

For entrants in FY 2023

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	
<p>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.</p> <p>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.</p>	
3. Diploma policy (policy for awarding degrees and goal of the program)	
<p>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:</p> <ol style="list-style-type: none"> 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, fundamental 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 information and knowledge 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: Takuya Kumamoto (who is in charge of educational affairs) is engaged in the processes of "plan" and "do."

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

(2) Evaluation of the program

- Perspectives for evaluation of the program

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

- Evaluation method (also describes relation to class evaluation)

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

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

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

- Policy and method for feedback to students

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

Table of Registration Standards for Liberal Arts Education Subjects

Program of Pharmaceutical Sciences

Type	Subject type	Required No. of credits	Class subjects, etc.	No. of credits	Type of course registration	Year in which the subject is taken(Note 1)																	
						1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade							
						Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	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 (Note 10)	4	Courses in Arts and Humanities/SocialSciences	2	Elective/required	○	○															
			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	Communication IA	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	2	Introduction to Information and Data Sciences(Note 6)	2	Required	○																
	2		Information and Data Science Courses	2	Elective/required		○																
	Health and Sports Courses	2		1or2	Elective/required	○	○																
	Social Cooperation Courses	0		1or2	Free elective	○	○																
Foundation Courses	4	Psychology for Medical Care Workers(Note 7)	2	Required		○																	
		Statistics	2				○																
	2	Foundation physics for life science(Note 8)	2	Elective/required	○																		
		Foundation biology for life science(Note 9)	2		○																		
	4	Species Biology	2	Elective/required	○																		
		Basic Calculus	2		○																		
	Basic Linear Algebra	2				○																	
		2 subjects from the three subjects above																					
Total(Liberal Arts Education Subjects)		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 essential 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 "Field Research in the English-speaking World" that are earned through such activities as a short-term study abroad, and those for "Online English Seminar A" and "Online English Seminar B" that are earned through a program of self-study, are accepted as the credit for English required for graduation (6 credits). Achievement in a foreign language skill test and language training might be accepted as credit. For the details, refer to the description regarding English subjects in the liberal arts education and the item "Credit based on Achievement in Foreign Language Skill Test" in the Students Handbook.
- Note 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 "Introduction to Information and Data Sciences" that is provided in the first year. Only when failing to earn the credit for "Introduction to Information and Data Sciences" is the credit for the subject "Exercise in Information Literacy" accepted as that for the information and data science subjects required for graduation (2 credits).
- Note 7: 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 8: 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 9: 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 10: 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 II A	1					①																		
				Organic Chemistry II B	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 Education 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							
Specialized Subjects	Lecture	62	(2)		Clinical food science	2	Free elective								2													
					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							
				Specialized Subjects	Practice		33	Experiments in Analytical Chemistry	1	Required				①														
								Training of Physical Chemistry	1					①														
								Experiments in Organic Chemistry	1					①														
	Experiments of Cellular and Molecular Biology	1							①																			
	Experiments of Biological Chemistry	1							①																			
	Experiments of Pharmacognosy	1										①																
	Experiments of Microbial Chemistry	1										①																
	Pharmacology Practice	1										①																
	Practice of Pharmaceutics	1										①																
	Experiments of Public health Chemistry	1										①																
	Pharmacy Practice	3															③											
	Clerkship in Clinical PharmacyA	10																			⑩							
	Clerkship in Clinical PharmacyB	10																			⑩							
	Total(Practice)					33						5	5				3			20								
	Specialized Subjects	Special Study for Graduation	10	Special laboratory Works in Pharmaceutical Sciences I	2	Required								②														
				Special laboratory Works in Pharmaceutical SciencesII	2							②																
				Special laboratory Works in Clinical Pharmacy I	2																②							
				Special laboratory Works in Clinical PharmacyII	2																②							
				Special laboratory Works in Clinical PharmacyIII	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 ⑤	1. Being able to explain clearly from medical point of view about the basic structure, physical characteristics and reaction of medicine and inorganic and organic compounds. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to explain clearly about the basic structure, physical characteristics and reaction of medicine and inorganic and organic compounds. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain about the basic structure, physical characteristics and reaction of medicine and inorganic and organic compounds. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(3) Knowledge and understanding of the biological maintenance system of homeostasis and the ability to adjust to the environment. ●quality ⑤	1. Being able to clearly explain from medical point of view about maintenance mechanism of ecosystem homeostasis and dynamic adjustment. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to clearly explain about maintenance mechanism of ecosystem homeostasis and dynamic adjustment. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain about maintenance mechanism of ecosystem homeostasis and dynamic adjustment. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(4) Fundamental knowledge • understanding about proper drug treatment for major diseases related to various organ. ●quality ⑥	1. Being able to comprehensively explain appropriate medication to major diseases relating to various organs from medical point of view. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to comprehensively explain appropriate medication to major diseases relating to various organs. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain appropriate medication to major diseases relating to various organs. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(5) Understanding concerning preservation of the eco system and life environment, causes of environmental pollutants, and their influences on humans. ●quality ⑦	1. Being able to explain from medical point of view about ecosystem, preservation of living environment, components of environmental contamination, and human effects. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to clearly explain about ecosystem, preservation of living environment, components of environmental contamination, and human effects. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain from about ecosystem, preservation of living environment, components of environmental contamination, and human effects. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(6) Knowledge and understanding about rational analyses of pharmacokinetics in order to to understand quantitatively medicinal effects or side effects. ●quality ⑥	1. Being able to comprehensively explain from medical point of view about the logical analysis of pharmacokinetics to understand medical effects and side effects quantitatively.	1. Being able to comprehensively explain the logical analysis of pharmacokinetics to understand medical effects and side effects quantitatively. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain the logical analysis of pharmacokinetics to understand medical effects and side effects quantitatively. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.
	(7) The knowledge and understanding of communication with medical teams relating to medication. ●quality ③ ④	1. Being able to make communication with other medical staff on medication as a member of medical team. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 80%.	1. Being able to make communication with other medical staff on medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 70%.	1. Being able to explain to other medical staff on medication. 2. The learning attainment level is calculated as an average evaluation of grades based on designated formulae. The standard is more than 60%.

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

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

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

Role of liberal arts education in this major program

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

● Fundamental qualities required for pharmacists

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

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

Curriculum Map of Pharmaceutical Sciences Program

Academic achievements Evaluation items	1st grade		2nd grade		3rd grade		4th grade		5th grade		6th grade		
	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	
Comprehensive Abilities	1. Comprehensive problem-solving ability and educational ability: Concerning the influences caused by numerous chemical substances existing on the earth, to be able to analyze and argue about the survival of the human race. Also, to have the ability and skills to give instruction to youth. ●quality ⑤ ⑩	Introductory Seminar for First-Year Students (◎)	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 ④ 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 ⑧	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 Public health Chemistry (◎)	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 Attitude as a pharmacist
- ② Viewpoint oriented to patients and ordinary citizens
- ③ Communication skills
- ④ Participation in team medical care
- ⑤ Basic scientific knowledge and skills
- ⑥ Practical capabilities regarding pharmacotherapy
- ⑦ Practical capabilities for health and medical care in the local community
- ⑧ Research ability
- ⑨ Self-improvement
- ⑩ Educational skills