Analytical Chemistry	1	Required	4	○																	100	1																																	100
Specialized Education	Training of Physical Chemistry	1	Required	4	○	50	1	50	1																																															100
Specialized Education	Experiments in Organic Chemistry	1	Required	4	○			50	1																													50	1																	100
Specialized Education	Experiments of Cellular and Molecular Biology	1	Required	4	○																																																	100	2	100
Specialized Education	Experiments of Biological Chemistry	1	Required	4	○																													100	1																					100
Specialized Education	Experiments of Pharmacognosy	1	Required	5	○																													100	1																					100
Specialized Education	Experiments of Microbial Chemistry	1	Required	5	○					30	1											30	1											20	1																			20	1	100
Specialized Education	Pharmacology Practice	1	Required	5	○																																			100	1															100
Specialized Education	Practice of Pharmaceutics	1	Required	5	○																																			100	1															100
Specialized Education	Experiments of Environmental Health Science	1	Required	5	○																																																	100	1	100
Specialized Education	Pharmacy Practice	3	Required	8	○							10	1															10	1							10	1					10	1	10	1	20	1	20	1			10	1			100
Specialized Education	Clerkship in Clinical PharmacyA	10	Required	9〜10	○																																							20	3	20	3	20	3			40	3			100
Specialized Education	Clerkship in Clinical PharmacyB	10	Required	9〜10	○																																							20	3	20	3	20	3			40	3			100
Specialized Education	Special laboratory Works in Pharmaceutical Sciences I	2	Required	6〜8	○			10	1											5	1					5	1	10	1									10	1	10	1									25	1			25	1	95
Specialized Education	Special laboratory Works in Pharmaceutical Sciences II	2	Required	6〜8	○			10	1											5	1					5	1	10	1									10	1	10	1									25	1			25	1	95
Specialized Education	Special laboratory Works in Clinical Pharmacy I	2	Required	9〜12	○															5	1					5	1	15	1											15	1									30	1			30	1	95
Specialized Education	Special laboratory Works in Clinical Pharmacy II	2	Required	9〜12	○															5	1					5	1	15	1											15	1									30	1			30	1	95
Specialized Education	Special laboratory Works in Clinical Pharmacy III	2	Required	9〜12	○															5	1					5	1	15	1											15	1									30	1			30	1	95
Total						405	7	1290	27	1405	31	360	16	220	3	540	20	140	12	480	13	440	20	240	14	30	6	415	19	55	3	195	7	410	8	30	3	390	11	365	17	190	14	170	17	230	22	220	21	240	11	170	12	490	17	9090

Curriculum Map of Pharmaceutical Sciences Program

Sheet 4

Academic achievements / Evaluation items	1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade	
	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester
Knowledge and Understanding 1. To have a wide range of knowledge of liberal arts as well as basic understanding and knowledge of natural science and social science.	Liberal Arts Education Subjects GPA Introduction to University Education(◎) Area Courses(○) Foundation Courses(◎) General Chemistry(◎)	Liberal Arts Education Subjects GPA Area Courses(○) Introduction to Pharmaceutical Sciences(◎) Foundation Courses(◎)	Peace Science Courses(◎)	Training of Physical Chemistry(◎)								
2. The basic knowledge and understanding of basic structures, physical characters and reaction of medicine and other inorganic and organic compounds. ●quality ④	Organic Chemistry ⅠA(◎) Organic Chemistry ⅠB(◎) General Chemistry(◎) Foundation Courses(○)	Organic Chemistry ⅡA(◎) Organic Chemistry ⅡB(◎)	Pharmaceutical Physical Chemistry(◎) Nuclear Pharmacy(◎) Bio-Analytical Science(◎) Natural Products Chemistry(◎) Organic ChemistryⅢ(◎)	Basic Kampo Medicine(◎) Training of Physical Chemistry(◎) Experiments in Organic Chemistry(◎) Organic ChemistryⅣ(◎)	Biophysical Chemistry(◎) Medicinal Organic Chemistry(◎) Research PracticeA(◎) Herbal medicine & Kampo medicine(◎) Pharmacology Ⅲ(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎) Special laboratory Works in Pharmaceutical Sciences Ⅱ(◎) Industrial Pharmaceutics(◎) Research PracticeB(◎) Pharmacology Ⅳ(◎)	Pharmaceutical Affairs Related Laws(◎)					Japanese Pharmacopoeia(◎)
3. Knowledge and understanding of the biological maintenance system of homeostasis and the ability to adjust to the environment. ●quality ④	Foundation Courses(◎) Biochemistry Ⅰ(◎) Biochemistry Ⅱ(◎)		Biological Chemistry Ⅲ(◎) Biological Chemistry Ⅳ(◎)	Pharmacology Ⅰ(◎) Biochemistry Ⅴ(◎) Microbiology(◎) Basic Kampo Medicine(◎) Biochemistry Ⅵ(◎)	Physiological Chemistry(◎) Antibiotics and Drug resistance(◎) Experiments of Microbial Chemistry(◎)	Cell Motility(◎) Genetic Engineering(◎)	AnOutline of Pathology(◎) Research PracticePractice for clinical food science(△) Clinical food science(△) Clinical Pharmacy(◎) Clinical Medicine and Pharmacotherapy Ⅰ(◎) AnOutline of Immunology(◎) Pharmacotherapy B(◎)	Clinical Pharmacology A(◎) Clinical Medicine and Pharmacotherapy Ⅲ(◎) Clinical Medicine and Pharmacotherapy Ⅱ(◎)			Clinical Pharmacology B(◎) Clinical Pharmacology C(◎)	Japanese Pharmacopoeia(◎)
4. Fundamental knowledge・understanding about proper drug treatment for major diseases related to various organ. ●quality ⑦			Functional Morphology(◎)	Basic Kampo Medicine(◎)	Pharmacology Ⅲ(◎)	Pharmacology Ⅳ(◎)	AnOutline of Pathology(◎) Pharmacotherapy A(◎) Clinical Pharmacy(◎) Clinical Medicine and Pharmacotherapy Ⅰ(◎) AnOutline of Immunology(◎) Pharmacotherapy B(◎)	Pharmacy Practice(◎) Clinical Pharmacology A(◎) Clinical Medicine and Pharmacotherapy Ⅲ(◎) Clinical Medicine and Pharmacotherapy Ⅱ(◎)			Clinical Pharmacology B(◎) Clinical Pharmacology C(◎)	
5. Understanding concerning preservation of the eco system and life environment, causes of environmental pollutants, and their influences on humans. ●quality ⑩			Public Health Chemistry Ⅰ(◎) Public Health Chemistry Ⅱ(◎)				Pharmaceutical Affairs Related Laws(◎)					
6. Knowledge and understanding about rational analyses of pharmacokinetics in order to to understand quantitatively madicinal effects or side effects. ●quality ⑤ ⑦				Pharmacology Ⅰ(◎) Biopharmaceutics(◎) Basic Kampo Medicine(◎) Pharmacology Ⅱ(◎)	Research PracticeA(◎) Pharmacokinetics(◎)	Research PracticeB(◎) Public Health Chemistry Ⅲ(◎) Biological Statistics(◎)	Clinical Pharmacy(◎) Clinical Medicine and Pharmacotherapy Ⅰ(◎) Pharmacotherapy B(◎) Pharmaceutical Affairs Related Laws(◎) Pharmacoeconomics(◎)	Drug Informatics(◎) Clinical Pharmacology A(◎) Clinical Medicine and Pharmacotherapy Ⅱ(◎) Clinical Medicine and Pharmacotherapy Ⅲ(◎)			Clinical Pharmacology B(◎) Clinical Pharmacology C(◎)	
7. The knowledge and understanding of communication with medical teams relating to medication. ●quality ⑧ ⑨		Introduction to Pharmaceutical Sciences(◎) Foundation Courses(◎)					Clinical Pharmacy(◎) Clinical Medicine and Pharmacotherapy Ⅰ(◎) Pharmacotherapy B(◎) Pharmaceutical Affairs Related Laws(◎)	Drug Informatics(◎) Clinical Pharmacology A(◎) Clinical Medicine and Pharmacotherapy Ⅱ(◎) Clinical Medicine and Pharmacotherapy Ⅲ(◎)			Clinical Pharmacology B(◎) Clinical Pharmacology C(◎)	
8. Improving English comprehension to acquire capacity of medical or chemical English.	English subject GPA TOEIC Communication Seminar(◎) Communication Ⅰ(◎) Non-English Foreign Languages(△)	English subject GPA Communication Seminar(◎) Communication Ⅱ(◎) Non-English Foreign Languages(△)	English subject GPA	English subject GPA Practical English for Pharmaceutical Students(◎)	Pharmacology Ⅲ(◎)	Pharmacology Ⅳ(◎) Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎) Special laboratory Works in Pharmaceutical Sciences Ⅱ(◎)		Drug Informatics(◎)	Special laboratory Works in Clinical Pharmacy Ⅰ(◎) Special laboratory Works in Clinical Pharmacy Ⅱ(◎) Special laboratory Works in Clinical Pharmacy Ⅲ(◎)		TOEIC	
9. The ability of considering basic pharmacological effects of medicine to chemical structure. ●quality ④				Pharmacology Ⅰ(◎) Basic Kampo Medicine(◎) Experiments in Analytical Chemistry(◎) Pharmacology Ⅱ(◎)	Research PracticeA(◎) Antibiotics and Drug resistance(◎) Experiments of Microbial Chemistry(◎) Pharmacology Ⅲ(◎)	Research PracticeB(◎) Pharmacology Ⅳ(◎)	Clinical Pharmacy(◎) Clinical Medicine and Pharmacotherapy Ⅰ(◎) Pharmacotherapy B(◎)	Clinical Pharmacology A(◎) Clinical Medicine and Pharmacotherapy Ⅱ(◎) Clinical Medicine and Pharmacotherapy Ⅲ(◎)			Clinical Pharmacology B(◎) Clinical Pharmacology C(◎)	Japanese Pharmacopoeia(◎)
10. Abilities・skills of citing speculated major diseases from aberration of clinical test values. ●quality⑤ ⑦					Pharmacology Ⅲ(◎)	Pharmacology Ⅳ(◎)	Pharmacotherapy A(◎) Research PracticePractice for clinical food science(△) Clinical food science(△) Clinical Pharmacy(◎) Clinical Medicine and Pharmacotherapy Ⅰ(◎)	Clinical Pharmacology A(◎) Clinical Medicine and Pharmacotherapy Ⅱ(◎) Clinical Medicine and Pharmacotherapy Ⅲ(◎)			Clinical Pharmacology B(◎) Clinical Pharmacology C(◎)	Japanese Pharmacopoeia(◎)

Curriculum Map of Pharmaceutical Sciences Program

Sheet 4

Academic achievements / Evaluation items	1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade	
	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester
							Pharmacotherapy B(◎)					
11. Knowledge of advanced cutting-edge technology that is advancing day by day and its application in medical care. ●quality ⑥		Introduction to Pharmaceutical Sciences(◎)				Special laboratory Works in Pharmaceutical Sciences I(◎)			Special laboratory Works in Clinical Pharmacy I (◎)			
						Special laboratory Works in Pharmaceutical Sciences II (◎)			Special laboratory Works in Clinical Pharmacy II (◎)			
									Special laboratory Works in Clinical PharmacyIII (◎)			

Curriculum Map of Pharmaceutical Sciences Program

Sheet 4

	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
Abilities and Skills	1. Abilities of collecting necessary information of drug treatment her/him self and utilize it. ●quality ⑤ ⑥ ⑦	Information and Data Science Courses (◎○)	Information and Data Science Courses (◎○)		Pharmacology Ⅰ(◎)	Research PracticeA(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎)			Special laboratory Works in Clinical Pharmacy Ⅰ (◎)			
			Introduction to Pharmaceutical Sciences (◎)		Microbiology (◎)	Antibiotics and Drug resistance (◎)	Special laboratory Works in Pharmaceutical Sciences Ⅱ (◎)			Special laboratory Works in Clinical Pharmacy Ⅱ (◎)			
					Pharmacology 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 ⑩				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 ④		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 ④		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 ④							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 ④	Organic Chemistry ⅠA(◎)	Organic Chemistry ⅡA(◎)	Organic Chemistry Ⅲ (◎)	Experiments in Organic Chemistry (◎)	Research PracticeA(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎)						
		Organic Chemistry ⅠB(◎)	Organic Chemistry ⅡB(◎)		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 ⑦					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 ⑧ ⑨	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 ④				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 ⑧ 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 (◎○)	Information and Data Science Courses (◎○)					Clinical Medicine and Pharmacotherapy Ⅰ(◎)	Clinical Pharmacology A(◎)	Clerkship in Clinical PharmacyB (◎)		Clinical Pharmacology C(◎)	
		Health and Sports Courses (○)	Social Cooperation Courses (△)					Pharmacotherapy B (◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)				
		Introduction to University Education (◎)	Introduction to Pharmaceutical Sciences (◎)					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 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 (◎○)	Information and Data Science Courses (◎○)					Clinical Medicine and Pharmacotherapy Ⅰ(◎)	Clinical Pharmacology A(◎)	Clerkship in Clinical PharmacyB (◎)		Clinical Pharmacology C(◎)	
		Health and Sports Courses (○)	Social Cooperation Courses (△)					Pharmacotherapy B (◎)	Clinical Medicine and Pharmacotherapy Ⅱ(◎)				
		Introduction to University Education (◎)	Introduction to Pharmaceutical Sciences (◎)						Clinical Medicine and Pharmacotherapy Ⅲ(◎)				
		Social Cooperation Courses (△)											

Curriculum Map of Pharmaceutical Sciences Program

Sheet 4

Academic achievements / Evaluation items	1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade	
	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester
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 ③ ④	Introductory Seminar for First-Year Students(◎)	Social Cooperation Courses(△)			Research PracticeA(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎)			Special laboratory Works in Clinical Pharmacy Ⅰ (◎)			
	Introduction to University Education(◎)	Introduction to Pharmaceutical Sciences(◎)				Special laboratory Works in Pharmaceutical Sciences Ⅱ (◎)			Special laboratory Works in Clinical Pharmacy Ⅱ (◎)			
	Social Cooperation Courses(△)					Research PracticeB(◎)			Special laboratory Works in Clinical Pharmacy Ⅲ (◎)			
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 ⑧ ⑨	Introductory Seminar for First-Year Students(◎)	Social Cooperation Courses(△)						Pharmacy Practice(◎)	Clerkship in Clinical PharmacyA(◎)			
	Information and Data Science Courses(◎○)	Information and Data Science Courses(◎○)							Clerkship in Clinical PharmacyB(◎)			
	Introduction to University Education(◎)	Introduction to Pharmaceutical Sciences(◎)										
	Social Cooperation Courses(△)											
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 ④ ⑤ ⑦	Introductory Seminar for First-Year Students(◎)	Social Cooperation Courses(△)	Nuclear Pharmacy(◎)	Experiments of Cellular and Molecular Biology(◎)	Research PracticeA(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅰ(◎)			Special laboratory Works in Clinical Pharmacy Ⅰ (◎)			
	Information and Data Science Courses(◎○)	Information and Data Science Courses(◎○)			Experiments of Environmental Health Science(◎)	Special laboratory Works in Pharmaceutical Sciences Ⅱ (◎)			Special laboratory Works in Clinical Pharmacy Ⅱ (◎)			
	Introduction to University Education(◎)	Introduction to Pharmaceutical Sciences(◎)			Experiments of Microbial Chemistry(◎)	Research PracticeB(◎)			Special laboratory Works in Clinical Pharmacy Ⅲ (◎)			
	Social Cooperation Courses(△)											

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

● Fundamental qualities required for pharmacists
① Professionalism
② Attitude to comprehensively view patients and consumers
③ A lifelong commitment to learning together
④ Scientific inquiry
⑤ Problem-solving ability based on specialized knowledge
⑥ Ability to utilize information and science and technology
⑦ Practical ability in drug treatment
⑧ Communication skills
⑨ Multi-disciplinary collaboration ability
⑩ Understanding the role of medicine in society

Program of Pharmaceutical Sciences: Course Step

Selection of Program on matriculation (Students in Program of Pharmaceutical Sciences, School of Pharmaceutical Sciences)

First Step

- Liberal Arts Education Program
  required elective: ☞ Course Table
- Introductory Seminar • Early Practice Training
  compulsory: ☞ Course Table
- Communication • Humanism
  compulsory: ☞ Course Table

Second Step

- Structure and Properties of Materials
  required elective: ☞ Course Table
- Natural Medicines
  compulsory:☞ Course Table
- Biological Structure and Function
  compulsory:☞ Course Table

Third Step

- Action of Medicines
  required elective :
  ☞ Course Table
- Diseases and Pathologies
  required elective:
  ☞ Course Table
- Pharmacist Services
  compulsory:
  ☞ Course Table
- Pharmaceutical Laws and Regulations
  compulsory:
  ☞ Course Table
- Pharmacokinetics of medicines
  compulsory:
  ☞ Course Table
- Preparation of pharmaceutics and administration of medicines
  compulsory:
  ☞ Course Table
- Health and Environmental
  compulsory:
  ☞ Course Table
- Practice
  compulsory:
  ☞ Course Table

If a student has not taken a compulsory subject, the student cannot progress to the fourth step.

Fourth Step

- Pharmacy Practice
  compulsory:☞ Course Table
- Common Achievement Test (Successful Applicants)
  compulsory
- Clerkship in Clinical Pharmacy A/B
  compulsory: ☞ Course Table

Fifth Step

- Research Practice A/B
  compulsory:☞ Course Table
- Laboratory Works for Graduation
  compulsory:☞ Course Table
- Diseases and Pathologies
  compulsory:☞ Course Table

Requirement for Graduation: Completion of Program of Pharmaceutical Sciences

Graduation of Program of Pharmaceutical Sciences,
School of Pharmaceutical Sciences, Bachelor of Pharmaceutical Science