ACADEMIC GUIDEBOOK

STUDY PROGRAMME
PHARMACEUTICAL SCIENCE
FACULTY OF PHARMACY
GADJAH MADA UNIVERSITY
2023

DEAN'S PREFACE

We express our gratitude and offer praise to Allah SWT for the compilation of the Academic Guidebook for the Master of Pharmaceutical Sciences Program at the Faculty of Pharmacy in the year 2023. This Academic Guidebook contains provisions and explanations pertaining to the administration of the Master of Pharmaceutical Sciences Program at the Faculty of Pharmacy, Universitas Gadjah Mada (UGM), information crucial for all students and academic community members within the Master of Pharmaceutical Sciences Program at the Faculty of Pharmacy, UGM.

As is widely acknowledged, the attainment of a high-quality educational process aimed at producing graduates with competence necessitates a well-structured support system. In an endeavor to facilitate the execution of academic activities at the Faculty of Pharmacy, UGM, all undertakings are governed by established academic regulations and are underpinned by a quality assurance system aligned with the Quality Assurance System of Higher Education at Universitas Gadjah Mada. Consequently, the release of this Academic Guidebook forms an integral component of the faculty's quality assurance strategy, designed to bolster the smooth progression of academic activities within the Master of Pharmaceutical Sciences Program at the Faculty of Pharmacy, UGM. It is our aspiration that, through continual reference to the provisions and regulations contained within this Guidebook, the academic processes may transpire as envisioned.

Furthermore, we wish to extend our heartfelt gratitude and appreciation to the team responsible for assembling the Academic Guidebook for the Master of Pharmaceutical Sciences Program at the Faculty of Pharmacy, UGM in 2023. The publication of this book has not been achieved without the assistance and collaboration of numerous individuals, both directly and indirectly involved in its compilation. We hope that this guidebook will be maximally utilized by all students in the Master of Pharmaceutical Sciences Program at the Faculty of Pharmacy of UGM.

Yogyakarta, August, 2023
Dean of Faculty of Pharmacy of Universitas Gadjah Mada

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

PREFACE OF STUDY PROGRAMME

Praise and gratitude be to Allah SWT, as the Academic Guidebook for the implementation of the Master of Pharmaceutical Sciences Program at the Faculty of Pharmacy, Universitas Gadjah Mada, has finally been completed. As an institution responsible for academic activities, the Master of Pharmaceutical Sciences Program places its focus on the quality of graduates and the delivery of education. Therefore, academic management must be carefully designed, with concepts outlined in the Academic Guidebook and Academic Regulations. The Academic Guidebook embodies the aspirations of the entire academic community and, in turn, serves as the fundamental reference for the implementation of the Master of Pharmaceutical Sciences Program at the Faculty of Pharmacy, Universitas Gadjah Mada. The Academic Regulations constitute a document containing fundamental rules within the academic scope that must be adhered to by all members of the academic community in the execution of their activities.

We extend our gratitude and appreciation to all parties, whom we cannot individually name, that have assisted in the preparation of the Academic Guidebook for the Master of Pharmaceutical Sciences Program at the Faculty of Pharmacy, UGM, in 2023. It is our hope that this book will aid students in the Master of Pharmaceutical Sciences Program at UGM in facilitating their academic journey.

Yogyakarta, August 2023
Head of Master of Pharmaceutical Sciences Program
Faculty of Pharmacy of Universitas Gadjah Mada

Dr. apt. Riris Istighfari Jenie, M.Si.

AUTHORS

Academic Guide Committee

Master of Pharmaceutical Science Study Program 2023

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I. INTRODUCTION

BRIEF HISTORY

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 "Perguruan Tinggi Ahli Obat" (PTAO) (this date is designated as the birthdate of the Faculty of Pharmacy, UGM). This institution was part of a consortium of higher education institutions, which included Medical Schools, Dental Schools, Agricultural Schools, and Veterinary Schools, all presided over by Prof. Dr. M. Sardjito and located in the Tegalyoso Hospital Complex in Klaten. However, due to the events of the Mueso's PKI Rebellion and the second military actions by the Dutch forces, on December 19, 1948, these higher education institutions were forced to suspend their academic activities. Many professors and students joined the military to participate in guerrilla warfare or became part of the Red Cross team.

After the Roem-Van Royen Agreement on May 7, 1949, there was a consideration to revive the higher education institutions. On May 20, 1949, a meeting of the Higher Education Committee was held at Pendopo Kepatihan. Prof. Dr. Sardjito, as the Head of the Higher Education in Klaten, agreed to establish the planned higher education institution and requested a location in Yogyakarta. Thanks to the generosity of Sri Sultan Hamengkubuwono IX, some buildings, including Mangkubumen, owned by the Yogyakarta Palace, were made available for the newly formed higher education institution.

With significant support from Vice President of the Republic of Indonesia 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 Prosperity and Agriculture I.J. Kamiso and Sadjarwo SH, and their respective Secretaries-General Mr. Hadi, Ir. Putuhena, and Ir. Goenoeng, these higher education institutions were reopened on November 1, 1949. By that time, there have been a Technical College and a Law School owned by the Yayasan Balai Perguruan Tinggi Gadjah Mada, and each higher education institution still operated under their respective ministries. There was an idea of merging these higher education institutions and colleges into a university under the Ministry of Education, Teaching, and Culture (PP&K) emerged. This idea was realized with the establishment of Universitas Negeri Gadjah Mada (UNGM) by the PP&K on December 19, 1949 (now celebrated as the anniversary of Universitas Gadjah Mada, Yogyakarta).

Meanwhile, the Medical, Dental, and Pharmacy Colleges continued to operate under the Ministry of Health. Through Presidential Decree No. 37 of 1950 dated August 14, 1950, signed by Mr. Assat as the Acting President of RI, Ki Mangun Sarkoro as the Minister of PP&K, and KRT. E. Pringgodigdo as the Minister of Justice, the Indonesian Government confirmed that UNGM was under the jurisdiction of the Ministry of PP&K. The term "Perguruan Tinggi (College)" was changed to "Fakultit (Faculty)" namely, the Faculty of Medicine, Faculty of Dentistry, and Faculty of Pharmacy. In 1954, the

government decided to standardize the terms "fakultit" and "universitit" to "Fakultas (Faculty)" and "Universitas (University)". The Yayasan Balai Perguruan Tinggi Gadjah Mada which was a private institution, ceased to exist, and the word "Negeri" (State) in UNGM was removed, becoming UGM.

The first level of lectures in the Faculty of Medicine, Dentistry, and Pharmacy (FKKGF) used to be combined as one entity, with the same lecturers; however, the examinations differed among the fields. In the developments, these three fields were separated into individual faculties. It began with the establishment of the Faculty of Pharmacy on December 19, 1955, based on the Decree of the Minister of Education, Teaching, and Culture No. 53759/-Kab, followed by the Faculty of Dentistry on December 29, 1960, based on the Decree of the Minister of Education, Teaching, and Culture No. 1090741/UU. Even though the faculties had become independent entities, the lectures remained consolidated at Mangkubumen, leading to the use of the term "MAMACONGA" (Masyarakat Mahasiswa Complex Ngasem/Student Community of the Ngasem Complex) during that period.

Upon separation from FKKGF, the Faculty of Pharmacy did not yet have permanent teaching staff. Therefore, its management was held by non-permanent staff. 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 to have permanent teaching staff starting in 1963.

When UGM was first established, its faculties were spread across Yogyakarta. Later, Sri Sultan Hamengkubuwono IX granted land in Bulaksumur, Sekip, and Karangmalang to establish the University. Gradually, the faculties began to move to the new location. In 1968, part of the Faculty of Pharmacy relocated to Karangmalang 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 Sekip Utara, where it is located today. However, due to the shortage pharmacist teaching staff, the doctoral level (the last year of the undergraduate program) and the pharmacist level were still conducted in Semarang because, at that time, Semarang had pharmacist instructors available. It was until 1977 that all teaching and learning processes in the Faculty of Pharmacy could be conducted in Yogyakarta on one location in Sekip Utara, Yogyakarta.

The Graduate Program in Pharmaceutical Sciences at UGM was established on September 29, 1993, under the decree No. 580/DIKTI/Kep/1993 from the Directorate General of Higher Education. At that time, its administration fell under the Postgraduate Program at UGM, following the university's policy. In 2006, the Rector of UGM issued Decree No. 89/P/SK/HT/2006, which stated that monodisciplinary Master's programs would be managed by the relevant faculties, while multidisciplinary Master's programs would be managed by the Graduate School of UGM. Since then, the Graduate Programs at UGM have been managed by the faculties under the responsibility of the Deans. This included the Master's Program in Pharmaceutical Sciences, which was developed further to include the specialization in Pharmaceutical Management in 1999.

In the year 2001, the Faculty initiated the establishment of the Clinical Pharmacy Master's Program, which at that time legally fell under the Master's Program in Pharmaceutical Sciences as a specialization. In 2004, the Clinical Pharmacy Master's Program, subsequently referred to as the Master's Program in Clinical Pharmacy, received its Establishment Decree from the Directorate General of Higher Education (DIKTI) with Decree No. 4381/D/T/2004, officially becoming an independent study program.

According to Regulation of Minister of National Education No. 1/2006, universities such as UI, ITB, UGM, and IPB were given the flexibility to open and close study programs with the approval of the MWA. Considering the efficiency in program management within the Faculty of Pharmacy, in 2006, the Dean decided to incorporate the Clinical Pharmacy Master's Program into the Graduate Program of the Faculty of Pharmacy, UGM.

However, with due consideration for the advancements and developments in the field of pharmaceutical services, as well as the increasing demand for Clinical Pharmacists and Pharmaceutical Management professionals, it was deemed necessary to re-establish the Clinical Pharmacy Master's Program (MFK) and Pharmaceutical Management Master's Program (MMF) as independent study programs in 2015 and 2019, respectively, to facilitate more optimal growth.

Currently, the Faculty of Pharmacy offers six study programs at both undergraduate and postgraduate degrees, each of which has received accreditation from the National Accreditation Board for Higher Education (BAN PT) and the Indonesian Accreditation Board for Health Higher Education (LAMPT-Kes). The accreditation results are as follows:

No	Study Programme	Accreditation	Accreditation Institute	Year of Accreditation Stipulation
1	Bachelor of Pharmacy	A	LAMPT-Kes	2019
2	Pharmacist	A	LAMPT-Kes	2022
3	Magister of Pharmaceutical Science	A	LAMPT-Kes	2020
4	Magister of Clinical Pharmacy	A	LAMPT-Kes	2021
5	Magister of Pharmaceutical Management	A	LAMPT-Kes	2021
6	Doctoral Programme of Pharmaceutical Science	A	LAMPT-Kes	2020

II. VISION, MISSIONS, AND OBJECTIVES OF FACULTY AND STUDY PROGRAM

A. Vision, Missions, and Objectives of Faculty, according to the Decree Letter of the Dean Number 16.14.06/UN1/FFA/SK/KP/2021

Vision:

Becoming a pioneer of a Pharmacy Higher Education program that excels at the national level, with international qualifications, which promotes ethics and morals based on Pancasila to serve the interests of the nation and humanity.

Missions:

1. Conducting an excellent, innovative, and effective Pharmacy Higher Education program at the national level, with international qualifications;
2. Managing education and developing community services based on research results following advances in science and technology and applying the principles of Pancasila to serve the interests of the nation and humanity.

Objectives:

1. Producing graduates with excellent, innovative, and effective qualities at the national level, with international qualifications;
2. Producing innovative research works and community services to solve the problems of the nation and humanity;
3. Developing sustainable supporting facilities to maintain high-quality education.

B. Vision, Missions, Objectives, Target, and Achievement Strategies of the Graduate Program in Pharmaceutical Science according to the Decree Letter of the Dean Number 29.13.12/UN1/FFA/SK/KP/2021

Vision:

Becoming a pioneer of the Graduate Program in Pharmaceutical Science that excels at the national level, with international qualifications, which promotes ethics and morals based on Pancasila to serve the interests of the nation and humanity.

Mission:

a. Organizing the Graduate Program in Pharmaceutical Science with high-quality and international perspectives that promote ethics and morals;
b. Managing and developing research in Pharmaceutical Science to solve the problems of the nation and humanity by applying innovative and multidisciplinary approaches;
c. Organizing sustainable community services based on research results to improve the quality of health and welfare of the community.

Objectives:

a. Producing graduates with excellent and innovative qualities who are able to communicate their research results at the national and international levels, which promotes ethics and morals by applying the principles of Pancasila;
b. Producing innovative research works and community services in the field of pharmaceutical science and technology to solve the problems of the nation and humanity.

Targets and Achievement Strategies

Considering the vision, missions, and objectives, the Graduate Program in Pharmaceutical Science determine the following target and achievement strategies:

Target:

Creating and improving the quality of the education and learning process.

Achievement Strategies:

1. Creating an excellent academic environment with international perspectives
    a. Developing a comprehensive academic system and improving the quality of the learning system, including the hard and soft skills;
    b. Achieving formal recognition for the excellent academic system at a national level through the national accreditation;
    c. Integrating complete and reliable information-technology-based educational infrastructure and facilities into the academic, governance, and financial system.
    d. Facilitating guest lectures or other activities that involve sources from practitioners or academics at national and international levels.
2. Improving achievement on national and international recognition for the works of lecturers and students:
    a. Improving lecturers' participation in conferences, publications, and guest lectures at international level;

b. Increasing the number of publications of student scientific work in national and international journals;

3. Improving the roles of lecturers and students in the problem-solving for the society, nation, and country:
   a. Increasing the number of scientific works that are responsive to the problems of the nation and country;
   b. Maintaining cooperation with educational/scientific institutions and stakeholders related to research activities domestically and internationally.
4. Applying professional skills in pharmaceutical industries and hospitals and planning strategies in providing pharmaceutical services for community services: Increasing the number of community services in various fields of pharmaceutical services, such as pharmaceutical industries, hospitals, and communities.

III. ORGANIZATIONAL STRUCTURE OF THE FACULTY OF PHARMACY OF UNIVERSITAS GADJAH MADA

Faculty is the implementing element of some main tasks of the university, which is led by the Dean, who directly reports to the Chancellor. Faculty has the job of implementing the Tridharma (Three Pillars) of Higher Education, including education and teaching, research, and community service, supplemented by coaching the academic community and administrative service activities.

To manage the tasks, the Dean is assisted by three deputy deans, namely the Deputy Dean for Academic and Student Affairs (Deputy Dean 1), the Deputy Dean for Accounting, Assets, and Human Resources (Deputy Dean 2), and the Deputy Dean for Research, Community Service, Cooperation, and Alumni (Deputy Dean 3).

The Tridharma of Higher Education is implemented by the departments of which role is as the implementing element of the Faculty and Laboratory, which is the supporting facilities of the department. The departments are led by the Heads of Departments responsible to the Dean. Currently, the supporting facilities of each department are as follows:

A. Departments that Function as Academic Executors

Department is the implementing element of the faculty in a certain field of science. A department consists of educators and laboratories. Each department is led by the head of the department, while each laboratory in each department is led by the head of the laboratory. In the Faculty of Pharmacy of UGM, there are four departments, namely:

1. Department of Pharmaceutical Biology

The Department of Pharmaceutical Biology is the academic implementing element of the Faculty of Pharmacy carrying out education and teaching, research, and community service in the field of science related to screening terrestrial and marine organism content; the identification of compounds or compound components, including marker compounds; the development of medicinal plant cultivation techniques to produce superior seeds and secondary metabolites using both conventional method and plant tissue culture techniques and biotechnology; and the development of extraction techniques, Simplicia standardization, and standardization of extracts with biological activity.

a. Laboratory of Microbiology and Cell Biology

The laboratory of Microbiology and Cell Biology includes several laboratories:

i. Laboratory of Plant Tissue Culture
ii. Laboratory of Pharmaceutical Microbiology
iii. Laboratory of Cell Biology
iv. Laboratory of Fermentation Technology

b. Laboratory of Phytochemical Pharmacognosy

This laboratory is responsible for the field of Phytochemical Science, coordinating several laboratories:

i. Laboratory of Phytopharmaceutical Technology
ii. Laboratory of Medicinal Plant Content Analysis
iii. Laboratory of Natural Products Chemistry
iv. Laboratory of Natural Cosmetics
v. Laboratory of Natural Medicine Standardization
vi. Laboratory of Herbal Medicine Analysis

2. Department of Pharmaceuticals

The Department of Pharmaceuticals is the implementing element of the Faculty of Pharmacy that is responsible for carrying out education and teaching, research, and community service in the field of science related to Pharmacy Management and Community Pharmacy, Physical Pharmacy, Biopharmaceuticals, and Pharmaceutical Technology.

a. Laboratory of Pharmacy Management and Community Pharmacy

This laboratory is responsible for managing the disciplines of Pharmaceutical Management, Community Pharmacy, Pharmaceuticals, and Pharmaceutical Services. This laboratory manages the following laboratories:

i. Laboratory of Pharmacy Management and Community Pharmacy I
ii. Laboratory of Pharmacy Management and Community Pharmacy II

b. Laboratory of Physical Pharmacy

This laboratory is responsible for managing the disciplines of Physical Pharmacy, Biopharmaceuticals, Drug Stability, and Drug Administration. This laboratory operates the following laboratories:

i. Laboratory of Physical Pharmacy
ii. Laboratory of Biopharmaceuticals

c. Laboratory of Pharmaceutical Technology

This laboratory is responsible for managing the disciplines of Pharmaceutical Technology, Cosmetics, Traditional Medicine, and sciences related to Pharmaceutical Technology. This laboratory manages the following laboratories:

i. Laboratory of Formulation and Technology of Solid Dosage Form
ii. Laboratory of Formulation and Technology of Liquid and Semisolid Dosage Form
iii. Laboratory of Formulation and Technology of Sterile Dosage Form

3. Department of Pharmaceutical Chemistry

The Department of Pharmaceutical Chemistry is the implementing element of the Faculty of Pharmacy that is responsible for carrying out education and teaching, research, and community service in the field of science related to Analysis Chemistry, including comparison

of methods, improvement of existing methods, development of new methods, application of existing methods and/or new methods for the analysis of drugs, food, and cosmetics in various formulations (old or new) and their metabolites, and qualitative & quantitative identification of isolation, synthesis and degradation products. Medicinal Chemistry includes medicinal products, medicinal raw materials both synthetically and biosynthetically, and various efforts to increase drug production and medicinal raw materials. It also includes qualitative & quantitative relationships of structure with biological activity and modification of a drug molecule to increase its activity or reduce its toxicity studied at the cellular and molecular level. It also discusses the effect of drugs, medicinal raw materials, isolates or treatments on biological activities and biological systems, including their effects on genomes, RNA and protein synthesis, and their effects on general responses.

a. Laboratory of Medicinal Chemistry

This laboratory manages education and teaching, research, community service, and science development related to medicinal chemistry, pharmacochemistry, organic chemistry, synthetic chemistry, and computational chemistry. This laboratory manages the following laboratories:

i. Laboratory of Organic Chemistry
ii. Laboratory of Computational Chemistry

b. Laboratory of Analytical and Pharmaceutical Chemistry

This laboratory manages education and teaching, research, community service, and science development related to chemical analysis of drugs, cosmetics and food and analysis using spectroscopic and chromatographic methods. This laboratory manages the following laboratories:

i. Laboratory of Basic Pharmaceutical Chemistry
ii. Laboratory of Analytical Chemistry I and II
iii. Laboratory of Chemical Analysis for Drugs, Food and Cosmetics
iv. Laboratory of Chromatography

c. Laboratory of Macromolecular Engineering

This laboratory manages education and teaching, research, community service, and science development related to macromolecular drug discovery and engineering, the discovery of target molecules (receptors) for therapy, and the development of vaccines and antibodies. This laboratory manages the following laboratories:

i. Laboratory of Biochemistry and Molecular Biology
ii. Laboratory of Pharmaceutical Immunology

4. Department of Pharmacology and Clinical Pharmacy

The Department of Pharmaceutical Chemistry is the implementing element of the Faculty of Pharmacy responsible for carrying out education and teaching, research, and community

service in the field of science related to Pharmacology-Toxicology and Pharmacotherapy-Clinical Pharmacy.

a. **Laboratory of Pharmacology and Toxicology**

   This laboratory is responsible for the research disciplines of pharmacokinetics, bioavailability, drug-drug interactions, and drugs with food or natural products, in vitro and in vivo drug metabolism, enzyme induction and inhibition, drug-receptor interactions, and pharmacological screening of synthetic drugs, natural and traditional ingredients, general and specific toxicity research, and research on evaluating the safety of a compound.

b. **Laboratory of Clinical Pharmacy and Pharmacotherapy**

   This laboratory is responsible for the review or evaluation of the appropriateness of drug use, analysis of Drug Related Problems (DRP), literature study on evidence-based medicine, analysis of the role of clinical pharmacy in health services, clinical review of drug interactions and Adverse Drug Reaction (ADR), pharmacoeconomics, pharmacoepidemiology, clinical drug trials, Therapeutic Drug Monitoring (TDM), and clinical pharmacokinetics.

B. Administrative Department

The administrative department is led by the Head of the Administrative Office in charge of 2 divisions, namely, the Academic and Student Affairs Division and the Financial & General Administration Division.

C. Unit/Board that Functions as a Specific Task Implementation Unit Developed in the Faculty

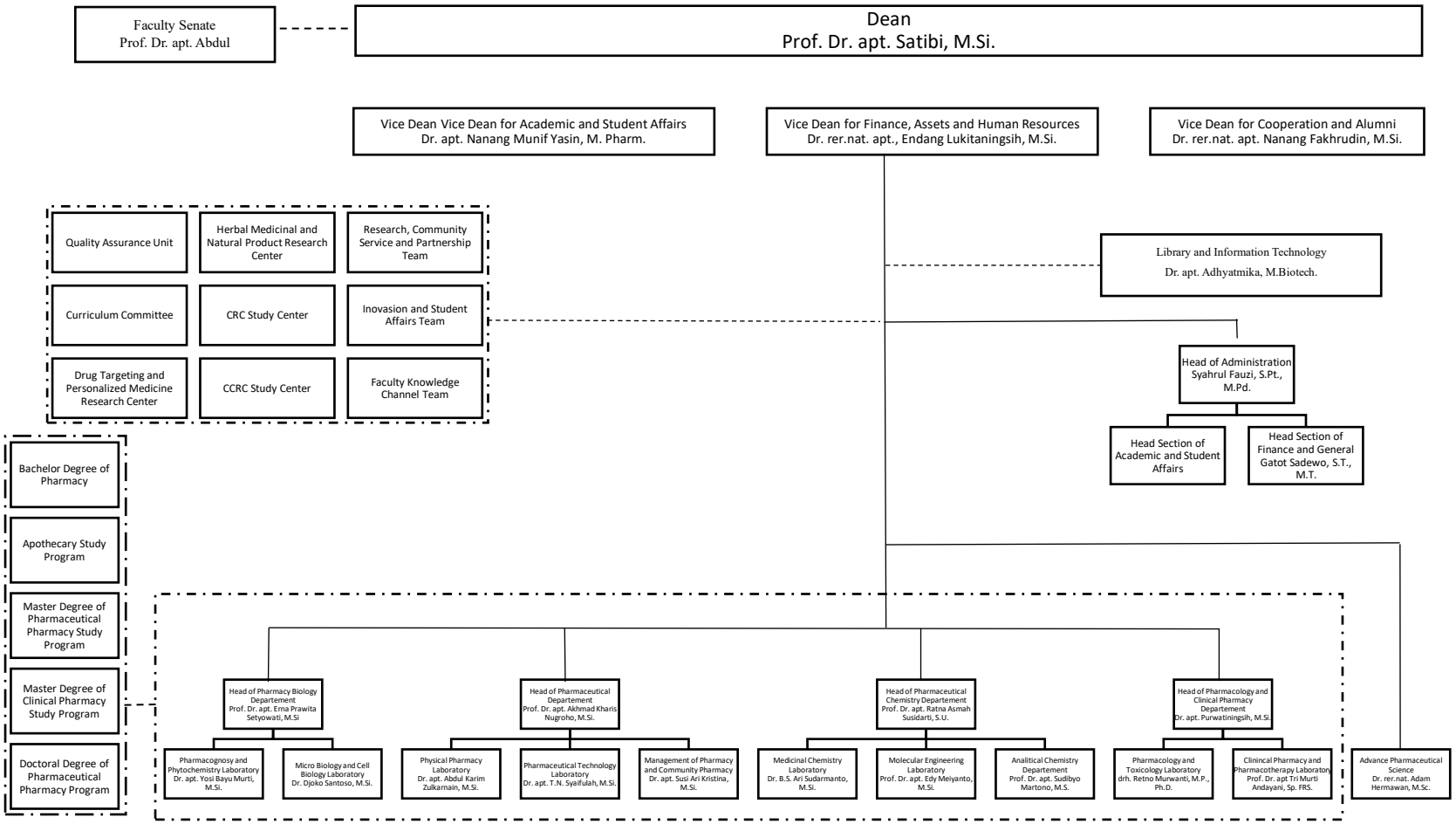
Currently, the Faculty of Pharmacy of UGM has units that support the student learning process and staff & scientific development, namely: Library, Research and Development, and Community Service. The main duties of the units are:

1. Library: managing and developing the library of the faculty as a learning resource for lecturers and students.
2. Research and Development: managing all development and research activities carried out by the academic community of the Faculty of Pharmacy of UGM.
3. Community Service: managing and developing materials for community service carried out by lecturers and students, collaborating with other parties to achieve the goals of the community service.

D. Faculty Senate

The Faculty Senate is the highest normative body in the Faculty whose members consist of all teaching staff consisting of Professor, Dean, Deputy Deans, Heads of Departments, and members representing the Departments, involving one representative for every 10 members of the Departments. The Head of the Faculty Senate is chosen from among all senate members

ORGANIZATION STRUCTURE
FACULTY OF PHARMACY
UNIVERSITY OF GADJAH MADA



STAFF AND COMMITTEE
OF MAGISTER OF PHARMACEUTICAL SCIENCE
FACULTY OF PHARMACY
UNIVERSITY OF GADJAH MADA

Head of Study Program	: Dr. apt. Riris Istighfari Jenie, M.Si.
Academic Staff	: Candra Lesmana, A.Md.
Correspondence Administration Staff	: Rizky Suci Rahmawati, S.Kom
Staff	: Sugiyarta
	Ari Budiyono
Finance Staff	: Hartini, SE

IV. STUDENT BEHAVIOUR GUIDELINES

As part of the etiquette for creating harmony among the academic community at the Faculty of Pharmacy of UGM in particular and at Universitas Gadjah Mada in general, it is necessary to establish the following Student Behaviour Guidelines:

A. ATTITUDE

1. Promoting the name and noble values of Universitas Gadjah Mada.
2. Respecting lecturers, employees, fellow students, and the community.
3. Obeying all applicable rules in the faculty and university.

B. BEHAVIOUR

1. Creating an atmosphere that supports academic activities, including attending lectures/practicums on time, maintaining a conducive environment during the lecture/practicum process, and actively participating in lectures/practicums.
2. Creating a safe and comfortable atmosphere in the campus environment.
3. Maintaining the integrity and preservation of facilities at the faculty/university, including maintaining their beauty and cleanliness, as well as respecting other people's property.
4. Creating a good situation for personality development.
5. Interacting with each other appropriately while still respecting religious values, decency, and modesty.

C. APPEARANCE

1. Wearing appropriate and neat clothing according to every occasion.
2. For women, they have to uncover their faces.
3. Being polite in the lecture room, practicum room, and outside the classroom.

D. PROHIBITION

1. Causing noise that disrupts lecture or practicum activities.
2. Involving in fraud in academic, administrative, and financial matters.
3. Smoking, eating, or drinking during lectures/practicum.
4. Carrying sharp weapons, fighting, being involved in extortion, committing harassment, and forming gangs/cliques.
5. Making scribbles on the table, chairs, and walls, or causing damage and stealing facilities of the faculty/university.
6. Consuming, distributing, and abusing drugs, narcotics, and dangerous drugs or drinking alcohol.
7. Violating moral norms.
8. Dressing that violates the applicable norms and rules in society while participating in academic activities.

9. Wearing T-shirts, torn pants or clothes, and sandals during academic activities.

E. SANCTION

Students who violate the rules above can be:

1. Verbally reprimanded by lecturers, employees or their friends.
2. Reprimanded in writing by the head of laboratory/department/faculty/university.
3. Subject to suspension from academic and administrative activities by the head of laboratory/department/faculty/university.
4. Expelled from the faculty/university by the dean/chancellor.

V. GRADUATE COMPETENCIES

A. Graduate Competencies of the Graduate Program in Pharmaceutical Science include:

1. Mastering how to formulate new drugs, through both the synthesis and isolation stages from natural ingredients, testing the pharmacological and toxicological effects of the new drugs to ensure the safe use of the drugs.
2. Mastering how to formulate drugs according to Good Manufacturing Practices for various drug preparations by paying attention to the physical and chemical properties of medicinal ingredients to produce the right drug formula for the therapy of disease.
3. Mastering the techniques for analyzing drugs and food using conventional methods and instrumentation, for drugs as single and mixed preparations, and drug degradation products to ensure drug quality and correct use.

B. Master Program in Pharmaceutical Science:

1. Knowledge and Understanding

a. Understanding advanced science, namely chemistry, physics, and biology.
b. Understanding the latest technology related to Good Manufacturing Practice (GMP) and Good Laboratory Practice (GLP) in the pharmaceutical field.
c. Understanding quality assurance at every stage of new drug discovery, drug formulation, and Drug & Food Quality Control.

2. Intellectual Skill

a. Mastering the application of advanced science: chemistry, physics, and biology.
b. Mastering the technique of designing and implementing GMP & GLP and data analysis & interpretation.
c. Mastering the technique of identifying, formulating, and solving problems in Pharmaceutical Sciences.

3. Practical Skill

a. Mastering the latest methods and their use in the pharmaceutical field, including pharmaceutical chemistry, pharmaceuticals, biology and pharmacology-toxicology.
b. Mastering information technology related to procedures for accessing the latest journals and scientific presentation techniques.
c. Mastering the techniques for using the latest instrumentation in the pharmaceutical field.

4. Managerial Skills and Attitude

a. Promoting norms, values, morals, religion, ethics and professional responsibilities.

b. Communicating effectively with experts in related health fields. Working together in a team and adapting quickly to the work environment

DEAN OF THE FACULTY OF PHARMACY OF UNIVERSITAS GADJAH MADA

DECREE OF THE DEAN OF THE FACULTY OF PHARMACY

OF UNIVERSITAS GADJAH MADA

NUMBER: 30.13.12/UN1/FFA/SK/KP/2021

REGARDING

AMENDMENT OF THE DECREE OF THE DEAN NUMBER 13.09.01/UN1/FFA/SK/KP/2020 CONCERNING THE STIPULATION OF AN ACADEMIC REGULATION OF THE MASTER PROGRAM IN PHARMACEUTICAL SCIENCES OF THE FACULTY OF PHARMACY OF UNIVERSITAS GADJAH MADA

DEAN OF THE FACULTY OF PHARMACY
OF UNIVERSITAS GADJAH MADA,

Considering :

a. that in order to carry out academic activities for students of the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Universitas Gadjah Mada, it is deemed necessary to amend an Academic Regulation for the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Universitas Gadjah Mada;

b. that based on the considerations as referred to in letter a, it is necessary to stipulate a Dean Decree;

In view of :

1. Law Number 12 of 2012 concerning Higher Education (State Gazette of the Republic of Indonesia of 2012 Number 158, Supplement to the State Gazette of the Republic of Indonesia Number 5336);
2. Government Regulation Number 67 of 2013 concerning the Statute of Universitas Gadjah Mada (State Gazette of the Republic of Indonesia of 2013 Number 165, Supplement to the State Gazette of the Republic of Indonesia Number 5454);
3. Government Regulation Number 4 of 2014 concerning the Implementation of Higher Education and Management of Higher Education (State Gazette of the Republic of Indonesia of 2014 Number 16, Supplement to the State Gazette of the Republic of Indonesia Number 5500);
4. Government Regulation Number 57 of 2021 concerning National Education Standards (State Gazette of the Republic of Indonesia of 2021 Number 87, Supplement to the State Gazette of the Republic of Indonesia Number 6676);
5. Regulation of the Minister of Education and Culture Number 3 of 2020 concerning National Standards for Higher Education (State Gazette of the Republic of Indonesia of 2020 Number 47);
6. Regulation of the Board of Trustees of Universitas Gadjah Mada Number 4/SK/MWA/2014 concerning Organization and Governance of Universitas Gadjah Mada as last amended by Regulation of the Board of Trustees of Universitas Gadjah Mada Number 2 of 2020 concerning the Fifth Amendment to the Regulation of the Board of Trustees of Universitas Gadjah Mada Number 4/SK/MWA/2014 concerning Organization and Governance of Universitas Gadjah Mada;
7. Regulation of the Chancellor of Universitas Gadjah Mada Number 15 of 2017 concerning Academic Standards of Universitas Gadjah Mada;

8. Decree of the Chancellor of Universitas Gadjah Mada Number 6195/UN1.P/KPT/HUKOR/2021 dated October 4, 2021, concerning the Dean of the Faculty of Pharmacy of Universitas Gadjah Mada for the 2021-2026 Period;

Observing Plenary Meeting of the Senate of the Faculty of Pharmacy of Universitas Gadjah Mada on December 10, 2021.

HAS DECIDED:

To stipulate DECREE OF THE DEAN REGARDING THE AMENDMENT OF THE DECREE OF THE DEAN NUMBER 13.09.01/UN1/FFA/SK/KP/2020 CONCERNING THE ACADEMIC REGULATION OF THE MASTER PROGRAM IN PHARMACEUTICAL SCIENCES OF THE FACULTY OF PHARMACY OF UNIVERSITAS GADJAH MADA

FIRST To amend the Academic Regulation of the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Universitas Gadjah Mada in the Decree of the Dean Number 13.09.01/UN1/FFA/SK/KP/2020 concerning the Academic Regulation of the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Universitas Gadjah Mada as contained in the Appendix to this Decree.

SECOND The Academic Regulation, as referred to in the First Dictum, shall come into force for students of the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Universitas Gadjah Mada.

THIRD This decree takes effect from the Even Semester of the 2020/2021 Academic Year, and necessary improvements will be made if there are errors in its implementation.

Issued in Yogyakarta
On December 13, 2021

Dean,

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

Copy:
1. Vice Dean for Academic and Student Affairs.
2. Head of Administration Office.
3. Head of Academic and Student Affairs Division
4. Head of the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Universitas Gadjah Mada.

APPENDIX OF THE DECREE OF THE DEAN OF THE FACULTY OF PHARMACY OF UNIVERSITAS GADJAH MADA

NUMBER : 30.13.12/UN1/FFA/SK/KP/2021
DATE : DECEMBER 13, 2021
REGARDING : AMENDMENT OF THE DECREE OF THE DEAN NUMBER 13.09.01/UN1/FFA/SK/KP/2020 CONCERNING THE STIPULATION OF AN ACADEMIC REGULATION OF THE MASTER PROGRAM IN PHARMACEUTICAL SCIENCES OF THE FACULTY OF PHARMACY OF UNIVERSITAS GADJAH MADA

ACADEMIC REGULATION OF THE MASTER PROGRAM IN PHARMACEUTICAL SCIENCES OF THE FACULTY OF PHARMACY OF UNIVERSITAS GADJAH MADA

CHAPTER I
GENERAL TERMS

Article 1

In this regulation, what is meant by:
1. The university is Universitas Gadjah Mada.
2. Faculty is the Faculty of Pharmacy of Universitas Gadjah Mada.
3. The Study Program is the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Universitas Gadjah Mada.
4. Curriculum is a set of plans and systems about the contents and study materials, lessons, learning methods, and assessment that are used as a basis for carrying out the learning activities in the graduate/master program.
5. Department is a Department within the Faculty of Pharmacy of Gadjah Mada University.
6. Laboratory is a laboratory within the Faculty of Pharmacy of Gadjah Mada University.
7. Semester Credit Unit, abbreviated as credit, is a measure of the burden of students per week within one semester through various forms of learning activities or the measure of recognition for a student for successful participation in academic activities in a study program.
8. The Directorate of Education and Teaching (DPP) is the implementing unit of the university in the field of academic administration.
9. Chancellor is the Chancellor of Universitas Gadjah Mada.
10. Dean is the Dean of the Faculty of Pharmacy of Universitas Gadjah Mada.
11. Head of the Faculty is the Dean of the Faculty of Pharmacy of Universitas Gadjah Mada, along with the Deputy Deans.
12. Program Management is the Management of the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Universitas Gadjah Mada.
13. Lectures are lecturers of the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Universitas Gadjah Mada.
14. Academic Supervisors are lecturers in the Master Program in Pharmaceutical Sciences who are assigned by the Program Management to be academic supervisors of students.
15. Selection Team is a team who are assigned by the Dean to select prospective students.
16. Thesis Committee is a committee determining supervisors and thesis examiners chaired by the Deputy Dean for Academic and Student Affairs with members: Chair of the Master Program in Pharmaceutical Sciences and Head of Laboratories in the Faculty.
17. Examiner Team consists of lecturers or practitioners entitled by the Dean to asses thesis research proposal,

a closed thesis defense, and an open thesis defense based on the proposal of the Thesis Defense committee.
18. Students are participants in the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Universitas Gadjah Mada.
19. Academic activities are learning activities inside and/or outside the lecture rooms and/or laboratory, assignments, learning evaluation, and other supporting administrative activities.
20. International scientific journals are scientific journals in UN language, editors with international reputations from several countries, and authors from several countries.
21. Accredited national scientific journals are scientific journals published in Indonesia and accredited by the Director General of Strengthening Research and Development of the Ministry of Research, Technology, and Higher Education or LIPI.
22. International seminar is a seminar whose speakers and participants come from at least 3 (three) countries.
23. National seminar is a seminar whose speakers and participants come from at least 3 (three) provinces.
24. International proceedings are proceedings indexed in Scopus or Web of Science.

Article 2

Education Objectives

The Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy is oriented towards producing graduates who excel in the field of Pharmaceutical Sciences and obtain the following qualifications:
1. Have a leadership spirit, nobility and high quality;
2. Be able to produce scientific works related to pharmaceutical science and technology that are innovative and beneficial to society;
3. Be able to communicate their research results at the national and international levels;
4. Be able to develop pharmaceutical sciences through a sustainable interdisciplinary approach.

Article 3

Program Executor

The Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Universitas Gadjah Mada is organized by the Faculty and executed by the Program Management.

Article 4

Academic Activities

1. Students who can participate in academic activities are those who are actively registered at the university in the current semester.
2. The academic activities referred to in paragraph 1) include activities in the form of lectures, practicum, fieldwork practice, thesis research, consultation, mentoring, examinations, seminars, and other activities related to academics.
3. Students who take part in academic activities must comply with the study program of Pharmaceutical Sciences, faculty, and university regulations, and other applicable regulations.

CHAPTER II

STUDENT ADMISSIONS

Article 5

General Rules of Admissions

1. Student admissions are carried out under the regulations applied at the University.
2. The technical implementation of student admissions, as referred to in paragraph (1), is carried out by the University, under the coordination of the directorate in charge of education and teaching.
3. Student admission is carried out through a new student admission selection system by considering the following 3 (three) criteria:
    a. Academic achievement is measured by the index score (GPA) of the prospective students in the previous education program.
    b. Academic potential is measured by valid academic potential test scores.
    c. English proficiency is measured by valid English test scores.

Article 6

Applicant Requirements

1. Academic requirements for prospective students are:
    a. Graduate from the relevant or related field of the Pharmaceutical Sciences;
    b. Have a GPA from the Undergraduate Program;
        i. ≥ 2.76 of 4 or equivalent, for a prospective student who graduates from a study program accredited A; or
        ii. ≥ 3.00 of 4 equivalent, for a prospective student who graduates from a study program accredited B; or
        iii. ≥ 3.50 of 4 equivalent, for a prospective student who graduates from a study program accredited C; and
    c. Pass the special selection test conducted by the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of UGM;
    d. Have sufficient academic ability and be considered capable of pursuing a Masters education as proven by a score of Academic Potential Test (TPA) by BAPPENAS or UGM Postgraduate Academic Potential Test (PAPs) at least 500 or in accordance with applicable regulations, as proven by a valid certificate, a maximum of 2 years after the date of issuance of the certificate;
    e. Have an English proficiency test score proven by a valid certificate, a maximum of 2 years after the date of issuance of the certificate. The English proficiency scores and certificates that can be used are:
        i. Academic English Proficiency Test (AcEPT) issued by UGM with a minimal score of 209, or;
        ii. International English Testing System (IELTS) from a reputable institution acknowledged by IDP with a minimal score of 5, or;
        iii. Internet-Based (iBT) TOEFL from a reputable institution acknowledged by IIEF with a minimal score of 45, or;
        iv. Institutional Testing Program (ITP) TOEFL is a reputable institution acknowledged by IIEF with a minimal score of 450.

Applicants who do not meet the TPA and TOEFL requirements (points d and e) but meet all the requirements from UGM and pass the special selection organized by the study program must fulfil the Academic Potential Test (TPA) and TOEFL requirements before carrying out the thesis proposal examination.

Article 7

International Students

1. International students who apply for education in the Master Program in Pharmaceutical Sciences must obtain permission from the Directorate General of Higher Education of the Ministry of Education and Culture of the Republic of Indonesia and follow the applicable immigration regulations.
2. All academic requirements that apply to Indonesian students also apply to international students, except for financing provisions that are specifically regulated.
3. Registration procedures as a new student for international student follows the applicable regulations in UGM.

Article 8

Application Procedures

1. Prospective students register online at the website http://www.um.ugm.ac.id, then upload other registration files required by the Study Program through the website for the Master Program in Pharmaceutical Sciences.
2. Prospective new students who have met the administrative requirements follow the academic selection at the study program level through special selection. Decisions are made through New Student Admissions Committee meetings.
3. The selection results are reported to the University to be announced online. After that, prospective students who are accepted can register online.

Article 9

Prospective Student Admission Selection

1. Administrative selection is carried out by the Directorate of Education and Teaching (DPP) of UGM, and the academic selection is organized by a team formed by the Faculty.
2. The selection criteria are:
   a. Academic ability;
   b. Completeness of the requirements;
   c. Suitability of the major applied for with educational background;
   d. Capacity of the study program.
3. The selection results are reported in writing by the selection team leader to the Dean using a form that includes:
   a. Name of students who are accepted, arranged according to the priority;
   b. Name of students who are not accepted.
4. The final decision regarding whether a prospective student is accepted is determined by the Chancellor on the recommendation of the Dean.
5. Students' acceptance and rejection are announced online on the website of the Directorate of Education and Teaching (DPP) of UGM.
6. Announcement of acceptance is accompanied by a notification to re-register and the requirements for registration as a student.
7. Registration as a new student is carried out following the rules applicable at UGM.

CHAPTER III

EDUCATION PROCESS AND SYSTEM

Article 10

Education System

1. The education system is a lecture-based education system (by course).
2. Each academic year is divided into 2 (two) semesters.
3. The education system is carried out through the following stages:
   a. The first two semesters consist of lectures;

b. Semester 3 (three) and after is for research and completion of the thesis.

4. The educational burden related to student's study load and lecturer's teaching load is expressed in credits or semester credit units.
5. The education system of the Master Program Leading to Doctoral Program for Excellent Graduates (PMDSU) or other similar programs apart from the regular program will be regulated in separate regulations.

Article11

Load, Length of Study, and Residency Requirement

1. The study load for the Master Program in Pharmaceutical Sciences is set at a minimum of 40 and a maximum of 50-semester credit units (credits) that will be regulated in the Curriculum Decree.
2. The length of study for the Master Program in Pharmaceutical Sciences is set at a maximum of 6 (six) semesters. The length of study is calculated from the time the student is registered as a student until graduation.
3. Students of the Master Program in Pharmaceutical Sciences who do not complete their studies within the maximum time limit are declared to have failed.
4. Under special conditions, with the approval of the Dean, students may apply for a maximum extension of the study period 2 (two) times.
5. Students are required to live in the Special Region of Yogyakarta and participate in all academic activities on the UGM campus during the study period (at least 2 semesters) as full students.

Article 12

Curriculum Evaluation

1. Curriculum evaluation is carried out to adapt to developments in science, technology, and the arts by considering the length of study and the needs of the community.
2. Curriculum evaluation is carried out at least once every 5 years.
3. The curriculum that has been approved by the Faculty Senate is determined by the Decree of the Dean.

Article 13

Study Plan Card (KRS) and Study Result Card (KHS)

1. Students are required to fill in the Study Plan Card (KRS) provided according to the specified time before starting academic activities each semester and verified by the Academic Supervisor (DPA).
2. After the academic activities and academic administration processing of a semester are completed, students receive a Study Results Card (KHS).
3. Study Results Card is then used as the basis for calculating the Grade Point Average (GPA).

Article 14

Academic Supervisor (DPA)

1. Academic Supervisors provide quality guidance with a minimum of 2 (two) face-to-face meetings in one semester and approval for the contents of the study plan card filled in by the student.
2. In face-to-face meetings, Academic Supervisors provide consultations in both academic and non-academic fields that have an academic impact;
3. Academic Supervisor is obliged to identify students who have the potential to fail in completing their studies and officially report them to the Study Program Management.
4. Academic Supervisor does not have to be Thesis Advisor.
5. Academic Supervisor is assigned by the Dean on the recommendation of the Head of Study Program.

Article 15

Rules of the Implementation of the Learning Process

1. Lecture activities cover 14–16 meetings per semester, including mid-semester exams and final semester exams.
2. Lecture activities can apply the blended learning method, a combination of face-to-face lecture activities and online lecture activities, with a maximum proportion of online lecture activities of 40% or according to the regulations in force at the university.
3. For each lecture, a list of attendance of the Lecturer/Team of Lecturers must be filled in with the material that has been delivered and signed by the Lecturer or Team of Lecturers.
4. Each student is required to attend a minimum of 75% of the total number of meetings for each course unless in special conditions that allow them to be absent, such as sickness, death of close family, a need to carry out tasks from faculty/university/state, or other reasons acceptable to the study program. Application for leave must be submitted in writing, accompanied by the relevant and reasonable evidence.
5. If attendance is less than 75%, the student is not entitled to take the final semester exam.
6. The list of students who do not meet the lecture attendance requirements is announced before the exam.
7. Lecturing activities include lectures, discussions, seminars, presentations, and so on, according to learning methods appropriate to each course.
8. The lecture program for each course material is divided into mid-semester and post-semester terms and distributed according to the number of meetings as regulated in paragraph 2 above.
9. Each student is required to obey the norms, respect the lecturer, and is responsible for maintaining order and conduciveness of the class during lectures, practicums, or other academic activities.
10. Students who fulfil the lecture/practicum requirements have the right to take exams held by the relevant Study Program.

Article 16

Examination

1. The examination consists of the Mid-Semester Exam (UTS) and Final Semester Exam (UAS), which can be in the form of written and oral exams or special assignments and other scoring components such as quizzes, class discussions, presentations, etc.
2. Mid-semester and final written exam questions must be verified by the course management team and the Study Program Management.
3. Students who are permitted to take semester exams are those registered as students in the semester concerned and meet the academic administration requirements.
4. Students who are unable to take the mid-semester and final exams can take make-up exams based on specific requirements, where the rescheduling will be arranged by the Program Management, and the student must submit a written request no later than 1 week after the exam schedule for the subject.
5. Special conditions include:
    a. Students carry out duties from the faculty/university/state to take part in science, sports, and arts events, both national and international;
    b. The death of biological parents/siblings/husband/wife/children;
    c. Force majeure;
    d. Illness, must be proven by a valid statement from the doctor.

Article 17

Exam Grading System

1. The grading system of the learning outcomes follows the Decree of Chancellor No 1666/UN1.P.1/SK/HUKOR/2016 concerning the grading system of the learning outcomes for UGM students:
    a. A is equivalent to 4.00
    b. A- is equivalent to 3.75
    c. A/B is equivalent to 3.5
    d. B+ is equivalent to 3.25
    e. B is equivalent to 3.00
    f. B- is equivalent to 2.75
    g. B/C is equivalent to 2.50
    h. C+ is equivalent to 2.25
    i. C is equivalent to 2.00
    j. C- is equivalent to 1.75
    k. C/D is equivalent to 1.50
    l. D+ is equivalent to 1.25
    m. D is equivalent to 1.00
    n. E is equivalent to 0
2. The total score stated in paragraphs (1) and (2) of this article is a combination of midterm and final exam scores and other assessment components.
3. Students can withdraw from academic activities a maximum of 2 (two) weeks from the start of the lecture period or according to the change period for the Study Plan Card at the faculty.
4. If a student does not take one of the exams (midterm or final exams) or does not complete other academic assignments, the final grade for the course is calculated according to the weight of each assessment component.
5. If a student has not met the requirements to pass Thesis I and Thesis II courses, then the grade for the course is stated as a T (Deferred), and they are required to retake the course in the following semester.
6. It is possible for students to improve their grades by re-taking a certain course, although the course content may change according to developments in the material.
7. The course grade used to determine the Grade Point Average (GPA) is the highest grade ever achieved by the student.

CHAPTER IV

THESIS

Article 18

Definition, Nature, and Scope

1. Thesis is a scientific work resulting from research (laboratory or field research) in the form of experimental or non-experimental research carried out by a student guided by a thesis advisor to be tested in a defense before the examiner team as one of the requirements for obtaining a Master's degree.
2. Thesis is the research result that update, develops, discovers, or confirms theories/facts in pharmaceutical science and other sciences related to pharmacy and health.
3. The thesis topic can be proposed by the student according to the interests or suggestions of the advisors.
4. The total thesis credit load is 10 (ten) credits, consisting of 2 credits for Thesis I course and 8 credits for the

Thesis II course:

a. Thesis I course contains preparation for the thesis implementation and proposal examination
b. Thesis II course contains the implementation and completion of the thesis research

Article 19

Assignment of Thesis Advisor and Examiners

1. The assignment of thesis advisor and examiners is discussed at the Thesis Committee meeting.
2. The Thesis Committee determines the thesis advisor, proposal examiner, and thesis examiners, of which the final decision is stipulated by the Dean.
3. To carry out the tasks stated in paragraph (2) of this article, the Thesis Committee is given the authority to make technical regulations for its implementation.

Article 20

Thesis Advisors and Examiners

1. One student is supervised by 1 (one) Main Advisor and 1 (one) Assistant Advisor.
2. The Main Advisor is a lecturer in the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of Gadjah Mada University and, at the minimum, occupies the position of Lector and a Doctorate degree or equivalent, with expertise relevant to the thesis topic.
3. Other provisions of paragraphs (1) and (2) of this article can be determined by the Dean after receiving suggestions from the Program Management by considering the expertise and specialization of certain experts of the lecturer concerned.
4. Thesis Advisors, Examiners, and the students they supervise are not family relations to each other.
5. Family relations include spouse, parents, siblings, children, child-in-law, parent-in-law, and other in-law relationships.
6. The Main Advisor or Associate Advisor who, for some reason, cannot continue supervising will be replaced by another Main Advisor and/or Associate Advisor on the recommendation of the Thesis Committee and determined by the Dean.
7. It is possible for a lecturer to be the main thesis advisor for a maximum of 4 (four) students and as an Associate Advisor for a maximum of 4 (four) students at the same time.
8. Thesis Advisory Team is responsible for the reliability of the thesis material.
9. Other provisions of paragraph 5 of this article can be determined by the Dean based on consideration of the expertise and specialization of the prospective advisors.

Article 21

Thesis Proposal

1. Thesis Proposal is the result of the Thesis I course.
2. Proposal submissions can be made after students have completed the Thesis I course and have fulfilled the Academic Potential Test (TPA) and TOEFL requirements in accordance with the study program regulations.
3. A student who wants to do the research must take the Thesis I course and submit a thesis proposal that has obtained written approval from the Advisory Team to the Thesis Committee.
4. A student can start working on the thesis research (called the Thesis II course) after the student is declared to have passed the thesis proposal exam (Thesis I).

Article 22

Thesis Proposal Exam

1. All students must take the thesis proposal exam with the aim of assessing students' mastery and readiness to carry out thesis research.
2. The requirement to take the proposal exam is to have met the minimum TOEFL/AcEPT requirements of 450/209 and minimum TPA/PAPS of 500.
3. The thesis proposal examination is carried out by a Team of Examiners consisting of the Thesis Advisory Team and 2 (two) other examiners appointed by the Dean on the recommendation of the Thesis Committee.
4. The thesis proposal examination is attended by the Main Advisor or Associate Advisor. In the event that one of the Main Instructors or Assistants is unable to attend, the exam can still be carried out. In the event that one member of the Examiner Team is unable to attend, the examiner will be replaced by another examiner in their field of expertise appointed by the Study Program Management by considering the recommendation of the Thesis Committee of Department Representatives related to Thesis Research.
5. The score for the Thesis 1 course is the score for the thesis proposal exam, which is regulated in accordance with the Decree of the Dean No. UGM/FA/892/KP/2017 concerning the determination of standards for assessing undergraduate and graduate theses and dissertations for students at UGM as follows:
   a. Score 82 – 100 is converted into A
   b. Score 78 – 81.9 is converted into A-
   c. Score 74 – 77.9 is converted into A/B
   d. Score 70 – 73.9 is converted into B+
   e. Score 66 – 69.9 is converted into B
6. Students are declared to have passed the Thesis 1 course if the thesis proposal exam score is at least 66 (out of 100) or gets a grade of B.
7. The maximum time for revising a thesis proposal is 2 (two) months after the thesis proposal examination.
8. If, within 2 (two) months, the revision of the thesis proposal has not been completed, students are required to take the thesis proposal exam again at the student's independent funding.
9. Students who do not pass the thesis proposal exam are given the opportunity to repeat the thesis proposal exam in the same semester once at the student's independent funding.
10. The list of the thesis proposal examiners is determined by the Dean on the recommendation of the Thesis Committee.

Article 23

Implementation and Costs

1. Thesis research can be conducted within or outside the faculty environment.
2. Thesis research conducted outside the faculty must obtain permission from the Dean.
3. After completing thesis research, students must obtain a certificate/letter stating that they have completed research or data collection from the institution where they conducted the research, and this evidence is included as a part of the thesis attachment.
4. All academic facilities at the faculty can be used by students in preparing their thesis, by following existing provisions.
5. If there is funding from other parties with an interest in the results of the research, then it must obtain permission from the Dean through the Program Management and is acknowledged by the Advisor.
6. Students are required to always communicate and consult with their advisors and fill in a thesis research activity notebook (log book) approved by the person in charge of the research institution and the advisors.

Article 24

Structure and Format of Thesis

1. The thesis manuscript is written according to the Thesis Writing Guidelines applicable to the Faculty.
2. The thesis manuscript completed and approved by the Advisor can be submitted to the program manager for a thesis defense.

Article 25

Thesis Defense and Assessment

1. The thesis examination is carried out after fulfilling the requirements for passing the examination in all subjects with a minimum GPA of 3.00 and a minimum grade of C.
2. The thesis examination consists of a Closed Thesis Defense carried out by examiners and an Open Thesis Defense in the form of a seminar.
3. Students who will take the thesis defense register with the management by submitting:
   a. Thesis draft has been approved by the advisor no later than 1 (day) before the Meeting to Determine the Thesis Examiners;
   b. Proof of having attended the open examination of another student's thesis, at least 3 (three) times;
   c. Publication manuscripts related to theses that are at least ready to be submitted and have been verified by the supervisor team are one of the requirements for carrying out closed exams, while for open defense requirements, students must attach proof of the minimum submission publication process from the intended journal.
   d. Administrative requirements specified in the Technical Instructions for Academic Implementation.
4. The closed thesis defense is carried out by the examiner team consisting of the advisory team and 2 (two) people appointed by the Dean on the recommendation of the Thesis Committee.
5. The closed and open thesis defense is carried out based on the schedule, and chaired by a lecture assigned by the Study Program Manager.
6. In the event that one member of the examiner team is unable to attend, the examiner will be replaced by another examiner in their field of expertise appointed by the Study Program Management, based on the recommendation of the Thesis Committee of the Department representative related to the Thesis Research.
7. The open defense can be replaced with an oral presentation of all thesis material at a National/International Seminar recognized by the Study Program after being discussed and approved by all members of the examiner team during the closed defense.
8. Students permitted to undertake National/International seminars as a substitute for open defense are entitled to a score according to the scope of the seminar, namely a maximum score of 100% for the component of open defense at the international seminars and 85% for the component of open defense at the national seminars.
9. In the event that the open exam is replaced by a presentation at an International Seminar, the score of Thesis II is presented at the time of the judicium.
10. The thesis manuscript is considered valid after it is signed by all members of the examiner team and has been ratified by the Dean.
11. Students are required to submit 2 (two) copies of their approved thesis manuscript to the Program Management.
12. If, within 2 (two) semesters, the thesis is still not completed, the student has the right to change the topic and/or advisor with the approval of the Program Management.
13. The content and reliability of the thesis material are the responsibility of the student and the thesis advisory team.

Article 26

Ownership of the Copyright of the Thesis

Ownership of the thesis belongs to the Faculty of Pharmacy of UGM. Publication of part or all of the results of the thesis research is the right of the student and the supervisory team, and other parties whose contribution is significant to the publication of the thesis research.

CHAPTER V

LEARNING OUTCOMES ASSESSMENT

Article 27

Calculation of Grade Point Average (GPA)

1. The Grade Point Average (GPA) indicates a student's degree of success in taking all courses.
2. The highest course grade is used to determine the Grade Point Average (GPA).
3. To evaluate student study results, the Grade Point Average (GPA) is used, which is determined by the formula: the number of credits of learning activities is multiplied by the grade value, and then divided by the number of credits for learning activities being evaluated.

4. To calculate the GPA, the letter grades are converted into weight grades with the following system:
   a. A is equivalent to 4.00
   b. A- is equivalent to 3.75
   c. A/B is equivalent to 3.5
   d. B+ is equivalent to 3.25
   e. B is equivalent to 3,00
   f. B- is equivalent to 2.75
   g. B/C is equivalent to 2.50
   h. C+ is equivalent to 2.25
   i. C is equivalent to 2.00
   j. C- is equivalent to 1.75
   k. C/D is equivalent to 1.50
   l. D+ is equivalent to 1.25
   m. D is equivalent to 1.00
   n. E is equivalent to 0

Article 28

Judicium and Evaluation of Study Results

1. Judicium is a meeting attended by the Head of Faculty, Program Managers, and lecturer representatives to make decisions regarding study results at the final stage of the Master Program in Pharmaceutical Sciences.
2. Students are declared to have completed or passed the Master Program in Pharmaceutical Sciences through the judicium if they meet the requirements:
   a. Have taken the specified study load;
   b. Achieve a GPA greater than or equal to 3.00;
   c. Obtain a minimum grade for all courses of C;
   d. Have passed the Thesis defense;
   e. Have achieved at least 1 scientific article accepted for publication in an accredited national scientific journal, international journal, or international proceedings related to thesis research. Proof of Publication (Letter of Acceptance) is submitted to the Study Program as a requirement for taking part in the Judicium. In scientific articles for graduation requirements, students can be the first author or co-author, but the article must never have been used as a graduation requirement by another student;
   f. Have carried out community service activities and proven this with an activity certificate;
   g. Have been declared passed at the judicial meeting held by the faculty.
3. Students who are declared to have passed will receive the following graduation distinctions:
   a. Achieve a ***Cumlaude*** predicate (graduation with honours) if they have a Grade Point Average (GPA) of more than 3.75 (three point seventy-five), complete their studies in less than or equal to 5 (five) semesters, and are not subject to a minimum sanction of moderate during studies;
   b. Achieve a ***Very Satisfactory*** predicate (graduation with high predicate) if they have a Grade Point Average (GPA) of more than or equal to 3.51 and less than or equal to 3.75 (three point seventy-five), or have a Grade Point Average (GPA) of more than 3.75 (three point seven five) and completing studies in more than 5 (five) semesters; and
   c. Achieve a ***Satisfactory*** predicate (medium graduation predicate) if they have a Grade Point Average (GPA) of more than or equal to 3.00 (three point zero) and less than 3.51 (three point fifty-one).

Article 29

Graduation

To take part in the graduation ceremony held by the university, students must submit all administrative requirements and register according to the university's regulations.

CHAPTER VII

STUDY LEAVE

Article 30

1. Students who cannot participate in academic activities for certain reasons can apply for a study leave permit according to university regulations for a maximum of 2 semesters with the Dean's permission.
2. Students who do not participate in academic activities without permission to take study leave, their whereabouts and study period will still be counted and are still subject to the obligation to pay tuition fees and other educational costs.
3. Students are permitted to apply for study leave at least after completing the second semester of academic activities.
4. Students who will return after study leave must submit a request to the Dean through the Program Manager by attaching a leave permission letter.

CHAPTER VIII

ACADEMIC SANCTIONS

Article 31

1. Students and/or lecturers who violate academic rules may be subject to academic sanctions in accordance with applicable regulations.
2. Academic violations include dishonesty, forgery, fraud, plagiarism, cheating, immoral acts, indiscipline, insubordination, and other acts that can be categorized as violating academic regulations in accordance with university regulations.
3. The form of academic sanctions will be determined by the Dean based on the suggestions from the Faculty Ethics Committee Team in accordance with applicable regulations.

CHAPTER IX

CLOSING

Article 32

1. Matters concerning academic implementation that have not been regulated in this regulation shall be regulated separately.
2. This regulation has been valid since its stipulation and is retroactive, binding for students of the Academic Year of 2020/2021 and so on, and will be reviewed if there is any error in the stipulation.

Dean,

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

VI. CURRICULUM AND SYLLABUS

The curriculum for the Master of Pharmaceutical Sciences Study Program at the Faculty of Pharmacy refers to the Decree of the Dean No.22.15.04/UN1/FFA/SK/KP/2019 dated 15 April 2019 concerning STIPULATION OF THE 2019 CURRICULUM FOR THE 2019 MASTER OF PHARMACEUTICAL SCIENCES PROGRAM, POST-GRADUATE PROGRAM, FACULTY OF PHARMACY, UNIVERSITAS GADJAH MADA. It is stipulated under the Decree that:

A. The 2019 Curriculum for the Master of Pharmaceutical Sciences Program, Faculty of Pharmacy, Universitas Gadjah Mada, totalling 40 credits, consists of:
    1. Compulsory courses: 14 credits
    2. Elective courses: 16 credits
    3. Thesis: 10 credits (Thesis I: 2 credits, Thesis II: 8 credits)

B. Adding Co-Curricular Courses equivalent to 2 credits.

C. The Thesis-Related Course Group (KMKTT) consists of:
    1. Herbal Medicine
    2. Pharmaceutical Biotechnology
    3. Product Development and Drug Delivery
    4. Discovery and Development of Chemical Drugs
    5. Quality Assurance
    6. Biopharmaceuticals

    Students take a minimum of 4 of the 6 KMKTT courses according to the direction or approval of the Thesis Advisor, while up to 4 other credits can be taken in relevant courses to support the thesis offered by other KMKTT and/or other study programs.

D. Elective courses can be taken from KMKTT courses or other relevant study programs or faculties.

E. In semester II, Thesis II can be taken if students have passed the proposal exam (Thesis I). If students have not yet taken the proposal exam (Thesis I), they are required to retake Thesis I in semester II and not take Thesis II first.

F. In semester III and the next, if the total credits taken is no more than 24, students can take Thesis I and Thesis II simultaneously, as stated in the Master of Pharmaceutical Sciences Academic Regulations, in which thesis research can only be conducted if they have passed the proposal exam (Thesis I).

CURICCULUM OF MAGISTER OF PHARMACEUTICAL SCIENCE

YEAR ACADEMIC 2019

FACULTY OF PHARMACY UNIVERSITY OF GADJAH MADA

No.	*Course Name*	*Course code*	*CSU*	*ECTS*
	SEMESTER I			
1	Research Method and Statistics	FAF 719	2	3.2
	General Pharmacy			
2	Pharmaceutical Biology	FAF 720	3	4.8
3	Pharmaceutics	FAF 721	3	4.8
4	Pharmaceutical Chemistry	FAF 722	3	4.8
5	Pharmacology and Toxicology	FAF 723	3	4.8
6	Thesis I	FAF 724	2	10.72
	SEMESTER II			
7	Thesis-related Courses		12	19.2
8	Elective Courses		4	6.4
	SEMESTER III and IV			
9	Thesis II	FAF 761	8	42.88

Elective courses*; *Thesis-related Courses

No.	*Course Name*	*Course Code*	*CSU*	*ECTS*
	Herbal Medicine			
1.	Ethnomedicine and Phytotherapy	FAF 725	2	3.2
2.	Extraction Technology	FAF 726	2	3.2
3.	Natural Product Analysis	FAF 727	2	3.2
4.	Standardization of Natural Products	FAF 728	2	3.2
5.	Pharmacology and Experimental Toxicology	FAF 729	2	3.2
6.	Pharmaceutical Technology	FAF 741	2	3.2
	Pharmaceutical Biotechnology			
1.	Biosimilar Product Engineering	FAF 731	2	3.2
2.	Immunomolecular Product Engineering and Immunology Techniques	FAF 732	2	3.2
3.	Analysis of Pharmaceutical Dosage Form and Biotechnology Products	FAF 733	2	3.2
4.	Industrial Microbiology	FAF 734	2	3.2
5.	Plant Cell and Tissue Culture	FAF 735	2	3.2
6.	Metabolic	FAF 736	2	3.2
	Drug Delivery			
1.	Physical Pharmacy	FAF 737	2	3.2

No.	*Course Name*	*Course Code*	*CSU*	*ECTS*
2.	Drug Stability	FAF 738	2	3.2
3.	Biopharmaceutical	FAF 739	2	3.2
4.	Drug Delivery System	FAF 740	2	3.2
5.	Pharmaceutical Technology	FAF 741	2	3.2
6.	Analysis of Pharmaceutical Dosage Form and Biotechnology Products	FAF 733	2	3.2
	Chemical Drug Discovery and Development			
1.	Drug Synthesis	FAF 742	2	3.2
2.	Structure Elucidation	FAF 743	2	3.2
3.	Isolation and Purification of Natural Products	FAF 744	2	3.2
4.	Pharmacology and Experimental Toxicology	FAF 729	2	3.2
5.	Molecular Pharmacology and Toxicology	FAF 745	2	3.2
6.	Drug Design	FAF 746	2	3.2
	Quality Assurance			
1.	Quality Assurance (+GMP, GLG, GDP)	FAF 747	2	3.2
2.	Process Validation	FAF 748	2	3.2
3.	Validation and Quality Assurance of Analysis	FAF 749	2	3.2
4.	Analysis of Pharmaceutical Dosage Form and Biotechnology Products	FAF 733	2	3.2
5	Experimental Design and Chemometrics	FAF 750	2	3.2
6.	Analysis of Natural Materials	FAF 727	2	3.2
	Biopharmaceuticals			
1.	Molecular Pharmacology and Toxicology	FAF 745	2	3.2
2.	Pharmacology and Experimental Toxicology	FAF 729	2	3.2
3.	Pharmacogenetics-Genomics	FAF 751	2	3.2
4.	Drug Interactions	FAF 752	2	3.2
5.	Biomedical Analysis	FAF 753	2	3.2
6.	Secondary Metabolites	FAF 730	2	3.2

Elective courses

No.	*Course Name*	*Course Code*	*CSU*	*ECTS*
1.	Immunopharmacology	FAF 754	2	3.2
2.	Pharmacokinetics	FAF 755	2	3.2
3.	Cosmetics and Nutraceuticals	FAF 756	2	3.2
4.	Forensic Toxicology	FAF 757	2	3.2
5.	Molecular Oncology and Anticancer Agent Development	FAF 758	2	3.2
6.	Pharma Engineering & Design	FAF 759	2	3.2
7.	Drug Evaluation System	FAF 760	2	3.2
	Total Amount		14	

SYLLABUS

SEMESTER I

- **Research Method and Statistics (2 Credits)**

The Research Method course contains the subject of general research patterns in pharmaceutical science, types of research: quantitative and qualitative research, experimental and non-experimental research; experimental design and statistical analysis: simple experimental design, same-subject experimental design, crossed-over design, Latyn square design; blocking design, factorial and optimization (simplex) design, error, significance test, correlation and regression.

- **General Pharmacy**
  - **Pharmaceutical Biology (3 Credits)**

This course discusses an overview of secondary metabolites, an overview of raw material preparation, extraction, quality control, fractionation, and isolation of active compounds, as well as the basics of herbal medicine development.

  - **Pharmaceutics (3 Credits)**

This course discusses the basics of pharmaceutical science and pharmaceutical technology, which should be mastered by all students of the master of pharmaceutical sciences with the subject matter: Modern compounding pharmacy, physical pharmaceutical aspects in drug product development, stability of drug products, solid dosage formulation technology, semi-solid liquid dosage formulation technology, sterile pharmaceutical preparation formulation technology, biopharmaceutical aspects of medicinal products, alternative routes for drug delivery, nanotechnology, cosmetology and nutraceuticals, pharmaceutical modeling, product development and product quality assurance.

  - **Pharmaceutical Chemistry (3 Credits)**

This course will study the drug discovery process related to design, production, and analysis. In detail, this course studies chemical bonds and functional groups, stereochemistry and drug activity, drug synthesis: aromatic compounds, modeling of simple molecules and macromolecules, development of proteins and cells for therapy, macromolecules as a basis for drug design, pharmacology in drug discovery, application of genomic variations in the pharmaceutical field (detection of infectious/genetic diseases, detection of gene variations in drug discovery), principles and concepts of instrumental analysis, spectroscopy for identification and quantitative analysis (UV-vis, IR, NMR), mass spectrometry, chromatography and its development (two-dimensional, GC-MS, LC-MS).

  - **Pharmacology and Toxicology (3 Credits)**

This course studies the activity of all bioactive compounds, pharmacological and toxicological activities, pharmacokinetic and pharmacodynamic reviews, and interactions of bioactive compounds with biological systems, including receptors, enzymes, transporter molecules, DNA, and other functional proteins. This course also studies all biochemical and physiological processes that occur after the interaction of bioactive compounds with receptors or other action targets that lead to pharmacological and toxicological effects, including transduction mechanisms, second messengers, and transcriptional regulation of genetic material.

- **Thesis I (2 Credits)**

  This course is intended to prepare students to prepare research proposals.

  This course provides proposal assistance, which contains guidance in searching for research ideas, determining research design, procedures for scientific writing, writing papers in English, applying statistics in research, good presentation methods, and preparing the proposal itself. The outcome of the Thesis I course is a research proposal.

- **Pharmaceutical Laboratory Skill (2 Credits)**

  The Pharmaceutical Laboratory Skills course is co-curricular and requires students to choose a minimum of two from the eight pharmaceutical science laboratories offered in the faculty area, including Pharmacognosy and Phytochemistry Laboratory, Microbiology and Cell Biology Laboratory, Pharmaceutical Technology Laboratory, Physical Pharmacy Laboratory, Laboratory Medicinal Chemistry, Analytical Pharmaceutical Chemistry Laboratory, Macromolecular Engineering Laboratory, Pharmacology and Toxicology Laboratory.

SEMESTER II

- **Thesis-Related Elective Courses**
  - **Ethnomedicine and Phytotherapy (2 Credits)**

  This course discusses the role and importance of ethnomedicine and phytomedicine in developing and utilizing natural ingredients for medicinal purposes. Aspects of ethnomedicine studied include concept, scope, methods (survey, collection, and documentation), and the application of ethnomedicine in supporting natural product-based research. Meanwhile, the phytomedicine aspects discussed include the concept, scope, regulations, and application of phytotherapy in medicine. Some phytomedicine applications studied include medicinal plants for metabolic diseases (diabetes, hypercholesterolemia, and hyperuricemia), inflammation, cancer, respiratory disorders, female reproductive disorders, stamina and fitness, and cardioprotection. This course also discusses the preparation of formulas in herbal medicine, interactions in phytomedicine (herbal herbs and herbal medicines), and the stages of phytomedicine development.

- **Extraction Technology (2 SKS)**

This course discusses the technology that continues to develop in the extraction process of natural ingredients concerning research in extract-based medicines, cosmetics, and food supplements. Characteristics of natural compound compounds must be taken into account when developing the extraction of active substances. The selection of extraction methods includes extraction techniques, solvent selection, setting conditions, extraction optimization, and extraction process upscaling techniques. Post-extraction technology is studied as a bridge from extraction technology to formulation, including forming dry (powder), semi-solid, or liquid extracts ready for further formulation.

- **Analysis of Natural Products (2 Credits)**

This course discusses the identification of Simplicia and extracts according to the Indonesian Herbal Pharmacopoeia and compounds from microbes and sponges, mainly including organoleptic and chromatogram profiles, qualitative and quantitative analysis of chemical content (terpenoids, steroids, alkaloids, flavonoids, coumarins, anthraquinones, tannins, and certain compounds) by chromatography and spectrometry. Furthermore, it also studies the physicochemical properties of natural compound compounds and the selection of quantitative extraction methods, pre-analysis treatment (sample clean up), choice of analytical methods, optimization of analytical methods, and derivatization of test compounds, as well as guaranteeing the quality of analysis through method verification or validation.

- **Standardization of Natural Products (2 Credits)**

This course provides knowledge about the subject of the definition of standard and standardized natural medicines, regulations regarding standardized natural medicines in Indonesia and other countries (Europe and Asia), the problem of factors that influence the phenomenon of « chemo dem = vicariation » metabolite diversity, as a basis in determining critical parameters in the standardization of Simplicia, extracts, and preparations which includes determining specific metabolite profiles which are used as a basis for quality assurance of the INPUT-PROCESS-OUTPUT system. Next, it will discuss methods of normalizing natural ingredient extracts to produce standardized natural ingredient preparations, the application of standardization in quality assurance of natural medicines, and the application of standardization from raw materials to the production of dosage forms.

- **Experimental Pharmacology and Toxicology (2 Credits)**

This course discusses the principles and research methods of experimental pharmacology and toxicology, which include experimental pharmacology of drug metabolism and drug transport and polymorphism, experimental pharmacology of drugs that affect the central nervous system, autonomic nervous system, endocrine system, chemotherapy, immune system, and autacoids, qualitative

pharmacokinetics, toxicokinetics, molecular mechanisms of toxic compounds, and discussion of research interest.

- **Secondary Metabolites (2 Credits)**

The Secondary Metabolites course studies matters related to the diversity of secondary metabolite structural frameworks. The material consists of understanding the scope of secondary metabolites/natural medicines, including biosynthesis, bioactivity, chemical structure, qualitative/quantitative analysis, uses in medicine and the development of secondary metabolites as lead compounds for the discovery of new drugs and metabolomics studies.

- **Biosimilar Product Engineering (2 Credits)**

This course studies the development of biological drugs that have gone through engineering systems, especially protein-based products, from aspects of basic engineering techniques, product characteristics, and quality assurance. Specifically, this course covers definitions of biological and biosimilar products, characteristics of biosimilar products, types and categories of biosimilars, critical aspects of biosimilar products, quality assurance regulations for biosimilar products from various countries and Indonesia, several examples of engineered biosimilar products and their critical aspects (genes, cells host, clonal expansion, downstream processes, and characterization): insulin, erythropoietin, antibodies, and enzymes.

- **Immunomolecular Product Engineering and Immunology Technique (2 Credits)**

This course studies the development and engineering of immunological products, namely vaccines, antibodies, especially monoclonal antibodies, and cytokines. Vaccine development includes, among other things, vaccine engineering, peptide vaccines, vaccine vectors, adjuvant technology, as well as examples of engineered vaccines (AIDS vaccines, cancer vaccines). Monoclonal antibody development includes, among other things, monoclonal antibody production, purification and storage, antibody engineering, and labelling. Apart from that, this course also studies the application of immunological techniques in depth, from conventional techniques such as immunoblotting, immunoprecipitation, immunoassay, and cell staining, to the use of high-throughput flow cytometry for antibody screening.

- **Analysis of Pharmaceutical Dosage Form and Biotechnology Products (2 Credits)**

This lecture material studies the analysis of medicinal compounds, food ingredients, the efficacy of cosmetic preparations, and the analysis of biotechnology products through approaches to

physicochemical properties, potency, and biological components of pharmaceutical preparations and biotechnology products. In detail, this course studies antibiotic drug analysis, antipyretic analgesic analysis, cytostatic drug analysis, antacids, narcotics analysis, efficacy of cosmetic preparations, safety analysis of cosmetic preparations, proximate analysis, BTM analysis, heavy metal analysis, pesticide analysis, acid analysis nucleic acid, and protein.

- **Industrial Microbiology (2 Credits)**

This course studies the basics of fermentation technology, industrial microbiology, microorganisms commonly used in industry and biotechnology, media and nutrients needed for industrial purposes, biosynthesis pathways for microorganism products, increased metabolite production, and fermenter design.

- **Plant Cell and Tissue Culture (2 Credits)**

This course provides an understanding of the basics of plant tissue culture, which includes tissue culture techniques, types of culture and their use in the fields of science, pharmacy, and health, principles of micropropagation, selection and production of transgenic plants, transformation technology, gene cloning techniques in plant tissue culture and suspension/hairy root culture for metabolite production.

- **Metabolics (2 Credits)**

This course studies the biological metabolic systems approach and applications in the pharmaceutical field, the relationship between metabolomics and genomics and proteomics, metabolomics research methodology, which includes the application of analytical methods, metabolite profiling, and chemometric analysis, the combination of metabolomics with proteomics, transcriptomics or genomics to understand and explain systems biology and its interactions with environmental conditions, pharmacological agents, and other external factors.

- **Physical Pharmacy (2 Credits)**

It discusses the relationship between molecular structure and physicochemical properties and permeability, system thermodynamics, buffer solutions, electrolyte solutions, solubility, partition/distribution coefficients, complexation, rheology, and diffusion.

- **Drug Stability (2 credits)**

It discusses the scope and concept of drug stability, reaction order and influence of pH, temperature and buffer, hydrolysis, oxidation, photolysis and structure effects on drug stability.

- **Biopharmaceuticals (2 credits)**

It discusses the process of drug transport through biological membranes, absorption models and diffusion/absorption mechanisms, implications of determinants of drug absorption in drug formulations, methods for evaluating oral route drug absorption in vivo and in vitro, theory and application of compartmental transport models in biopharmaceutical processes, the basics of using WinSAAM Boomer for solving biopharmaceutical process cases, as well as theories about methods for predicting oral route drug absorption, the usefulness and basics of CAT and ACAT models, biopharmaceutics classification systems, biopharmaceutics and drug disposition classification systems and their applications, bioavailability and bioequivalence studies.

- **Drug Delivery Systems (2 credits)**

The Drug Delivery Systems (SPO) course contains topics regarding the complexity of delivery, conventional delivery systems, orally disintegrating tablets, enteric coating, mucosal/bioadhesive, gastric retentive, prodrug, oral-controlled release preparations, transdermal, liposome and pharmacosome, micro/nano particulates, hydrogels, and targeted delivery systems.

- **Pharmaceutical Technology (2 credits)**

It discusses system and technology issues for small doses, slow-release drugs, soft capsules, nanoparticle dispersion, and passive and active transdermal preparations.

- **Drug Synthesis (2 credits)**

This course discusses how to design a synthesis of a medicinal compound (as a synthetic target molecule) using a disconnection analysis approach. The Drug Synthesis Lecture explains the method for conducting disconnection analysis of a target molecule based on knowledge of organic chemistry to obtain starting simple materials, cheap and available, and determine an acceptable synthesis route.

- **Structure Elucidation (2 credits)**

This course studies the elucidation of chemical structures using spectroscopic techniques, which include introduction (elemental analysis, molecular formula, hydrogen deficiency index), mass spectrometry, UV-vis spectroscopy, IR spectroscopy, and NMR spectroscopy (1D-NMR and 2D-NMR).

- **Isolation and Purification of Natural Products (2 credits)**

This course discusses the physicochemical properties of metabolite groups of natural materials, the basic principles of separation and purification of various metabolite groups (in general), various hot and cold extraction methods, selection of extraction methods, isolation including objectives, scale, targets and methods. Bioassay-guided Isolation/fraction, preparing searchers for screening programs,

various methods of metabolite identification based on the basic framework and functional groups, separation using chromatographic methods, and techniques for purifying isolated compounds.

- **Molecular Pharmacology and Toxicology (2 credits)**

Molecular pharmacology studies the molecular basis of drug action or drug pharmacology at the molecular level. Drugs include synthetic compounds and natural compounds that have been used to treat disease, including molecular pharmacology for drugs that act on ion channel receptors, drugs that act on G protein-coupled receptors, drugs that act on intranuclear/intracellular receptors, and drugs that act on tyrosine kinase-associated receptors. Molecular pharmacology also studies several diseases at the molecular level to find and develop drugs. Molecular pharmacology also studies cell signalling, cell communication, receptor desensitization, receptor regulation, signal transduction pathways, third messengers, ion channels, and biosensors.

- **Drug Design (2 credits)**

The Drug Design course studies the concepts, principles, methodology, techniques and applications of drug molecule design, both small, simple molecules and macromolecular proteins. In detail, the discussion starts from the basic principles and concepts in the drug design and development discovery process, rational drug design, and the role of bioinformatics and cheminformatics in drug design. Discussion of molecular design techniques and applications includes guide compounds (source, identification, and how to obtain them), molecular modification techniques, molecular targets (enzymes, receptors, DNA) and their relationship to drug action, as well as protein (vaccine) design techniques. The discussion regarding the use of computers as a drug design tool discusses the principles and methodology of computational chemistry, molecular modelling and the two main approaches in Computer-Assisted Drug Design (CADD), namely Ligand-based and Structure-based Drug Design (LBDD and SBDD) as well as techniques and applications in both approaches (QSAR, pharmacophore modelling, docking, de novo design, fragment-based design).

- **Quality Assurance (+GMP, GLP, GDP) (2 credits)**

It plans and implements a quality assurance program so that the products produced have consistent effectiveness, safety and stability, as well as allowing for continuous quality improvement. It covers quality assurance from production to distribution.

- **Process Validation (2 credits)**

It discusses types of validation (prospective, retrospective), validation of sterilization processes, validation of solid dosage manufacturing processes, validation of raw materials, validation of water and air management systems, validation of equipment and facilities, and validation of cleaning processes.

- **Validation and Quality Assurance of Analysis (2 credits)**

This course studies the analytical process, starting from sample preparation, good laboratory practice, validation of analytical methods, calibration and qualification of instruments, and quality assurance of analytical results. In detail, the Validation and Quality Assurance of Analysis course discusses the analysis process, sample preparation (extraction, Soxhlet, solid phase extraction, solid phase microextraction), validation of analytical methods and determination of performance characteristics (specificity, linearity and range, accuracy, precision, detection limit, quantification limit, ruggedness, robustness), instrument calibration and qualification (pH meter, spectrophotometer and HPLC), quality assurance of chemical analysis results (internal quality assurance, external quality assurance), as well as data processing and statistical tests related to result quality assurance analysis (outlier test, z-test), and determining uncertainty measurement values.

- **Experimental Design and Chemometrics (2 credits)**

This course studies various experimental designs involving one or more factors, including introduction to experimental design (one variable at one time versus experimental design), experimental design techniques Randomized Blocks, Latin Squares, Factorial Designs, The 2k Factorial Design, Two-Level Fractional Factorial Design, as well as Response Surface Methods and Designs, data analysis with chemometrics, chemometrics for grouping and discrimination (principal component analysis, discriminant analysis, SIMCA, cluster analysis), studying various multivariate calibrations (classical least squares, Stepwise Multiple Linear Regression (SMLR)), principle component regression and partial least squares regression).

- **Pharmacogenetic-Genomics (SKS)**

This course discusses the definition of pharmacogenetics and genomics, introduction to the human genome and applied genomics, genetic polymorphism and SNP, pharmacogenomics in the absorption phase, pharmacogenomics in the distribution phase, pharmacogenomics in the metabolism phase, pharmacogenomics in the elimination phase, pharmacogenomics in transporters, and pharmacogenomics in receptors. Some examples to discuss are pharmacogenomics in asthma, diabetes, cancer, and depression therapy.

- **Drug Interactions (2 credits)**

This course begins with the definition, prevalence, and incidence of drug interactions, followed by a discussion of the mechanisms and clinical implications of drug-drug, drug-food (nutrient, food supplement) and beverage interactions, and drug-herb interactions, viewed from the pharmacokinetic aspect (phase absorption, distribution, and biotransformation) and pharmacodynamics, as well as the

final result of drug interactions in the form of clinical response. Learning emphasizes the use of both synthetic and herbal medicines which are commonly used in therapy, including cardiovascular medicines (heart, blood pressure, anticoagulant and antiplatelet medicines), antihyperlipidemic, antibiotics, antifungals and antivirals (HIV), antidiabetes, medicines for the central nervous system, gastrointestinal drugs (anti secretion of gastric acid), and anti-cancer.

- **Biomedical Analysis (2 credits)**

This course discusses the scope of molecular diagnostic biomedical analysis for drugs and biosimilars, principles of bioassay and bioanalysis, radioimmunoassay, enzyme multiplied immunoassay technique (EMIT) and EnzymeLinked Immunosorbent Assay (ELISA), validation of bioanalysis methods and their application in plasma/serum/tissue, principles of microarrays and their applications, RT-PCR techniques and MALDI-TOF/MS protein analysis, Tandem-MS and metabolomics and proteomic analysis with High-Resolution Mass Spectrometer (HRMS).

- **Open/Free Elective Courses**

- **Immunopharmacology (2 credits)**

The Immunopharmacology course is a branch of pharmacology concerned with applying immunological techniques and theories to study the effects of drugs, especially on the immune system. This course will discuss the basic concepts of the immune system, including the physiology and pathophysiology of the immune system, and the types, cellular, and molecular mechanisms of action of drugs that affect the immune system, as well as their application in disease therapy, especially specific diseases of the immune system. This course also provides an overview of the techniques used in pre-clinical and clinical immunopharmacology studies.

- **Pharmacokinetics (2 credits)**

The Pharmacokinetics course contains discussion points about the fate of drugs in the body, including the processes of absorption, distribution, metabolism, and excretion, related to the definition of pharmacokinetics, kinetic order, pharmacokinetic analysis using compartment models, both open compartment models as well as two open compartment models, as well as non-linear model and non-compartment model drug pharmacokinetic analysis. In the pharmacokinetics course, the emphasis is on determining the pharmacokinetic parameters of drugs, including the kinetics of absorption, distribution and elimination in BA/BE test applications and studying the pharmacokinetic-pharmacodynamics (PK-PD) relationship.

- **Cosmetics & Nutraceuticals (2 credits)**

It discusses the definition of cosmetics, skin anatomy and function, cleaning and moisturizing preparations, skin whitening and antiaging, natural ingredient cosmetics, cosmetics safety, emulsion preparations, liposomes, and cosmetic development. It discusses the benefits of nutrition with its health benefits, for example, nutraceuticals for healthy eyes, heart, skin, immune system, diabetes prevention, etc. Ingredients and health benefits of various vegetables, fruits, grains etc.

- **Forensic Toxicology (2 credits)**

This course is designed to provide an overview of the principles and concepts of forensic toxicology, laboratory techniques used in forensic toxicology, and an understanding of instrumentation used in analytical techniques, case discussion and interpretation of forensic toxicology data, laboratory management, forensic toxicology research, and presentation of forensic toxicology cases.

- **Molecular Oncology and Development of Anti-cancer Agents (2 credits)**

This course discusses the process of cancer development (carcinogenesis) at the molecular level and the development of anticancer agents by targeting the characteristics of cancer cells. In detail, this course studies and discusses carcinogenesis, carcinogens, characteristics of cancer cells (hallmarks of cancer), specific drug targets for hallmarks of cancer, and the development of chemoprevention and anti-cancer.

- **Pharma Engineering & Design (2 credits)**

The Pharma Engineering & Design course emphasizes problems/matters related to the Pharmaceutical Industry, both in general, such as those in Good Medicine Manufacturing Methods (CPOB), to aspects of deepening Pharmaceutical Technology problems, especially regarding the phenomenon of heat transfer and mass transfer. A general overview of the Pharmaceutical Industry will be discussed at the beginning of the lecture, including the role of pharmaceutical engineering in the Pharmaceutical Industry, pharmaceutical plants, raw materials, research and development, factory design, buildings, equipment, and validation issues. Next, it continues with heat and mass transfer, energy during drying, lyophilization, nebulization, and its application to vegetable material simplicia.

- **Drug Evaluation System (2 credits)**

It discusses procedures for evaluating new drugs (new chemical entities) and drug preparations (synthetic and natural medicines) from pre-clinical to clinical trials. Pre-clinical testing includes designing and implementing pharmacological, pharmacokinetic, and toxicological tests. In contrast, clinical trials include the design and implementation of phase-1, 2, 3, and 4 clinical trials (post-marketing surveillance), design and implementation of clinical trials for bioequivalence of medicinal preparations (BABE), and therapeutic equivalence of natural medicines (OBA).

- **Thesis 2 (8 credits)**

This course provides research assistance, data analysis, and writing scientific papers through theses and publications.

VII. TECHNICAL INSTRUCTIONS FOR ACADEMIC IMPLEMENTATION

A. Selection of Prospective Students

a) The New Student Admission System for the Graduate Program is through 3 (three) pathways:
   a. Regular Track
      It is intended for prospective applicants at their own expense, those at the expense of the agency where they work, and those from the general public applying for scholarships from various Ministries in the Republic of Indonesia.
   b. Collaboration Track
      It is intended for employees who work at UGM partner institutions, and their education costs are borne by the institution, proven by the existence of an MoU.
   c. International Track
      It is intended for International Citizens (WNA) or Indonesian Citizens (WNI) with a Bachelor's degree or equivalent from a university abroad.

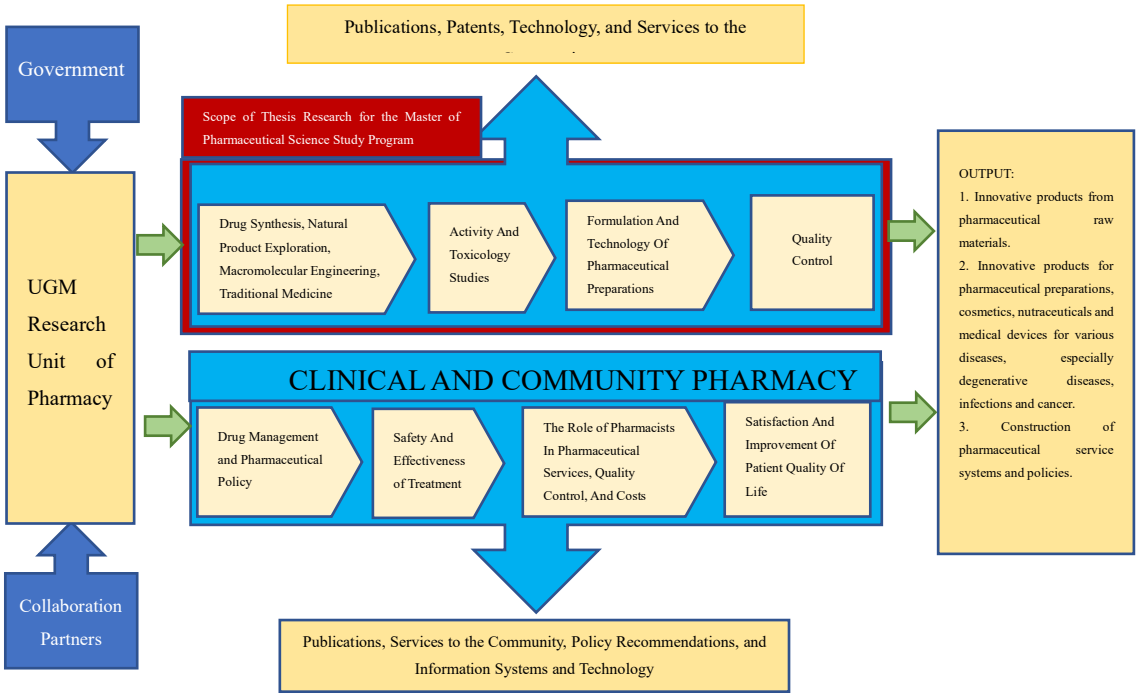
b) Administrative Requirements:
   a. Proof of payment for registration as an applicant;
   b. Certified copy of undergraduate diploma (S1) and academic transcript;
   c. Curriculum vitae and work history (if any);
   d. Letter of permission from the agency where students work for those who are already working;
   e. Two recommendations from the thesis advisor or direct advisor regarding the applicant's academic abilities (form provided by the Program Manager);
   f. A statement of no involvement in narcotics issued by a competent agency.
   g. Health certificate from a government hospital or community health center doctor.

B. Equalization of mastery of basic knowledge

For new students who come from graduates who are not in the same field and feel they need additional knowledge to equalize their knowledge, the study program took a policy by facilitating them to be able to take additional courses in the undergraduate study program (sit in). Students write a written request to the Master of Pharmaceutical Sciences study program regarding the courses they will take. The study program manager will provide an introductory letter to the Head of the Undergraduate Study Program regarding the student's desire to sit in on the Undergraduate Study Program course.

C. Implementation of the Thesis

Students are asked to document all activities related to their final assignment/thesis through *Simaster*. These activities include, among others, submission of proposals from advisors, submission of proposals from proposal examiners, thesis consultation activities with advisors (at least eight times), final assignment research logbook, and submission of proposals from thesis examiners. The scope of thesis research in the Master of Pharmaceutical Sciences study program follows the UGM Faculty of Pharmacy research roadmap for 2022-2027, as in the figure below:



Thesis Preparation

a. Procedures for Submitting Candidates for Thesis Advisors

i. Students choose a Thesis Advisor based on the research theme that will be proposed and request the willingness of the lecturer concerned by bringing a Letter of Willingness to become the Main/Assistant Advisor (Form T-01).

ii. Students fill out the Thesis Advisor Submission form and submit it to the Secretariat of the Master of Pharmaceutical Sciences Study Program by attaching an outline of the research plan, a signed Letter of Willingness to be the Main/Assistant Advisor (Form T-01), no later than one working day before the scheduled Thesis Committee Meeting. Students then submit advisor proposals through *Simaster*.

iii. The Committee determines the Thesis Advisor based on the results of meetings scheduled once a week.

iv. If the student has not chosen a Thesis Advisor, the Thesis Committee will appoint an Advisor according to the proposed research theme. Students apply to the lecturer appointed by the

Thesis Committee and submit the signed form to the Secretariat of the Master of Pharmaceutical Sciences Study Program.

v. Students who wish to propose a replacement research topic or thesis advisor after the results of the meeting are announced should submit a request for cancellation to the Head of the Master of Pharmaceutical Sciences Study Program in writing, accompanied by the reasons and acknowledged by the advisor, before the proposal examination.

vi. If within a period of more than three months after being appointed as a Thesis Advisor, the proposal examination has not been carried out, then the Application for a Thesis Advisor is considered invalid, and the student should re-apply for a Thesis Advisor under the Procedures for Submitting Prospective Thesis Advisors from the beginning.

vii. The Thesis Advisor then functions as the Academic Advisor and, together with the student, determines the courses to be taken that are related to the thesis.

1. Thesis Proposal
    a. Proposal Exam
        i. The proposal exam (Thesis 1) is mandatory for all students to take to assess students' mastery of the research to be carried out.
        ii. The proposal examination is carried out by a Team of Examiners consisting of the Thesis Advisor Team and 2 (two) other examiners appointed by the Dean on the recommendation of the Thesis Committee.
        iii. The Proposal Examination can be carried out after students have completed all courses in the first semester with a minimum GPA of 3.00 or all courses with a minimum GPA of 2.5 and have fulfilled the requirements for the Academic Potential Test (TPA) and TOEFL according to study program regulations, and taken Thesis 1 course.
        iv. If a student taking the Thesis 1 course does not take the proposal examination in the semester in which the course is taken, then the grade for Thesis 1 is T (Pending). Students are required to retake the course in the following semester.
        v. The Proposal Exam score is the score for the Thesis 1 course. Students are declared to have passed the proposal exam if the score is at least B. The score will come out after the student completes the proposal revision.
        vi. To carry out the proposal exam, students register with the Academic Department of the Study Program by attaching the following:
            a) Proposals for examining lecturers are also submitted via *Simaster*
            b) Data on TPA/PAPs and ACEPT/TOEFL exam results that meet the study program requirements
            c) Study Results Card for all courses taken

d) Thesis Proposal Paper that has been approved by the Advisor Team and has been bound with a light blue buffalo paper cover
e) Statement letter for using the Reference Manager application in preparing the Thesis Proposal
f) Final Assignment Assessment Form for the Academic Advisor and Thesis Committees (Thesis Proposal/Thesis I)
g) Preparing these forms:
    - Assessment form
    - Minutes form

    These forms are submitted to the academic department of the study program no later than one day before the exam and deposited at the Secretariat after completion of the proposal exam. Proposals revised and approved by the examiner team should be submitted to the academic program section in one copy as a replacement for the previously submitted proposal no later than two months after the proposal examination is carried out.

vii. Students are required to complete exams and revise proposals before conducting research.
viii. If the preparation of a thesis requires laboratory research, then before carrying out laboratory research, students register with the relevant department, including a photocopy of the letter of proof of submission of the revised proposal.
ix. If research is carried out outside the Faculty, students should apply for a research permit that the Dean acknowledges. Submission of an application letter to the Dean for a permit is accompanied by a photocopy of proof of submission of the revised proposal.
x. Research results published before the proposal examination cannot be included in the student's thesis.

b. Instructions for Implementing the Thesis Proposal Examination
    i. In the event that a thesis proposal examiner is replaced, this should be agreed with the replaced examiner and the replacing examiner and acknowledged by the management in writing.
    ii. The thesis proposal examination is carried out openly, attended by a minimum of five seminar participants, and led by the Chairman of the Session.
    iii. The Chairman of the Session is one of the Examining Team appointed by the Dean based on the recommendation of the Thesis Committee.
    iv. The Examining Team and students carrying out the exam are present 15 minutes before the exam schedule and prepare the equipment. The Examining Team and students wear polite, neat clothes and tie (men's) or batik; women should adjust; closed shoes.

v. Thesis Proposal Examination Session

a) The Chairman of the Session opens the session and explains the session process, introducing the students, advisors, co-advisors, and examiners. The proposal exam lasts 60 minutes, and the results of the Thesis Proposal Exam are Thesis 1 scores. Data published by students before the proposal exam cannot be included in the student's thesis.

b) The Chairman of the Session briefly explains the provisions of the proposal exam and invites students to present their research plans for a maximum of 10 minutes.

c) The Chairman of the Session invites members of the Examining Team to ask questions/comments. The question and answer session lasts for a maximum of 40 minutes. Next, the Chairman of the Session invites the session participants to ask questions or comments, which lasts for a maximum of 10 minutes.

d) The Chairman of the Session suspends the session to hold a small meeting to determine the exam results.

e) The exam results assessment session is chaired by the Chairman of the Session. The Chairman of the Session collects the scores from each examiner and adds and divides them according to the number of examiners. The Chairman of the Session asked for suggestions and opinions from the Examining Team to decide on the exam results, with the results referring to the Dean Decree No.UGM/FA/892/KP/2017 concerning Stipulation of assessment standards for undergraduate thesis (bachelor program), graduate thesis (master program), and dissertations for students at UGM as follows:

Score in Number	Score in Letter
82 – 100	A
78 – 81.9	A-
74 – 77.9	A/B
70 – 73.9	B+
66 – 69.9	B
62 – 65.9	B-
58 – 61.9	B/C
54 – 57.9	C+
50 – 53.9	C

The exam results sheet and session minutes are signed by the Chairman of the Session and the Examining Team.

f) The examination session is reopened by the Chairman of the Session. The Chairman of the Session recites the Decree of Session and informs the student of their graduation status and matters they need to be corrected immediately. If there are improvements, the student should submit the results of the revised proposal to the Examining Team and submit the revised proposal signed by the Examining Team to the Study Program Academic Department no later than two months from the session. Students who cannot submit revised proposals within the stipulated time limit must retake the proposal exam at their expense.

g) The Chairman of the Session closes the Thesis Proposal Examination session.

c. Instructions for Students

i. Administrative preparation

a) Preparing a bound Thesis research proposal (according to the number of examiners plus one for the program secretariat) approved by the Main Advisor and Assistant Advisor.

b) For the thesis proposal exam, students are asked to contact the examiner team to schedule the exam by bringing a Letter of Approval for Submitting the Thesis Proposal Exam to be signed by the Examiner Team.

c) Students register with the Academic Department of the Study Program by submitting a Letter of Approval for Submitting a Thesis Proposal Examination to process the proposal examination invitation.

d) Students submit the Thesis Proposal Manuscript to the Examiner Team no later than three days before the date of the Proposal Examination session.

e) Before the proposal exam, students should prepare by filling in:

- Scoring form
- Minutes form

These forms are submitted no later than one day before the exam and stored in the Academic Department of the Study Program after completion of the proposal exam.

ii. Preparation for thesis proposal examination session

a) Students make presentation material (maximum 10 minutes) in the form of a PowerPoint file.

b) Making an abstract completed with the title of the thesis proposal, name and student number, copied as many as the number of seminar participants.

c) Gathering a minimum of 5 (five) seminar participants.

d) During the session, students must appear neatly dressed and with closed shoes.

e) Be ready at the exam location at least 15 minutes before the exam starts to check the presentation equipment.
f) Anything unclear can be asked directly to the Secretariat of the Master of Pharmaceutical Sciences Study Program at the Faculty of Pharmacy of UGM.

c. Instructions for Educators
   i. Preparing complete documents for the thesis proposal examination and submitting them when it occurs.
   ii. Recording and storing documents from thesis proposal examination results
   iii. Preparing a space and the equipment for the thesis proposal examination.

2. Monitoring and evaluating the implementation of the thesis

Monitoring and evaluation (monev) are held from when students are in semester three until they graduate. Monev is carried out every semester during the quiet week leading to the Final Semester Examination (UAS). The monev was attended by students, advisors and study program managers. The results of monev will be summarized each semester to monitor student progress and success in research and publication of scientific papers. Monev of thesis implementation is also carried out through a logbook and by the Thesis Advisor. Thesis advisors provide input to the Study Program regarding student progress on the logbook page at the end of each semester.

c) Thesis Exam
   a. Implementation of the Thesis Examination
      i. The thesis examination is carried out after fulfilling the requirements for passing the exam in all subjects with a minimum GPA of 3.00 and no D and E grades and fulfilling other requirements, which can be seen on the Master of Pharmaceutical Sciences website on https://programmagister.farmasi.ugm.ac.id/petunjuk-proposal-dan-tesis-s2-ilmu-farmasi/
      ii. The time interval between the thesis proposal and the thesis examination is at least two months.
      iii. The thesis examination consists of (1) a closed examination attended by examiners and (2) an open examination in the form of a seminar attended by examiners, other lecturers, and students.
      iv. Open exams can be replaced by participation as an oral presenter in an International Seminar under the provisions in force at the UGM Faculty of Pharmacy. International seminar criteria:
         a) involving at least two invited international speakers and presenting at the conference
         b) involving at least participants from three countries
      v. The thesis examination is carried out by the examiner team consisting of the advisor team and two or more other examiners.

vi. The Dean appoints the examiner team on the recommendation of the Thesis Committee.

vii. The meeting results to determine the thesis examiners will be conveyed to students via information on the Study Program website.

viii. For the closed thesis exam, students should contact the examiner team to schedule the exam.

ix. In the event that a thesis examiner is replaced, this must be agreed with the replaced examiner and the replacing examiner and acknowledged by the management in writing.

b. Implementation of the closed thesis examination

i. The Chairman of the Session is one of the Examiner Team appointed by the Dean based on a recommendation from the Thesis Committee.

ii. The student taking the exam must be present 15 minutes before the exam schedule and prepare the exam equipment.

iii. Preliminary meeting of the Examiner Team (if necessary, without students being present). The Chairman of the Session explains the session process and allows the thesis Examiner Team to submit an opinion or explanation from the advisor (if necessary) regarding the suitability of the thesis to be examined.

iv. Closed Thesis Examination Session

a) The Chairman of the Session opens the session and explains the session process. The exam lasts a maximum of 120 minutes and contributes a maximum of 75% of the overall thesis score.

b) The Chairman of the Session invites the student to present their research results for a maximum of 20 minutes.

c) The Chairman of the Session invites members of Examiner Team 1 to ask questions/comments, followed by questions/comments from the Chairman of the Session and Advisor. The discussion lasts for a maximum of 100 minutes.

d) The Chairman of the Session suspends the session to hold a small meeting to determine the exam results.

e) The exam results assessment session is chaired by the Chairman of the Session. The Chairman of the Session asks for views and opinions from the Examiner Team to:

i) Decide the exam results whether:

- Pass with or without revision (minimum closed thesis exam score is 50.00) and can be continued to the open exam, or
- Fail (closed thesis exam score < 50).

ii) Allow/not allow the student to present their research results at a national or international seminar as a substitute for an open thesis examination (at the student's request).

f) The Examination Session is reopened by the Chairman of the Session. The Chairman of the Session recites the Decree of Session and informs the student of matters that need to be corrected immediately. The student must submit the thesis revision results to the Examiner Team and submit the thesis signed by the Examiner Team to the Postgraduate Library at the Faculty of Pharmacy of UGM. The closed exam score will be cancelled for students who cannot submit their thesis revision and carry out an open exam within two months of the closed thesis exam, and they are required to retake the closed exam at their expense.

g) The exam results sheet and session minutes are signed by the Chairman of the Session and all the Examiner Team.

h) The Chairman of the Session closes the Closed Thesis Examination session.

c. Instructions to the Chairman of Session

i. The maximum time allocated for questions/rebuttals, including answers, is 100 minutes.

ii. Questions/rebuttals can be delivered all at once or one by one after there is an answer from the student.

iii. Male examiners are advised to wear a tie or batik; female examiners can adjust.

d. Instructions to Students

i. Administrative preparation

a) Preparing a complete thesis, including a thesis manuscript that has been bound with attachments, a summary in Indonesian and English, and a publication manuscript (according to the number of examiners, plus for the program secretariat) which has been approved or signed by the Main Advisor and Assistant Advisor.

b) Submitting the Final Assignment Assessment Form to the Advisor and Thesis Examiner (Thesis II).

c) Submitting a manuscript ready to be submitted and verified by the advisor team. The publication manuscript is prepared according to the writing format of the intended journal.

1. The publication can be done in accredited national journals, international journals, or international proceedings.
2. Students can be the first author or co-author for a publication; however, another student must not have used the article as a graduation requirement.
3. The writing of student affiliations in publications during the study period in the Master of Pharmaceutical Sciences study program is as follows:

a. Publication in international journals or in English

1) Master in Pharmaceutical Sciences, Faculty of Pharmacy, Universitas Gadjah Mada*,* Jl. Sekip Utara, Sleman, Yogyakarta 55281, *Indonesia.*

b. **Publication in national journals or in Indonesian**

1) Master of Pharmaceutical Sciences, Faculty of Pharmacy, Universitas Gadjah Mada*,* Jl. Sekip Utara, Sleman, Yogyakarta 55281, *Indonesia.*

d) Attached to the thesis manuscript is a letter of proof of research from the relevant agency.

e) Submitting a letter containing the Thesis examiner's proposal from the Advisor addressed to the Program Manager (Thesis Examiner Proposal Letter Form) by submitting a complete thesis draft, proof of passing the TOEFL/ACEPT and TPA/PAPS tests, logbook signed by the Main Advisor and Assistant Advisor, proof of participation in the Thesis Seminar (at least three times), and academic data (Course Selection Sheet (KRS), Course Results Sheet (KHS), and proof of Thesis monitoring) to the academic department of the Postgraduate Program at the Faculty of Pharmacy of UGM. The composition of the Thesis Examiner Team may differ from that of the Thesis Proposal examiners.

f) Submitting a certificate of participation in the **Pharmaceutical Skills Laboratory** issued by the study program academic. Students fill out the Pharmaceutical Skills Laboratory attendance, submit proof of attendance to the study program academic, then the study program academic makes a certificate that the student has completed participating in the Skills Lab co-curricular activities.

g) Students can apply for participation as an oral presenter in an international seminar as a substitute for an open thesis examination before the closed thesis examination is carried out to the Management and the Thesis Examiner Team following the valid provisions of the Postgraduate Program by attaching a statement letter from the seminar committee that the manuscript is accepted, and a leaflet or information related to the seminar that will be attended.

h) Coordination of the time and location of the exam with the program secretariat and the Examiner Team, which the Program Manager has previously determined.

i) Submitting a complete thesis and invitation letter to the Thesis examiner team no later than 5 (five) working days before the exam session date.

ii. Preparation for the thesis examination session

a) Wearing closed shoes and dressing modestly. Male students should wear a shirt with a tie or batik, and female students should adjust accordingly.

b) Be ready at the exam location at least 15 minutes before the exam starts to check the presentation equipment.

c) Preparing a presentation for a maximum of 20 minutes containing the essence of the research plan, including research background, problems, objectives, authenticity,

significance, outline, results, conclusions, acknowledgement, and others related to the research.

d) Making presentation material (preferably in a PowerPoint file), not copy-paste directly from thesis pages. For a 20-minute presentation, the number of transparencies or slides is recommended not to exceed 25.

iii. Closed Thesis Examination Session and Follow-up to Examination Results

a) Wearing closed shoes, dressing neatly, and wearing a tie or batik for male and female students should adjust accordingly.

b) Making good use of the presentation time and the question and answer part during the exam.

c) Making thesis revision as recommended by the Examiner Team and submitting the thesis result revision to the Examiner Team to be signed on the thesis validation sheet within a maximum of two months after the closed thesis examination is carried out.

d) Submitting a request for an open thesis examination to the Program Manager and coordinating the time and location of the open examination with the Program Manager and the examiner team.

e) The closed exam scores will be cancelled for students who cannot carry out the open thesis exam within a maximum of two months from the closed thesis exam, and they are required to retake the closed thesis exam at their expense.

iv. Instructions for Educators

a) Preparing the complete documents for the closed thesis examination and submitting them when the closed examination takes place.

b) Preparing the space, presentation tools, and so on.

c) Preparing a list of honoraria for examiners of closed thesis exam.

4. Open Thesis Examination/Thesis Seminar

a. The Implementation of Open Thesis Examination

i. The open exam/thesis seminar is conducted after being declared to have passed the closed thesis examination.

ii. Open examination/thesis seminars are conducted no later than three days before the judicium.

iii. Open examination/thesis seminar is attended by examiners, lecturers, and students.

iv. To confirm the execution of the open thesis examination, students are required to contact the Examiner team to schedule the examination.

v. Students register by submitting a letter of approval for registration for the thesis seminar, accompanied by proof of completion of revisions and printing an invitation for the thesis open examination, which is then submitted to the Secretariat for further processing.

vi. Students are required to provide the following documents:

- Form MIF-14, Form MIF-15
- Thesis approval sheet
- The thesis abstract, with the identity of the student who will carry out the examination, consisting of the name and student number, which are duplicated in as many as the number of participants

The above forms are submitted to the Secretariat no later than 1 (one) day before the examination, and the forms are stored at the Secretariat after the examination is finished.

b. Procedures of Open Examination

i. The Chairman of the Session is one of the Examiner Team assigned by the Dean/Person in Charge of the Program.

ii. The students taking the examination must be present 15 minutes before the schedule and prepare the equipment.

iii. The implementation of the Open Thesis Examination.

1) The Chairman of the Session opens the examination and explains the session process, introducing the student, advisor, assistant advisor, and examiners. The open thesis examination lasts for 60 minutes and has a maximum contribution of 25% of the overall thesis score.
2) The Chairman of the Session explains the provisions of the examination briefly and invites the student to present the results of their research for a maximum of 20 minutes.
3) The Chairman of the Session invites the participants to ask questions or comments. The discussion lasts for a maximum of 40 minutes. Next, the Chairman of the Session invites the Examiner Team to ask questions, starting with the members, followed by the Chairman of the Session, and closed with comments/explanations from the Main and Assistant Advisors.
4) The Chairman of the Session takes a break and holds a small discussion to determine the results.
5) The examination results assessment is chaired by the Chairman of the Session.
   The Chairman of the Session asks for suggestions of the Examiner Team regarding the assessment results of the thesis:
   i) Passed without revision

ii) Passed with revision

The exam results sheet and session minutes are signed by the Chairman of the Session and the Examiner Team.

6) The session is reopened by the Chairman of the Session.
7) The Chairman of the Session read the Decree to announce the assessment results of the thesis.
8) The Chairman of the Session closes the Open Thesis Examination.

c. Instructions to the Chairman of the Session
   i. The maximum time allocated for questions/rebuttals, including answer sessions for 40 minutes.
   ii. Questions/rebuttals can be delivered all at once or one by one after an answer from the student.
   iii. Male examiners are expected to wear a tie/batik shirt, and female examiners should adjust accordingly.

d. Instructions to Students
   i. Administrative Preparation
      1) Preparing a complete thesis, including a thesis manuscript along with attachments and summaries in Indonesian and English.
      2) Submitting proof of submission from the intended journal.
      3) Coordinating the time and location of the examination with the program secretariat and the Thesis Examiner Team.
      4) Submitting a complete thesis and invitation letter to the Thesis Examiner Team no later than 3 (three) days before the examination date.

e. Preparation for the Open Thesis Examination
   i. Wearing closed-toe shoes and dress modestly; male students wear a shirt with a tie, and female students adjust accordingly.
   ii. Being ready at the examination venue at least 15 minutes before the examination starts to check and try out presentation equipment.
   iii. Preparing a presentation for a maximum of 20 minutes containing the essence of the research plan, including research background, research problems and objectives, the authenticity of the research, the significance of the research, an outline of the research, results, conclusions, acknowledgment, and other matters related to the research.
   iv. Gathering at least 5 (five) participants to the thesis seminar.

f. The Execution of the Open Thesis Examination and the Follow-up on the Results of the Thesis Assessment
    i. Wearing closed-toe shoes and dress modestly; male students wear a shirt with a tie, and female students adjust accordingly.
    ii. Optimizing time allotted for presentation and Q&A session during the examination.
    iii. Submitting a complete thesis, signed by the Thesis Examiner Team and approved by the Dean, to the Graduate Library within a maximum of 2 (two) weeks after the open thesis examination is held.
    iv. Submitting proof of thesis submission to the Pharmacy Graduate Library and to each examiner.

g. Instructions to Educator
    i. Preparing documents complete documents for the thesis and providing the documents on the thesis examination.
    ii. Preparing room and equipment for the examination.
    iii. Preparing honorarium list for the examiners.

5. Thesis Assessment
    a. Thesis assessment considers the following aspects:
        i. The quality of the thesis, including the material, methodology, systematic writing, and language.
        ii. Performance during exams, including mastery of material and methodology.
    b. Components of thesis assessment: closed examination (75) and open examination (25).
    c. The final score for the thesis assessment is stated with the letters A, B, or C.
    d. The results of the thesis assessment are announced by the examiner directly to the student after the examination is finished.
    e. If the open thesis examination is replaced by an oral presentation in an International Seminar, the score will be presented during the graduation.
    f. The thesis manuscript is considered valid after it is signed by all the members of the Examiner Team and has been ratified by the Dean.
    g. Students are required to submit 2 (two) copies of their approved thesis manuscript to the Program Management by attaching proof of submission of the manuscript to each lecturer of the Thesis Examiner Team.
    h. The maximum time for thesis revision is 2 (two) months from the thesis examination a maximum of 2 (two) weeks from the time the open thesis examination is held.

6. The Implementation and Costs

a. Thesis research can be carried out within or outside the faculty environment.
b. If the research is carried out outside the faculty, permission from the Dean is necessary.
c. After completing the research, students must obtain the completion letter stating that they have completed their research or data collection from the institution where they conducted the research, and this is part of the thesis attachment.
d. All costs incurred due to thesis implementation activities are borne by the student.
e. All academic facilities in the faculty can be used by students in preparing their thesis by following the provisions in each unit.
f. Funding from other parties must be notified to the Dean through the Program Management and acknowledged by the Advisor.
g. Students are required to report every research development in a log book that is approved by the parties involved (Lecturer/Advisor, etc.).

D. Judicium and Graduation

1. The results of the judicial meeting are announced by the Program Management on the website and posted on the notice board.
2. Graduation
    a. Students can register for graduation after they have been declared to have passed the judicium.
    b. Students can register for graduation after their scientific articles are accepted for publication/published.
    c. The registration for graduation is available online.
3. Procedures of Judicium and Registration for Graduation

    Students register for judicium and graduation through *Simaster*. The study program's judicial requirements are provided on the website of the Master Program in Pharmaceutical Sciences: (https://programmagister.farmasi.ugm.ac.id/petunjuk-proposal-dan-tesis-s2-ilmufarmasi/), with the following details:
    a. Submit Transcript Writing Data Form (attached with S1 (Bachelor's Degree) Certificate).
    b. Submit Graduate Personal Data Form (1 sheet, attached with color photo, matte photo paper).
    c. Submit the Thesis Submission Form to the Examiner.
    d. Submit a letter from libraries of the Faculty of Pharmacy of UGM (will be issued if the student has returned all library books borrowed and the thesis manuscript has been submitted along with a CD/soft file containing the complete manuscript of the thesis).
    e. Complete data is submitted to the Secretariat no later than 3 days before the judicial meeting.

f. Submit graduation documents according to the procedures.

E. Guidance of Community Services

1. General Requirements
    a. This community service activity is an activity of students of Pharmaceutical Science of the Faculty of Pharmacy of UGM guided by lecturers.
    b. Students are required to participate in community service activities at least once during their studies at the Pharmaceutical Science study program of the Faculty of Pharmacy of UGM.
    c. Students can participate in community service activities individually or in groups. The activities can also be carried out together with other institutions/organizations that are not binding.
    d. Each group consists of 5-10 students who will be guided by one lecturer as supervisor. One lecturer can guide a maximum of 2 groups of students/semester.
    e. The community service activities can be in the form of:
        i. Providing counseling, education, or drug information services to patients/the public, which can be done at pharmacies, hospitals, or other health service locations.
        ii. Writing popular scientific articles t published in newspapers/magazines on a regional/national scale, stating their identity as students of the Master Program in Pharmaceutical Science of the Faculty of Pharmacy of UGM.
        iii. Providing free treatment and health or non-health education to the community.
        iv. Creating a management information system design in a hospital or pharmacy.
        v. Making a plan for providing education (counseling/drug information) to the community at Taman Pintar, which can use teaching aids, booklets of practical instructions for the right drug use, drug information for children, etc.
        vi. Conducting other community service activities (with approval from the management of the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of UGM).

2. Procedures
    a. Individual students or groups (5-10 students) supervised by one supervisor can submit a proposal for community service activities to the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of UGM.
    b. Proposals that are accepted will receive funding from the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of UGM, by taking into account the

form and volume of the proposed activities. Funds will be released by including an activity report.

c. Individual/group students are required to make individual/group reports on activity implementation, accompanied by documentation or evidence of the implementation.
d. Students who participate in community service by publishing popular scientific writing in newspapers/magazines on a regional/national scale can report their activities by attaching proof of the publication of their writing.
e. Supervising lecturers and students who have carried out community service activities will receive a certificate from the Master Program in Pharmaceutical Sciences of the Faculty of Pharmacy of UGM.

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