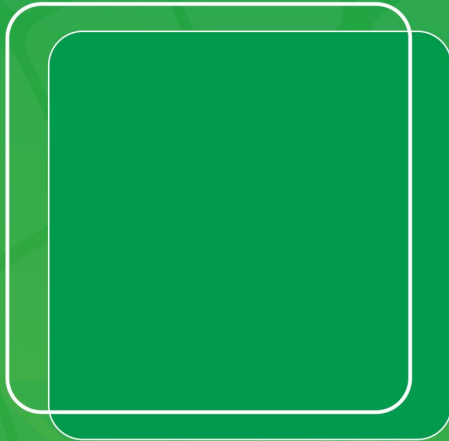


ACADEMIC GUIDEBOOK



BACHELOR IN PHARMACY STUDY PROGRAM



FACULTY OF PHARMACY
UNIVERSITAS GADJAH MADA
2024

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PREFACE

Praise be to Allah SWT for the completion of this Academic Guidebook for the Bachelor in Pharmacy Program in the Department of Pharmacy, Faculty of Pharmacy, in the year 2021. This Academic Guidebook contains regulations and explanations regarding the implementation of the Bachelor in Pharmacy Program in the Faculty of Pharmacy at Universitas Gadjah Mada (UGM), which is essential for all students and academic members in the Bachelor in Pharmacy Program of the Faculty of Pharmacy at UGM.

As is known, a quality educational process to produce graduates with competencies requires a well-organized system. To facilitate the smooth conduct of academic activities in the Faculty of Pharmacy at UGM, all activities are regulated by adhering to the established academic regulations and by implementing a quality assurance system that refers to the Higher Education Quality Assurance System of Universitas Gadjah Mada. Therefore, the publication of this Academic Guidebook is part of the Faculty's quality assurance strategy, aimed at supporting the smooth running of academic activities in the Bachelor in Pharmacy of the Faculty of Pharmacy at UGM. It is hoped that by always referring to the provisions and rules contained in this Guidebook, the academic activities can proceed smoothly as desired.

Next, we extend our gratitude and appreciation to the team that has compiled the 2021 Academic Guidebook of the Faculty of Pharmacy at UGM. The publication of this book is inseparable from the assistance and cooperation of various parties, both directly and indirectly involved in its preparation. We hope this book can be utilized optimally by all students in the Bachelor in Pharmacy of the Faculty of Pharmacy at UGM.

Yogyakarta, November 2024

Knowing,
Dean Faculty of Pharmacy
UGM



Prof. Dr. apt. Satibi, M.Si.
NIP. 197402181999031002

Head of Study Program

A handwritten signature in blue ink, consisting of stylized, overlapping loops and lines.

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CHAPTER I

INTRODUCTION

History in Brief

The Faculty of Pharmacy at Universitas Gadjah Mada was established by the Ministry of Health of the Republic of Indonesia on September 27, 1946, under the name Higher School of Pharmacy Experts (PTAO). This date is recognized as the founding day of the Faculty of Pharmacy at UGM. This institution joined a coalition of higher education institutions, including the Higher Schools of Medicine, Dentistry, Agriculture, and Veterinary Medicine, all chaired by Prof. Dr. M. Sardjito and located at the RSU Tegalyoso Complex in Klaten.

During the PKI Moeso rebellion and the second military action by the Dutch army, these higher education institutions had to halt their academic activities on December 19, 1948. Many lecturers and students joined the army to participate in guerrilla warfare or joined the Red Cross team.

After the Roem-Van Royen Agreement on May 7, 1949, there was a thought to revive these higher education institutions. A meeting of the Higher Education Committee was held at the Kepatihan Pavilion on May 20, 1949. Prof. Dr. Sardjito, as the Chair of the Higher Education in Klaten, agreed to organize the planned higher education institution and requested a place in Yogyakarta. Thanks to the generosity of Sri Sultan Hamengkubuwono IX, several buildings owned by the Yogyakarta Kraton, including Mangkubumen, could be used as the location for the newly formed higher education institution.

With significant assistance from Vice President Drs. Moh. Hatta, Minister of Education, Teaching, and Culture Ki Mangun Sarkoro, Minister of Health Dr. Soerono and Prof. Soetopo, Minister of Finance Lukman Hakim, Minister of Transportation and Public Works Ir. Laoh and Ir. Sitompul, Minister of Welfare and Agriculture I.J. Kamiso and Sadjarwo SH and their Secretary General Mr. Hadi, Ir. Putuhena and Ir. Goenoeng, the higher education institution was reopened on November 1, 1949. At that time, Yogyakarta already had a Technical College and Law School under the Gadjah Mada Higher Education Foundation, with each higher education institution still under its respective Ministry.

An idea emerged to merge these higher education institutions and colleges into a single university under the Ministry of Education, Teaching, and Culture (PP&K). This idea was realized with the opening of Gadjah Mada State University (UNGM) by the PP&K Ministry on December 19, 1949, which is now celebrated as the anniversary of Gadjah Mada University in Yogyakarta.

Meanwhile, the Higher Schools of Medicine, Dentistry, and Pharmacy were still under the Ministry of Health. Through Government Regulation No. 37 of 1950 on August 14, 1950, signed by Mr. Assat as Acting President of the Republic of Indonesia, Ki Mangun Sarkoro as Minister of PP&K, and KRT. E. Pringgodigdo as Minister of Justice, the government confirmed that UNGM was under the Ministry of PP&K. The term Higher Education was changed to Faculty, specifically the Faculty of Medicine, Dentistry, and Pharmacy. In 1954, the government decided to standardize the terms faculty and university to Fakultas and Universitas.

The private Gadjah Mada Higher Education Foundation ceased to exist, and the term State was removed from UNGM, becoming UGM.

The first-level courses (promovendus level) at the Faculty of Medicine, Dentistry, and Pharmacy (FKKGF) were still combined, with the same lecturers but different exam questions. Eventually, these fields were separated into individual faculties, starting with the Faculty of Pharmacy on December 19, 1955, based on the Minister of PP&K Decree No.

53759/-Kab, followed by the Faculty of Dentistry on December 29, 1960, based on the Minister of PP&K Decree No. 1090741/UU. Although the faculties had become independent, the lectures continued to be held together at Mangkubumen, leading to the term MAMACONGA (Ngasem Complex Student Community).

Upon separation from FKKG, the Faculty of Pharmacy did not have permanent teaching staff, so temporary staff held administrative positions. The first Dean was Prof. Drs. R. Sardjono (from the Faculty of Medicine), and the Secretary was Prof. Ir. Gembong Soetoto Tjitrosoepomo (from the Faculty of Agriculture). The Faculty of Pharmacy began having permanent lecturers in 1963.

When UGM was first established, its faculties were scattered across Yogyakarta. Sri Sultan Hamengkubuwono IX provided land in Bulaksumur, Sekip, and Karangmalang for the establishment of the university. Gradually, the faculties moved to the new locations. Part of the Faculty of Pharmacy moved to Karangmalang in 1968, along with the Faculty of Dentistry, the Physiology and Pharmacology sections of the Faculty of Medicine, and part of the Faculty of Cultural Sciences. In 1973, the Faculty of Pharmacy began occupying its new location in North Sekip, where it remains today. However, due to a shortage of pharmacist lecturers, the doctoral level (final year of the undergraduate program) and pharmacist level were still held in Semarang, where pharmacist teaching staff were available. It was only in 1977 that the entire teaching and learning process at the Faculty of Pharmacy could be conducted in Yogyakarta at the North Sekip campus.

Currently, the Faculty of Pharmacy has 6 study programs at the undergraduate and postgraduate levels, each of which is accredited A at BAN PT and LAMPT-Kes, as follows:

No.	Study Program	Accreditation	Accreditation Body	Year of Establishment Accreditation
1	Bachelor in Pharmacy	Unggul	LAM PT- Kes	2024
2	Pharmacist Education	Unggul	LAM PT- Kes	2024
3	Master of Pharmaceutical Sciences	A	LAM PT- Kes	2020
4	Master of Clinical Pharmacy	A	LAM PT- Kes	2021
5	Master of Pharmacy Management	A	LAM PT- Kes	2021
6	Doctoral of Pharmaceutical Sciences	A	LAM PT- Kes	2020

CHAPTER II

VISION, MISSION, AND OBJECTIVES

Vision, Mission and Goals of the Faculty of Pharmacy UGM based on Dean Decree Number:13.14.06/UN1/FFA/SK/KP/2021 (<http://ugm.id/skfa1>).

Vision:

To become a pioneer in higher pharmaceutical education that excels at the national and international levels, emphasizing ethics and morals, inspired by Pancasila, and dedicated to the interests of the nation and humanity.

Mission:

1. To provide high quality, innovative, and effective higher education in pharmacy at both national and international levels.
2. To conduct education and community service based on research that follows advancements in science and technology, emphasizing ethics and morals, inspired by Pancasila, and dedicated to the interests of the nation and humanity.

Objectives:

1. To produce graduates who are excellent, innovative, broad-minded, prioritize ethics and morals, and embody the spirit of Pancasila.
2. To produce innovative research and community service works that address the problems of the nation and humanity.
3. To develop sustainable support facilities to ensure a superior academic culture.

Vision, Mission, and Objectives of the Bachelor of Pharmacy Study Program

Vision: To become a pioneer in excellent pharmacy education at the national and international levels, serving the interests of the nation and humanity, inspired by the values of Pancasila.

Mission:

1. To provide a Bachelor of Pharmacy education that receives national and international recognition.
2. To conduct research in the field of pharmacy based on science and technology to address health and humanitarian issues.
3. To carry out community service activities that benefit societal welfare.

Objectives:

1. To produce pharmacy graduates with qualifications and competencies recognized nationally and internationally, who are: a. Excellent and inspired by the values of Pancasila. b. Capable of continuous self-development and pursuing higher education. c. Possessing leadership qualities and the ability to collaborate.
2. To produce high-quality research works that can serve as the foundation for the implementation of the three pillars of higher education (education, research, and community service).
3. To participate in solving health problems through community service activities based on scientific knowledge.

Targets

1. Create and enhance a culture of quality educational processes and learning.
2. Develop interdisciplinary education and learning and exposure to global competencies.
3. Internationalize Study Programs.
4. Foster student innovation and social entrepreneurship.
5. Increase the number of students involved in faculty research.
6. Develop innovative research based on cultural wisdom that has a strong impact on the development of science and technology for the benefit of the nation, state, and humanity.
7. Implement Community Service programs by faculty that involve undergraduate students.
8. Increase the number of community service programs.

CHAPTER III

STRUCTURE OF ORGANIZATION FACULTY OF PHARMACY UGM

The Faculty is an implementing unit for part of the core tasks of the University and is led by a Dean who is directly responsible to the Rector. The Faculty is tasked with implementing the Tridharma of Higher Education, which includes education and teaching, research, and community service, in addition to fostering the academic community and conducting administrative service activities.

In carrying out daily tasks, the Dean is assisted by three Vice Deans: Vice Dean for Academic Affairs and Student Affairs (WD 1), Vice Dean for Finance, Assets, and Human Resources (WD 2), and Vice Dean for Research, Community Service, Cooperation, and Alumni (WD 3).

The implementation of the Tridharma of Higher Education is carried out in Departments, which are the implementing units of the Faculty, and in Laboratories, which are supporting facilities for the Departments. The Departments, led by a Department Head, are directly responsible to the Dean. In carrying out daily tasks, the Department Head is assisted by a Department Secretary. Currently, the supporting facilities in each Department are as follows:

A. Departments that Function as Academic Executives

A Department is an implementing unit of the Faculty in a group or branch of science. The Department consists of groups of educational staff, administrative staff, and laboratories. Each Department is led by a head and a secretary. Each scientific laboratory within each Department is led by a head of the laboratory. At the Faculty of Pharmacy UGM, there are four Departments, namely:

1. Department of Pharmaceutical Biology

The Department of Pharmaceutical Biology is an academic implementing unit of the Faculty of Pharmacy that conducts education and teaching, research, and community service in the branch of science related to the screening of terrestrial and marine organisms, identification of compounds or compound components, including marker compounds. It develops cultivation techniques for medicinal plants to produce superior seeds and secondary metabolites, both conventionally and using plant tissue culture and biotechnology techniques. Additionally, it develops extraction techniques, standardization of simplicia, and standardization of extracts with biological activity.

a. Cell Biology-Microbiology Laboratory

The microbiology and cell biology laboratory coordinates activities of several laboratories that involved in research topic as follows:

- 1) The discovery of active phyto/bio-chemicals with antimicrobial/anti-infective properties from both higher plants and soil and endophytic microbes.
- 2) Study microbial diversity along with physiological interactions, compounds involved in these interactions, and the interaction mechanisms at the biochemical level.
- 3) Develop transformant microorganisms for bioconversion to obtain more potent active substances, and conduct safety testing of pharmaceutical and food/drink products, including potency tests and microbial content of pharmaceutical preparations.

- 4) Develop microbial contamination assays in drug, cosmetic, food, and beverage products.
 - 5) Develop rapid detection methods for diseases caused by microbial infections.
 - 6) Production of drug compounds, enzymes, and vaccines by microorganisms or plant tissues.
 - 7) Develop methods for propagating medicinal plants and method to increase secondary metabolites.
 - 8) Gene engineering for the production of medicinal metabolites, either through cell suspension culture or in whole plants.
- b. Pharmacognosy-Phytochemistry Laboratory
This laboratory will carry out the task of carrying out education, research and community service in the fields of:
- 1) Exploration of natural materials for future medicinal ingredients based on local wisdom and empirical use of natural materials.
 - 2) Development of analytical methods for natural materials and natural drug products to ensure their safety and efficacy in treatment.
 - 3) Development of traditional and natural drug products into standardized products with guaranteed safety and efficacy, so they can be used in formal medical systems.

2. Department of Pharmaceutics

The Department of Pharmaceutics is an academic implementing unit of the Faculty of Pharmacy that organize any academic and research activities within 3 pharmacy area that divided into the following laboratories

- a. Pharmacy Management and Community Pharmacy Laboratory
This laboratory manages education, teaching, research, and community service and develops knowledge related to pharmacy management and social pharmacy. Pharmacy Management and Community Division focuses on the pharmacy practice, compounding and dispensing skills, social aspects of pharmacy and medication use, as well as the drug management cycle, with the goal of ensuring patient well-being and community access to medicine. This laboratory manage the course and research topics also related to the understanding and influencing interactions between patients, medicines, health care providers, and health systems, knowledge of economics, psychology, management sciences, communication, education, public health, law, and ethics.
- b. Physical Pharmacy Laboratory
This laboratory is responsible to support the study of Physical Pharmacy, Biopharmaceutics, Drug Stability and Drug Delivery Systems
- c. Pharmaceutical Technology Laboratory
This laboratory is responsible to support the study of Technology for Pharmaceutics, Cosmetics, and Traditional Medicine, and other sciences related to Pharmaceutical Technology.

3. Department of Pharmaceutical Chemistry

The Department of Pharmaceutical Chemistry is an academic implementing unit of the Faculty of Pharmacy that conducts education and teaching, research, and community service in the field of Analytical Chemistry. This includes method comparison, method improvement, development of new methods, and application of existing and/or new methods for the analysis of drugs, food, and cosmetics in various formulations (existing or new) and their metabolites. It involves qualitative and

quantitative identification of isolated products, synthesis products, and degradation products. In Medicinal Chemistry, it covers drug products and raw materials, both synthesized and biosynthesized, with efforts to enhance drug and raw material production. It explores the qualitative and quantitative structure-activity relationship, molecular modifications of drugs to enhance activity or reduce toxicity, studied at cellular and molecular levels. It also investigates the effects of drugs, drug raw materials, isolates, or treatments on biological activities, biological systems including their impact on genomes, RNA and protein synthesis, and their effects on general responses.

a. Medicinal Chemistry Laboratory

This laboratory manages education, teaching, research, and community service and develops knowledge related to medicinal chemistry, organic chemistry, synthetic chemistry, and computational chemistry.

b. Analytical Chemistry Laboratory

Analytical chemistry laboratory focuses on the scientific development and application of analytical tools for addressing problems related to pharmaceutical and medicinal products, food, cosmetics, etc. This laboratory provides courses such as Basic Pharmaceutical Chemistry, Analytical Chemistry (instrumentals and non-instrumentals), Chromatography, Analysis of Drugs, Food and Cosmetics, and Pharmaceutical Analysis. These courses support the students to have hands-on experience in preparing samples, performing experiments with high precision and accuracy, operating analytical instruments, and properly analyzing data. A wide range of research topics can be selected by students such as analytical method development and validation; Halal products analysis; food chemistry; cosmetology; bioequivalence-therapeutic dose monitoring; natural products chemistry; bioanalysis; sensor development for rapid analysis; analysis of trace elements and volatile compounds; mass spectrometry analysis for proteins, drugs, and cosmetics; and forensic analysis.

c. Macromolecule Engineering Laboratory

This laboratory is responsible to provide courses and other academic activities related to biological systems i.e., biochemistry, molecular biology, and immunology. The laboratory research focuses on the screening of macromolecules that have the potential to be developed as drug targets or biological markers for diseases i.e., genetic variation analysis. This laboratory applies bioinformatics, *in vitro*, and *in vivo* approaches in performing research.

4. Department of Pharmacology and Clinical Pharmacy

The Department of Pharmacology and Clinical Pharmacy is an academic implementing unit of the Faculty of Pharmacy that conducts education and teaching, research, and community service in the fields of Pharmacology-Toxicology and Clinical Pharmacy-Pharmacotherapy.

a. Pharmacology and Toxicology Laboratory

This laboratory provides courses, including pharmacology, pharmacokinetics, toxicology, and biomedical analysis. These courses are supported with equipment and resources where students can have hands-on experience in preparing samples and experimental subjects, performing experiments, collecting samples and data, and adequately analyzing data. The scope of pharmacology and toxicology research in this laboratory includes *in silico*, *in vitro*, *ex vivo*, and *in vivo* research aimed at evaluating the efficacy and safety of a pharmaceutical product as well as the molecular mechanisms underlying the

activity of pharmaceutical products and the disposition of these pharmaceutical products in the body. In a broader scope, pharmacological and toxicological research is also used to elucidate the molecular mechanism of a physiological or pathological condition that has never been revealed before using pharmaceutical products. Laboratory also manages the animal laboratory facility at the Faculty of Pharmacy UGM.

b. **Clinical Pharmacy and Pharmacotherapy Laboratory**

This laboratory is responsible to support the study of reviewing or evaluating the accuracy of drug use, Drug Related Problem (DRP) Analysis, literature study on evidence-based medicine, analysis of the role of clinical pharmacy in health services, clinical review of interactions between drugs and Adverse Drug Reaction (ADR), pharmacoconomics, pharmacoepidemiology, clinical trials of drugs, Therapeutic Drug Monitoring (TDM) and clinical pharmacokinetics.

B. Study Program

Currently, the Faculty of Pharmacy has 6 study programmes at the undergraduate and postgraduate levels. The management of the S-1 Pharmacy Study Program consists of the Head and secretary of the Study Programme, who are assisted by academic staff.

Management Period	Head of Study Program	Secretary of Study Program
2016-2017	Dr. apt. Nunung Yuniarti, M.Si.	Dr. Sylvia Utami Tunjung Pratiwi, M.Si
2017-2020	Dr. apt. Nanang Munif Yasin, M.Pharm.	Dr. Sylvia Utami Tunjung Pratiwi, M.Si
2021-2026	Dr. apt. Purwanto, M.Sc.	apt. M. Novrizal Abdi Sahid, M.Eng., Ph.D.

C. Unit/Body is a Specific Task Implementation Unit developed in the Faculty

Currently, the Faculty of Pharmacy at UGM has units to support student learning, staff development, and academic advancement, namely: Library, Student Affairs, Research and Development, Community Service, Administration, and Academic.

These units have the following main tasks:

1. **Library:** Manages and develops the faculty library as a learning resource for faculty and students.
2. **Research and Development:** Manages the development and research activities conducted by the academic community of the Faculty of Pharmacy at UGM.
3. **Community Service:** Manages and develops community service materials conducted by faculty and students, collaborates with other parties for community service purposes.
4. **Student Affairs:** Provides guidance for student activities and teaching/lecturing.
5. **Administration:** Supports academic infrastructure.
6. **Academic:** Supports academic activities.

D. Faculty Senate

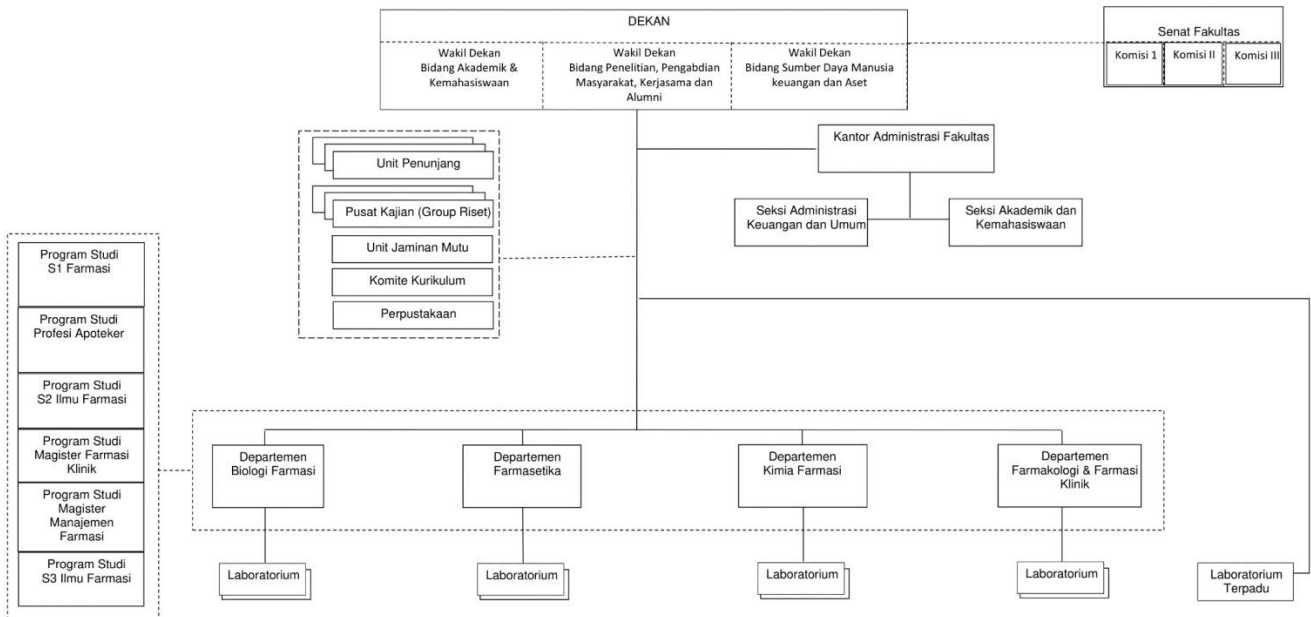
The Faculty Senate is the highest normative body in the Faculty and consists of all teaching staff with the title of Professor, the Dean, Vice-Deans, Heads of Departments and members representing members of Departments, one for every 10 members of the

Department. The Chairperson of the Faculty Senate is elected from among all members of the Senate.

E. Structure Organization

The organisational structure of the Faculty of Pharmacy UGM follows the Dean's Decree Number: 18.16.09/UN1/FFA/SK/KP/2020 dated 16 September 2020 concerning the Organisational Structure of the Faculty of Pharmacy Universitas Gadjah Mada.

STRUKTUR ORGANISASI DI LINGKUNGAN FAKULTAS FARMASI UNIVERSITAS GADJAH MADA



CHAPTER IV

ACADEMIC REGULATIONS AND STUDENT CODE OF CONDUCT

A. Student Code of Conduct

As a guideline for student conduct based on moral principles and accountable ethical norms, in accordance with the vision, mission, and objectives of the University, and as part of the code of conduct among the academic community at the Faculty of Pharmacy UGM, particularly within Universitas Gadjah Mada, it is deemed necessary to establish Student Code of Conduct referring to the Rector's Regulation No. 711/P/SK/HT/2013 regarding the Code of Conduct for UGM Students (<http://ugm.id/skfa2>). The guidelines applicable to students of the Faculty of Pharmacy UGM are as follows:

1. Attitude and Behaviour

- a. Upholding the name and noble values of Universitas Gadjah Mada.
- b. Respecting lecturers, staff, fellow students, and the general public.
- c. Respecting and adhering to all regulations applicable within the faculty and university.
- d. Students are prohibited from actions or behaviors, whether directly or indirectly, that tarnish the reputation of the Faculty of Pharmacy and Universitas Gadjah Mada.
- e. Students are prohibited from academic, administrative, and financial dishonesty.
- f. Students are prohibited from making statements/opinions or engaging in actions that offend SARA (Ethnicity, Religion, Race, and Inter-group relations).
- g. Students are prohibited from creating disturbances that disrupt lectures or ongoing practical sessions.
- h. Eating or drinking is prohibited during lectures and practical sessions.
- i. Smoking is prohibited within campus premises.
- j. Bringing sharp weapons, engaging in fights, extortion, harassment, or forming gangs/cliques are prohibited.
- k. Defacing or vandalizing desks, chairs, walls, damaging or stealing faculty/university property is prohibited.
- l. Consuming, distributing, or abusing hard drugs, narcotics, dangerous drugs, or alcoholic beverages is prohibited.
- m. Engaging in activities that violate moral principles is prohibited.
- n. Contributing to a conducive academic environment by attending lectures/practical sessions on time, maintaining calm during lectures/practical sessions, and actively participating.
- o. Contributing to a safe and peaceful atmosphere within the campus environment.
- p. Preserving the integrity and sustainability of faculty/university property, including maintaining its beauty and cleanliness, as well as respecting the property of others.
- q. Contributing to a positive climate for personal development.
- r. Engaging in social interactions in a respectful manner, respecting religious values, morality, and etiquette
- s. Dress appropriately and neatly according to the nature and type of activity.

- t. Prohibited from dressing or appearing in a manner that does not conform to societal norms and rules while participating in academic activities.
- u. Students must wear shoes and are prohibited from wearing t-shirts, torn pants or clothing, and sandals during academic activities.
- v. Wear accessories and groom in a modest and unobtrusive manner.
- w. Conduct oneself politely both inside classrooms, laboratories, and outside spaces.

2. Communication

- a. Students, as members of the campus community/academic individuals (educated group), must uphold academic integrity.
- b. Behave well and be friendly towards others.
- c. Able to position oneself and adjust communication style according to the characteristics of the conversation partner.
- d. Maintain speech with polite language, using appropriate volume, tone, intonation, and speaking speed.
- e. Use appropriate non-verbal communication according to prevailing cultural norms such as shaking hands, nodding, and others.
- f. Avoid getting emotionally provoked by the conversation partner.
- g. Be tolerant of all differences in opinions.
- h. Develop the habit of greeting lecturers first when meeting them, preferably with a handshake.
- i. When shaking hands, maintain friendly eye contact and offer a firm handshake.
- j. If unwilling to shake hands, bow your head and offer a greeting.

3. Ethics of contacting lecturers through communication media (texting, whatsapp, line and others)

- a. Choose an appropriate time to contact the lecturer. Try to reach out during office hours. If urgent or necessary, select a time that does not interfere with their rest or religious activities. For example, avoid contacting lecturers after 8:00 PM or during prayer times.
- b. Start with a greeting or salutation. Example: "Good morning, sir/ma'am."
- c. Apologize to show courtesy and humility. Example: "I apologize for disturbing you, sir/ma'am."
- d. Every lecturer deals with hundreds of students daily and may not have all students' contact numbers. Therefore, make sure to introduce yourself at the beginning of each communication/conversation. Example: "My name is Farah, a student of the Bachelor in pharmacy program, batch of 2017, class B. This semester, I am taking Pharmacetics I in your class."
- e. Use language that is easily understood, proper punctuation, and in a formal context. Avoid abbreviations such as: where (dmn), when (kpn), I (sy), on the way (otw), okay (ok), yes (iye). Avoid using informal terms like: I (aku), I (gw).
- f. Keep your message brief and clear. Example: "I would like to consult with you regarding the assignment for Pharmacetics I. When would be a good time for me to meet with you?"
- g. End the message with a thank you or a closing salutation. Example: "Good morning, sir/ma'am. I apologize for the interruption. I am Farah, a Pharmacy undergraduate student from the batch of 2017, class B. I would like to consult with you regarding the assignment for Pharmacetics I. When would be a good

time for me to meet with you? Thank you in advance for your attention."

4. Sanctions

Students who violate the above provisions may:

1. Receive verbal warnings from professors, staff, or fellow students.
2. Receive written warnings from the head of Laboratory/Department/Faculty/University.
3. Be suspended from academic and administrative activities by the head of Laboratory/Department/Faculty/University.
4. Be expelled from the Faculty/University by the Dean/Rector.

B. Academic Regulations

New academic regulations are adjust based on the new regulation guidelines from the university under the Universitas Gadjah Mada Rector decree number 2, year 2023 about Education (<http://ugm.id/skfa4>). The academic regulation of Bachelor Program of Pharmacy was stated in Dean Decree number 56.11.09/UN1/FA/UP/SK/2023 (<http://ugm.id/skfa3>) **based on the regulation of rector decree number 7 year 2022 about Higher Education Standard of UGM** (<http://ugm.id/srfa14>) Academic regulations described the regulation and guidelines that applied to all bachelor students in order to conduct their academic activities (outside of social relationship) until graduated from this program.

CHAPTER V

GRADUATE COMPETENCIES AND GRADUATE LEARNING OUTCOMES

The Bachelor's Education Stage represents a comprehensive education. The learning outcomes are determined based on the APTFI and IAI academic manuscripts which are the basic competencies of graduates of pharmacy colleges that have been compiled based on the development of community needs for pharmacy graduates and pharmacist professions. In addition to being based on the APTFI and IAI academic manuscripts, PSSF provides added value to the 2022 curriculum by adding space for the implementation of academic activities outside the Study Program to facilitate the Independent Learning Independent Campus program initiated by the government. This support is manifested in the form of SK number 11.25.09/UN1/FFA/SK/KP/2020 regarding the implementation of the independent and autonomous learning program or Merdeka Belajar/MBKM (<http://ugm.id/skfa5>) as well as the guidebook for implementing independent and autonomous learning for Pharmacy Bachelor's students (<http://ugm.id/skfa1013>) This space is given in the form of student flexibility in taking courses for a certain number of credits in semester 7, where the credits required to be taken in that semester are no more than 10 credits. Furthermore, students can take activities outside the study program in the form of research or internships at institutions outside the Faculty with fields related to pharmacy or outside the field of pharmacy approved by PSSF. Study materials used for determining Program Learning Outcome are includes

- Permenristekdikti No. 3 of 2020 concerning National Higher Education Standards (SNPT)
- KKNi 2015
- Academic Manuscript of Graduate Competency Standards and Curriculum Standards for Undergraduate Pharmacy and Pharmacist Profession Study Programs compiled by the Association of Pharmacy Colleges (APTFI) in 2021.
- Kerangka Dasar Kurikulum UGM No. 14 in 2020 (<http://ugm.id/skrfa16>)

A. Program Learning Outcomes

Based on the Decree of the Rector of Universitas Gadjah Mada Number: 1165/UN1.P/KPT/HUKOR/2023 concerning Learning Outcomes of Graduates of the Bachelor of Pharmacy Study Programme (<http://ugm.id/skfa7>), each graduate of the Bachelor of Pharmacy Study Programme has the following programme learning outcomes (PLO):

1. ATTITUDE

Graduates are expected to be able to:

- a. Demonstrate a Pancasila attitude and awareness of the interests of the nation and state.
 - 1) Fear of God and able to show religious attitudes;
 - 2) Upholding humanitarian values and carrying out tasks based on religion, morals, and ethics;
 - 3) Contribute to improve the quality of community life, nation, and state, and the development of civilization based on Pancasila;
 - 4) Acting as a citizen that proud and loving the homeland, having nationalism and a sense of responsibility to the country and nation;
 - 5) Appreciating cultural diversity, perspectives, religions, and beliefs, as well as the opinions or findings of others; and

- 6) Collaborating and having social awareness and concern for society and the environment.
- b. Demonstrate honesty, responsibility, confidence, emotional maturity, ethics, and awareness of being a lifelong learner.
 - 1) Obeying the law and discipline in social and national life;
 - 2) Internalizing academic values, norms, and ethics;
 - 3) Demonstrating responsibility for work in their field of expertise independently;
 - 4) Internalizing the spirit of independence, struggle, and entrepreneurship; and
 - 5) Showing behavior that aligns with Indonesian pharmaceutical ethics.

2. MASTERY OF KNOWLEDGE

- a. Mastering the general concept of academic integrity in the field of pharmacy and the specific concept of plagiarism, including types of plagiarism, consequences of violations, and prevention efforts;
- b. Being able to master communication principles and techniques, adapt to new environments and advanced technology, and build interpersonal and interprofessional relationships;
- c. Mastering the principles of leadership and management that are innovative, effective, and efficient in task execution;
- d. Searching for, evaluating, and providing information about pharmaceutical preparations, additives, medical devices, and their rational use; and
- e. Being able to perform work professionally and responsibly in accordance with laws, norms, and pharmaceutical ethics.

3. SPECIALISED SKILLS

- a. Being able to identify and solve problems related to the efficacy and safety of pharmaceutical preparations based on the latest scientific principles to optimize therapy;
- b. Being able to apply current pharmaceutical science and technology in the design, production, quality assurance, and distribution of pharmaceutical preparations;
- c. Being able to provide services (preparing, compounding, dispensing, and providing information and education) of pharmaceutical preparations according to procedures (according to patient needs accompanied by quality assurance of pharmaceutical preparations); and
- d. Mastering the latest Science and Technology (IPTEK) for development and research in the field of pharmacy, especially those based on Indonesia's natural wealth and local wisdom in solving global health problems, and being able to develop oneself continuously.

4. GENERAL SKILLS

- a. Being able to apply logical, critical, systematic, and innovative thinking by utilizing information technology to produce solutions in their field of expertise with integrity, manifested in scientific documents;

- 1) Being able to apply logical, critical, systematic, and innovative thinking in the context of the development or implementation of science and technology, considering and applying humanities values relevant to their field of expertise;
 - 2) Being able to examine the implications of the development or implementation of science and technology, considering and applying humanities values relevant to their expertise, based on scientific principles, procedures, and ethics to produce solutions, ideas, designs, or art criticism;
 - 3) Being able to compile a scientific description of the study results in the form of a thesis or final project report and upload it to the university's website;
 - 4) Being able to make appropriate decisions in the context of solving problems in their field of expertise, based on the results of information and data analysis;
 - 5) Being able to document, store, secure, and retrieve data to ensure validity and prevent plagiarism;
 - 6) Being able to publish academic work in the form of a thesis or final project report uploaded to the university's website;
 - 7) Being able to uphold academic integrity in general and prevent plagiarism practices;
 - 8) Being able to use information technology in the context of scientific development and implementation in their field of expertise; and
 - 9) Being able to use at least one international language for oral and written communication.
- b. Being able to develop networks, adapt, create, contribute, supervise, evaluate, and make decisions to demonstrate both individual and group performance in applying knowledge to community life;
- 1) Being able to demonstrate independent, quality, and measurable performance;
 - 2) Being able to maintain and develop networks with mentors, colleagues, and peers both within and outside their institution;
 - 3) Being able to take responsibility for the achievement of group work results and supervise and evaluate the completion of tasks assigned to workers under their responsibility;
 - 4) Being able to conduct self-evaluation of workgroups under their responsibility, and manage independent learning; and
 - 5) Being able to adapt, collaborate, create, contribute, and innovate in applying knowledge to community life and play a role as globally-minded citizens.

B. Study Program And Degree

The undergraduate education programme at the Faculty of Pharmacy will produce graduates of the Bachelor of Pharmacy degree (abbreviated as B.Pharm.) which is completed in a maximum period of 7 (seven) years (14 semesters).

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	UNUIB212 201	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		

CHAPTER IX

RESEARCH AND COMMUNITY SERVICE ROADMAP

Undergraduate pharmacy students have the opportunity to conduct research and community service with themes that are in accordance with the research and community service roadmap determined by the Study Program Manager and approved by the Faculty Management. This roadmap is used as guideline for the student especially when deciding the undergraduate thesis theme. The undergraduate thesis should follow the roadmap provided here. Other detail regulation about regulation and guideline for undergraduate thesis (<http://ugm.id/pgfa9>)

A. Research Roadmap

2021-2023: Acceleration and optimization

In this period, research support tools and facilities both at the Faculty of Pharmacy, as well as at the University have been in the procurement and renewal stage. The Bachelor of Pharmacy Study Program will direct multidisciplinary research, basic research that has a high novelty value or benefits for the community (which supports community service). The development of new research fields related to existing problems in society or demands in drug discovery will be carried out.

Year 2024-2026: Stabilization

In this period, the research produced by the academic community in the pharmacy undergraduate study program will be improved. At this stage, partnerships will be strengthened to support and be involved in research in finding solutions to problems that exist in the general public, as well as specific to certain fields.



Figure 1. Research Roadmap Bachelor in Pharmacy Study Program 2021-2026

B. Community Services Roadmap

2021-2022: Deepening

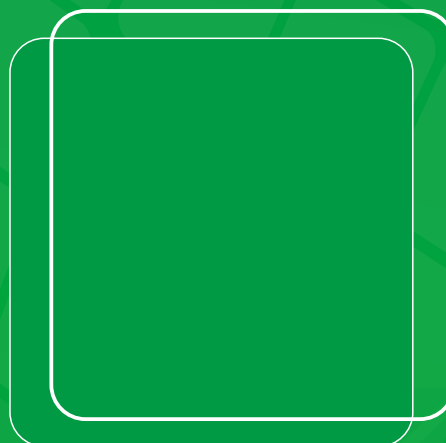
Empowerment/increasing community involvement in supporting research and academic activities. This is done by assisting the community to solve existing problems. Determination of the specifications of each community area to support research activities. Strengthening the focus of pharmacy's role in a culture of healthy living.

Year 2023-2026: Maturation

Increasing the scope of community service and cooperation networks across disciplines and institutions to accelerate community independence. Strengthening the synchronization of community development to support research.



Figure 2. Community Service Roadmap Bachelor in Pharmacy Study Program 2021-2026



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