

CHAPTER VII CURRICULUM 2022

The courses in the curriculum (State on the Decree of the Rector of Universitas Gadjah Mada Number: 1165/UN1.P/KPT/HUKOR/2023 (<http://ugm.id/skfa7>) are mandated by the program learning outcome (PLO) for the Bachelor in pharmacy study program. The courses that are mandated to carry out course learning outcome (CLO) are compulsory curriculum courses (137 credits) to ensure that all students receive the same CLO until they graduate. In addition to compulsory courses, the curriculum also included elective courses categorized as pharmacy electives, interdisciplinary within and outside the cluster, and MBKM supporting elective courses are not subject to CLO. This system includes total 12 credits of elective courses (can be taken from various types of elective courses as mentioned above) that must be taken as a graduation requirement. Cross-disciplinary course within the cluster are included courses that offered by the Faculty of Medicine, Dentistry, or Psychology. Whereas, the courses that offered by Faculty others than those three faculties are categorized as electi courses outside the health cluster.

Courses included in pharmaceutical science, many are subject to general skills and special skills CLO, while for knowledge and attitude CLO, many are subject to courses included in social pharmacy or general courses. The CLO course mandate for this course is not much different from the previous 2017 curriculum which required students to take 146 credits to graduate. The Practicum course (laboratory works) as a support for lecture activities is charged the same PLO as the main course. The curriculum is supported by the Thesis and Research Methodology and Pharmaceutical Statistics courses to support research activities/final assignments (6 credits) that students need to do as a graduation requirement. Another important course for soft skills and community service activities of students is the integrated KKN course of 10 credits. The syllabus of each courses are described in the module handbook (<http://ugm.id/mofa8>).

A. Curriculum General Structure

Semester 1					
No.	Course Code	Course	Credit	Pre-req	Co-req
1	FAF221101	Human Physiology and Anatomy	2	None	
2	FAF221103	Pharmaceutical Biochemistry	2	None	
3	FAF221105	Cell Biology-Microbiology	3	None	
4	FAF221107	Pharmaceutics 1	2	None	
5	FAF221108	Physical Pharmacy I	2	None	
6	FAF221109	Basic Pharmaceutical Chemistry	2	None	
7	FAF221111	Organic Chemistry I	3	None	
8	FAF221102	Human Physiology anatomy Practical Work	1	None	
9	FAF221104	Pharmaceutical Biochemistry Practical Work	1	None	
10	FAF221106	Cell Biology-Microbiology Practical Work	1	None	
11	FAF221110	Basic Pharmaceutical Chemistry Practical Work	1	None	
		Character Building	(1)		
Total Credits for Semester 1			20		

Semester 2					
No.	Course Code	Course	Credit	Pre-req	Co-req
1	FAF221201	Molecular Biology	2	Pharmaceutical Biochemistry, Cell Biology-Microbiology	
2	FAF221203	Pharmacology I	2	Pharmaceutical Biochemistry, Human Physiology and Anatomy	
3	FAF221204	Pharmaceutics II	1	Pharmaceutics I	
4	FAF221206	Physical Pharmacy II	1	Physical Pharmacy I	
5	FAF221208	Social and Behavioral Sciences of Pharmacy	2		
6	FAF221209	Analytical Chemistry I	1	Basic Pharmaceutical Chemistry	
7	FAF221211	Organic Chemistry II	2	Organic Chemistry I	
8	FAF221213	Pharmacy Management	2		Social Science and Behavioral of Pharmacy
9	FAF221202	Molecular Biology Practical Work	1	Pharmaceutical Biochemistry, Cell Biology-Microbiology	
10	FAF221205	Pharmaceutics II Practical Work	1	Pharmaceutics I	
11	FAF221207	Physical Pharmacy II Practical Work	1	Physical Pharmacy I	
12	FAF221210	Analytical Chemistry I Practical Work	1	Basic Pharmaceutical Chemistry	
13	FAF221212	Organic Chemistry II Practical Work	1	Organic Chemistry I	
		Interdisciplinary Course	2		
	Co-curricular	English Communication Skills	(1)		
Total Credits for Semester 2			20		

Semester 3					
No.	Course Code	Course	Credit	Pre-req	Co-req
1	FAF221301	Pharmacokinetics	2	Human Physiology and Anatomy, Pharmacology I	
2	FAF221302	Experimental Pharmacology and Toxicology I	1	Pharmacology 1	
3	FAF221303	Pharmacology II	2	Pharmacology 1	
4	FAF221304	Solid Dosage Form Formulation and Technology	2	Pharmaceutics I, Physical Pharmacy II	
5	FAF221306	Analytical Chemistry II	2	Analytical Chemistry I	
6	FAF221309	Medicinal Chemistry	2	Organic Chemistry II, Pharmaceutical Biochemistry	
7	FAF221310	Research Methodology and Pharmaceutical Statistic	3		
8	FAF221305	Solid Dosage Form Formulation and Technology Practical work	1	Pharmaceutics I, Physical Pharmacy II	
9	FAF221307	Analytical Chemistry II Practical work	1	Analytical Chemistry I	
		Interdisciplinary Course	2		
		Pharmaceutical Elective Course	2		
	Co-curricular	English for pharmacy	(1)		
Total Credits for Semester 3			20		

Semester 4					
No.	Course Code	Course	Credit	Pre-req	Co-req
1	FAF221401	Clinical Pharmacokinetics-Therapeutic Drug Monitoring	2	Pharmacokinetics	
2	FAF221402	Experimental Pharmacology and Toxicology II	1	Pharmacology II	Toxicology
3	FAF221403	Pharmacotherapy I	2	Pharmacokinetics, Pharmacology I and II	
4	FAF221404	Semisolid-liquid Dosage Form Formulation and Technology	2	Physical Pharmacy II	
5	FAF221406	Chromatography	2	Analytical Chemistry I and II, Physical Pharmacy I and II	
6	FAF221405	Semisolid-liquid Dosage Form Formulation and Technology Practical Work	1	Physical Pharmacy II	
7	FAF221307	Chromatography Practical Work	1	Analytical Chemistry I	
8	FAF221408	Product Stability	2	Physical Pharmacy II	
9	FAF221409	Toxicology	2	Pharmacology I	
10	UNUIB212201	Indonesian Language and Scientific Writing	2		
11	UNU113	Islamic Religion*	2		
12	UNU113	Hindu Religion*	2		
13	UNU113	Christian Religion*	2		
14	UNU3000	Civic Education	2		
		Pancasila Education	2		
	Co-curricular	Ethics and Leadership	(1)		
Total Credits for Semester 4			23		

*Can be choose one according to student`s religion

Semester 5					
No.	Course Code	Course	Credit	Pre-req	Co-req
1	FAF221501	Biopharmaceutics	2	Pharmacokinetics	
2	FAF221503	Drug Education and Information	2	Social and Behavioural Sciences of Pharmacy	
3	FAF221504	Pharmacoepidemiology	2	Research Methodology and Pharmaceutical Statistic	
4	FAF221505	Pharmacognosy - Phytochemistry	2	Organic Chemistry II	
5	FAF221507	Pharmacotherapy II	2	Pharmacotherapy I	
6	FAF221508	Prescription	2	Pharmaceutics II, Pharmacotherapy I	
7	FAF221510	Pharmaceutical Immunology	1	Pharmacology I and II, Molecular Biology	
8	FAF221512	Pharmaceutical Services	2	Pharmacotherapy I, Pharmaceutics II	Drug Education and Information
9	FAF221513	Quality Assurance of Medical Devices and Cosmetics	1	Chromatography, Analytical Chemistry I and II	
10	FAF221502	Biopharmaceutics Practical Work	1	Pharmacokinetics	
11	FAF221506	Pharmacognosy - Phytochemistry Practical Work	1	Organic Chemistry II	
12	FAF221509	Prescription Practical Work	1	Pharmaceutics II, Pharmacotherapy I	
13	FAF221511	Pharmaceutical Immunology Practical Work	1	Pharmacology I and II	
14	FAF221514	Quality Assurance for Medical Devices and Cosmetics Practical Work	1	Chromatography, Analytical Chemistry I and II	
15	FAF221515	Radiopharmacy and Chemotherapy	2	Basic Pharmaceutical Chemistry, Pharmacotherapy I and II	
	Co-curricular	Professionalism	(1)		
Total Credits for Semester 5			23		

Semester 6					
No.	Course Code	Course	Credit	Pre-req	Co-req
1	FAF221601	Pharmaceutical Analysis	1	Chromatography	
2	FAF221603	Pharmaceutical Biotechnology	2	Molecular Biology	
3	FAF221604	Good Manufacturing Practices	2	Solid Dosage Form Formulation and Technology, Semisolid-liquid Dosage Form Formulation and Technology	Sterile Dosage Form Technology and Formulation
4	FAF221605	Pharmacoeconomics	2	Pharmacotherapy I	
5	FAF221606	Pharmacotherapy III	2	Pharmacotherapy II	
6	FAF221607	Clinical Pharmacy	2	Pharmacotherapy I	
7	FAF221608	Phytotherapy	2	Pharmacology II , Pharmacotherapy I	
8	FAF221609	Sterile Dosage Form Technology and Formulation	1	Physical Pharmacy II	
9	FAF221602	Pharmaceutical Analysis Practical Work	1	Chromatography	
10	FAF221610	Sterile Dosage Form Technology and Formulation Practical Work	1	Physical Pharmacy II	
11	FAF221611	Drug Delivery System	2	Biopharmaceutics	
12	FAF221612	Extraction Technology of Natural Products	2	Pharmacognosy - Phytochemistry	
13	FAF221613	Extraction Technology of Natural Products Practical Work	1	Pharmacognosy - Phytochemistry	
	Co-curricular	Socio-entepneurship	(1)		
Total Credits for Semester 6			21		

Semester 7					
No.	Course Code	Course	Credit	Pre-req	Co-req
1	FAF221701	Health Care System	2	Pharmacoeconomics	
		Pharmaceutical Elective Package Course [#]	6	Have taken at least 110 credits	
Total Credits for Semester 7.			8		

#List of the courses can be seen in subsection B below. Courses in the semester 7 is offered every odd and even semester.

Semester 8					
No.	Course Code	Course	Credit	Pre-req	Co-req
1	FAF221801	Undergraduate Thesis	6	Completed at least a total of 115 credits courses with a minimum grade of D, and has taken courses in Research Methodology and Pharmaceutical Statistics	Pharmaceutical Elective Package Course
2	UNU222001	Students Community Service Learning	4	Completed at least 100 credits courses with a minimum grade of D and is not currently taking any courses	
3	UNU222002	Community Communication	2	Completed at least 100 credits courses with a minimum grade of D and is not currently taking any courses	Students Community Service Learning
4	UNU222003	Knowledge Management Implementation	2	Completed at least 100 credits courses with a minimum grade of D and is not currently taking any courses	Students Community Service Learning
Total Credits for Semester 8			14		

Courses in the semester 8 is offered every odd and even semester.

B. List of Pharmaceutical Elective Package Course

Semester 7					
No.	Course Code	Course	Credit	Pre-req	Co-req
1	FAF221703	Pharmaceutical Industry	6	Have taken at least 110 credits	
2	FAF221704	Community Pharmacy and Pharmacy Regulatory	6	Have taken at least 110 credits	
3	FAF221705	Hospital Pharmacy	6	Have taken at least 110 credits	
4	FAF221706	Cosmetics and Food	6	Have taken at least 110 credits	
5	FAF221707	Distribution and Marketing Management	6	Have taken at least 110 credits	
6	FAF221708	Traditional Medicine	6	Have taken at least 110 credits	
7	FAF221708	Research and Drug Discovery	6	Have taken at least 110 credits	

C. List of Pharmacy Elective Courses

Can be taken by student at starting in the semester 3					
No.	Course Code	Course	Credit	Pre-req	Co-req
1	FAF221001	Structure Elucidation	2	Minimum in semester 3	
2	FAF221002	Farmasi Industri Produk Biologi	2		
3	FAF221003	Marine Pharmaceuticals	2	Minimum in semester 3	
4	FAF221004	Drug Interactions	2	Minimum in semester 3, Pharmacology II	
5	FAF221005	Digital Base Drug Intervension	2		
6	FAF221006	Pharmaceutical Analysis Capita Selecta	2		
7	FAF221007	Natural Corigen	2	Minimum in semester 3	
8	FAF221008	Cosmeseutics	2		
9	FAF221009	Herban medicine Quality Assurance	2		
10	FAF221010	Pharmacy Services Practice	2		
11	FAF221011	Drug Repositioning	2		
12	FAF221012	Drug Raw Materials Synthesis	2	Minimum in semester 5, Organic Chemistry I and II	
13	FAF221013	Pharmaceutica Industry Process Technology	2	Minimum in semester 5	
14	FAF221014	Clinical Toxicology	2		
15	FAF221015	Virus and Antiviral Drugs	2	Minimum in semester 5, none, but there is no D/E grade in the following courses: Molecular Biology , Pharmaceutical Biochemistry, Cell Biology and Microbiology , Immunology	

D. List Interdisciplinary Course in the Health Cluster

Semester 4-8					
No.	Course Code	Course	Credit	Pre-req	Co-req
1	FAFP221016	Functional Gene Analysis	2	Semester 4, Molecular Biology	
2	FAFP221017	Analysis of Macromolecular Pharmaceutical Products	2	Semester 3	
3	FAFP221018	Ethnomedicine	2		
4	FAFP221019	Drug Policy Evaluation	2		
5	FAFP221020	Halal Science Philosophy	2	Semester 6	
6	FAFP221021	Veterinary Pharmacy	2		
7	FAFP221022	Biomedical instrumentation	2		
8	FAFP221023	Medication Errors	2		
9	FAFP221024	Healthy Lifestyle Management	2		
10	FAFP221025	Drug Side Effects Monitoring	2		
11	FAFP221026	Nanotherapeutics	2	Pharmacology I, Physical Pharmacy I	
12	FAFP221027	Nutrigenomics and nutraceuticals	2	Semester 4	
13	FAFP221028	Molecular Modeling	2		
14	FAFP221029	Antibiotic Resistance Control Program	2	Can be taken by students of the health cluster, Faculty of Veterinary Medicine, and Faculty of Biology	
15	FAFP221030	Immunological Engineering	2	Minimum semester 4, Can be taken by students of the health cluster, Faculty of Veterinary Medicine, and Faculty of Biology	
16	FAFP221031	Pharmaceutical Protein Engineering	2	Semester 2	
17	FAFP221032	Biologically Active Natural Product Screening	2		
18	FAFP221033	Health Supplements	2		
19	FAFP221034	Gene Therapy	2	Semester 4-8, Molecular Biology	
20	FAFP221035	Stem cell therapy	2	Minimum semester 4, Can be taken by students of the health cluster, Faculty of Veterinary Medicine, and Faculty of Biology	
21	FAFP221036	Environmental Toxicology	2		
22	FAFP221037	Indonesian Medicinal Plants	2		

E. List Elective Course Converted from MBKM Activities (Student Mobility)

Semester 4-8					
No.	Course Code	Course	Credit	Pre-req	Co-req
Group 1: As a substitute for Non-Pharmacy Elective Courses					
	FAFP221042	Elective Course 1	2		
	FAFP221043	Elective Course 2	4		
	FAFP221044	Elective Course 3	6		
	FAFP221045	Elective Course 4	8		
Group 2: As a substitute for interdisciplinary elective courses within the cluster and other courses specified by the decree of the Dean of the Faculty of Pharmacy, UGM					
	FAFP221046	Elective Course Supporting Pharmacy Competency 1	2		
	FAFP221047	Elective Course Supporting Pharmacy Competency 1	4		
	FAFP221048	Elective Course Supporting Pharmacy Competency 1	6		
	FAFP221049	Elective Course Supporting Pharmacy Competency 1	8		