PROGRAMME HANDBOOK

Master of Science Program in

Pharmacy and Health Innovation

(International Program)

School of Pharmacy

Walailak University

Nakhon Si Thammarat, Thailand

Curriculum B.E. 2568 (2025)

1. Programme Overview

Programme Title	Master of Science Program in Pharmacy and Health Innovation (International Program)
Degree Awarded	Master of Science (Pharmacy and Health Innovation) (International Program)
Abbreviation	M.Sc. (Pharmacy and Health Innovation) (International Program)
Field of Study	Pharmacy and Health Innovation
Type of Programme	International Programme (taught entirely in English)
Offering School	School of Pharmacy, Walailak University
Location	Walailak University, Nakhon Si Thammarat, Thailand
Duration	2 Academic Years (4 Semesters)
Total Credits	36 Credits
Language of Instruction	English (all coursework and thesis written in English)
Academic Calendar	Semester 1: June – October ⏐ Semester 2: November – May
Curriculum Version	Revised Curriculum B.E. 2568 (2025) — effective from June 2025

2. About the Programme

The Master of Science Program in Pharmacy and Health Innovation (International Program) at Walailak University is a research-intensive two-year postgraduate programme designed to produce graduates with advanced competencies in pharmaceutical and health innovation.

The programme integrates pharmaceutical sciences and health sciences with innovation methodology and digital technologies — including AI, Big Data, and digital analytics using tools such as Python for reproducible research. Graduates are equipped with the knowledge, skills, and professional attributes to create, manage, and translate health innovations into practice.

The programme is designed in accordance with the principles of Outcome-Based Education (OBE), aligned with the AUN-QA (ASEAN University Network Quality Assurance) framework, the Thailand Qualifications Framework (TQF), the FIP Global Advanced Development Framework, and Thailand 4.0 national policy.

2.1 Programme Philosophy

Philosophy

The programme aims to produce master's graduates with knowledge, pharmaceutical science skills, and health science competencies to develop innovations in pharmacy based on researcher ethics — capable of applying knowledge to solve health science problems and translating research findings into commercial or social benefits.

2.2 Programme Objectives

- Produce graduates who can apply pharmaceutical and health science knowledge and research skills to create innovations in pharmacy and health.
- Generate high-quality research outputs that solve problems in pharmacy and the health sciences.
- Strengthen academic and research capacity within the School of Pharmacy.
- Produce graduates who meet the four-domain national standard qualifications (Knowledge, Skills, Ethics, and Personal Attributes).

3. Programme Learning Outcomes (PLOs)

Graduates of this programme are expected to achieve nine Programme Learning Outcomes (PLOs), formulated using Bloom's Taxonomy (cognitive domain), Dave's Taxonomy (psychomotor domain), and Krathwohl's Taxonomy (affective domain), spanning four core domains:

PLO	Programme Learning Outcome	Domain	Taxonomy Level
PLO1	Apply theories and knowledge in pharmacy and health sciences to solve health science problems and develop health innovations.	Knowledge	Applying
PLO2	Apply research methodologies and statistical principles to solve problems and develop health innovations.	Knowledge	Applying / Analyzing
PLO3	Demonstrate skills in retrieving and analyzing data or empirical evidence to solve problems and develop health science innovations.	Skills	Analyzing
PLO4	Communicate research findings and academic work through international academic presentation.	Skills	Creating
PLO5	Apply information technology tools in research to solve problems and develop health science innovations.	Skills	Applying
PLO6	Apply ethical principles in research — including plagiarism prevention, proper citation, and IP rights — throughout the entire research process.	Ethics	Applying
PLO7	Manage research activities with discipline and responsibility, completing research according to the defined plan and timeline.	Personal Attributes	Evaluating
PLO8	Conduct original research with academic leadership, focusing on discovery and creation of new knowledge to develop health innovations.	Personal Attributes	Creating
PLO9	Work collaboratively with others, taking on both leadership and supportive roles as required.	Personal Attributes	Applying

Note: PLO1–PLO2 are subject-specific knowledge outcomes; PLO3–PLO5 are skill-based outcomes; PLO6 is the ethics outcome; and PLO7–PLO9 are personal attribute outcomes encompassing leadership, research management, and teamwork.

4. Programme Structure

The programme offers two academic tracks. Both tracks lead to the same degree and require students to achieve all nine PLOs.

Track 1: Research Only	Track 2: Coursework + Research
Plan 1 Academic Type 1 For students with a strong research background and a clear research direction. **Required:** Core courses + Seminar series (non-credit) + 36-credit Thesis **Total Credits:** 36 credits (Thesis) **Target Career:** Academic researcher, doctoral study, independent research careers	**Plan 1 Academic Type 2** For students who need structured foundational training, including those from different disciplines. **Required:** All taught coursework (Year 1) + Seminar series + 12-credit Thesis **Total Credits:** 36 credits (24 coursework + 12 Thesis) **Target Career:** Industry R&D, regulatory affairs, health innovation management, clinical research

4.1 Track 1 — Research Only (36 Credits)

Students focus entirely on thesis research with supporting non-credit core and seminar courses.

Course Code	Course Title	Credits	PLOs
PHI68-111	Research Methodology in Pharmacy and Health Innovation (Track 1)	3* (3-0-6)	PLO1–9
PHI68-112	Research Tools in Pharmacy and Health Innovation (Track 1)	3* (3-0-6)	PLO1–9
PHI68-331	Seminar in Pharmacy and Health Innovation 1 (Track 1)	1* (0-3-2)	PLO1–9
PHI68-332	Seminar in Pharmacy and Health Innovation 2 (Track 1)	1* (0-3-2)	PLO1–9
PHI68-341	Thesis (Track 1)	36	PLO1–9
CGS68-031	Research Ethics and Research Planning for Graduate Study	Activity	PLO6, 7
CGS68-032	Creation of Media and Academic Presentations	Activity	PLO3, 4
CGS68-033	References and Prevention of Plagiarism and Infringement in Academic Work	Activity	PLO6

* Non-credit courses: must achieve grade **S (Satisfactory)** to proceed.

4.2 Track 2 — Coursework + Research (36 Credits)

Students complete structured coursework in Year 1 before transitioning to thesis research in Year 2. Minimum grade B required for all coursework.

Course Code	Course Title	Credits	PLOs
PHI68-113	Research Methodology in Pharmacy and Health Innovation (Track 2)	3 (3-0-6)	PLO1–9
PHI68-114	Academic Writing in Pharmacy and Health Innovation	3 (2-3-6)	PLO3, 4, 5
PHI68-115	Research Tools in Pharmacy and Health Innovation (Track 2)	3 (3-0-6)	PLO1–9
PHI68-121	Innovative Process and Development	3 (3-0-6)	PLO1, 7, 8
PHI68-122	Pharmaceutical, Health and Beauty Products Development	4 (4-0-8)	PLO1, 2, 3
PHI68-123	Evidence-Based Health Products and Law	3 (3-0-6)	PLO1, 3, 5, 6
PHI68-124	Health Technology and Health Innovation Assessment	3 (3-0-6)	PLO1, 3, 5
PHI68-333	Seminar in Pharmacy and Health Innovation 1 (Track 2)	1 (0-3-2)	PLO1–9
PHI68-334	Seminar in Pharmacy and Health Innovation 2 (Track 2)	1 (0-3-2)	PLO1–9
PHI68-342	Thesis (Track 2)	12	PLO1–9
CGS68-031	Research Ethics and Research Planning for Graduate Study	Activity	PLO6, 7
CGS68-032	Creation of Media and Academic Presentations	Activity	PLO3, 4
CGS68-033	References and Prevention of Plagiarism and Infringement in Academic Work	Activity	PLO6

4.3 Study Plans

Both tracks span two academic years with four semesters. The thesis component spans Year 2 for Track 1, and Year 2 for Track 2 (with coursework filling Year 1).

	Semester 1 (June – October)	Semester 2 (November – May)
Year 1 (Track 1)	PHI68-111, PHI68-112 (non-credit) PHI68-331 (non-credit, seminar) Thesis Phase I (PHI68-341, 9 cr) Activity: CGS68-031	PHI68-332 (non-credit, seminar) Thesis Phase II (PHI68-341, 9 cr) Activity: CGS68-032

Year 2 (Track 1)	Thesis Phase III (9 cr) Activity: CGS68-033	Thesis Phase IV — Thesis Defence (9 cr)
Year 1 (Track 2)	PHI68-333 (seminar) PHI68-113, PHI68-114, PHI68-115 (9 cr) PHI68-122 (4 cr) Activity: CGS68-031	PHI68-121, PHI68-123, PHI68-124 (9 cr) PHI68-334 (seminar) Thesis I (PHI68-342, 2 cr) Activity: CGS68-032
Year 2 (Track 2)	Thesis II (PHI68-342, 5 cr) Activity: CGS68-033	Thesis III — Thesis Defence (PHI68-342, 5 cr)

4.4 Thesis Milestone Framework

All students follow a structured 24-month milestone timeline to ensure timely and high-quality thesis completion.

Milestone	Activity	Checkpoint	Primary PLOs
1	Topic & Proposal Development	End of Month 9 (End of Year 1)	PLO1, PLO3, PLO6
2	Ethics & Protocol Approval	Month 9–12	PLO6, PLO7
3	Data Collection & Analysis	Year 1 S2 – Year 2 S1	PLO2, PLO5
4	Data Interpretation & Discussion	Year 2 S1	PLO3, PLO5
5	Scientific Communication & Dissemination	End of Month 24 (Final)	PLO4, PLO8, PLO9

5. Course Descriptions

The following descriptions cover all courses offered in both tracks. English descriptions are extracted from the official curriculum document (B.E. 2568).

PHI68-111 / PHI68-113 Research Methodology in Pharmacy and Health Innovation

Develops research skills by applying theories and knowledge in pharmaceutical science and health sciences to address health science challenges and develop innovative solutions. Students learn to apply research methodologies, tools, technologies, and statistical principles to analyze and synthesize empirical data creatively. The course also covers academic communication at the international level, information technology in research, research ethics, responsible management of research activities, and collaborative teamwork.

PHI68-112 / PHI68-115 Research Tools in Pharmacy and Health Innovation

Enables students to apply innovative research tools in scientific and social research to discover drugs and drug targets, leading to clinical use for improved health. Topics include health problem surveys, structural biology, advanced analytical instruments, bioanalytical tools, and innovative qualitative methods that support in-depth qualitative and quantitative investigation of health interventions and outcomes.

PHI68-114 Academic Writing in Pharmacy and Health Innovation (Track 2)

Develops academic writing skills related to pharmaceutical and health innovation, following the principles of accurate, comprehensive, and standards-aligned writing. Topics include analysis and critique of research works, writing research proposals, structuring content clearly, writing abstracts, presenting data effectively, selecting appropriate language for academic communication, citing sources correctly, and using tools and technology to enhance writing quality for international journal submission.

PHI68-121 Innovative Process and Development

Enables students to apply basic theories and current knowledge on process and product innovation. Describes the process of developing innovations accepted by the market. Students learn to identify defects in original products or processes, manage existing knowledge for improvement and development using creative thinking, and plan innovations that can solve problems in pharmacy, health, and related fields.

PHI68-122 Pharmaceutical, Health and Beauty Products Development

Applies knowledge related to sources of active pharmaceutical ingredients or bioactive compounds through chemical and biotechnological processes. Covers in vitro and in vivo activity testing,

formulation development, drug delivery systems, and innovations in pharmaceutical, health, and cosmetic products. Includes study of product efficacy and safety at preclinical and clinical levels, manufacturing, laws and regulations, and quality control — encompassing drugs, herbal medicines, biopharmaceuticals, and cosmetics.

PHI68-123 Evidence-Based Health Products and Law

Applies knowledge in conducting systematic literature reviews, analyzing and evaluating the efficacy and safety of health products, and providing evidence-based recommendations for rational product use. Examines the legal frameworks governing health product use. Promotes accurate and safe utilization of health products based on scientific principles.

PHI68-124 Health Technology and Health Innovation Assessment

Equips students with knowledge and skills for evaluating the efficiency and effectiveness of pharmaceutical and health innovations. Covers development, research, in vitro and in vivo testing, clinical trials, and commercialization or societal application. Students explore evaluation tools such as cost-effectiveness analysis, health impact analysis, user satisfaction assessment, and measurable outcome evaluation to ensure innovations are valuable and practically applicable in the health sector.

PHI68-331 / PHI68-333 Seminar in Pharmacy and Health Innovation 1

Develops skills in research, systematic literature review, and knowledge-gap analysis in pharmaceutical and health sciences through experiential learning. Encourages academic discussion on pharmaceutical innovations, health products, and healthcare systems. Students practice formulating research questions, writing citations, presenting academic work, engaging in discussions, and writing academic reports in accordance with international standards and research ethics.

PHI68-332 / PHI68-334 Seminar in Pharmacy and Health Innovation 2

Discusses and critiques the progression of research or thesis work. Students practice integrating academic knowledge with research experience to effectively present and write academic reports.

PHI68-341 / PHI68-342 Thesis

Enables students to engage in independent study, develop their own research topics, and advance knowledge in pharmacy and health innovation. Students conduct original research using appropriate research methodology and in accordance with research ethics standards, with the aim of solving pharmaceutical and health problems, creating innovations, or generating new knowledge for publication in international journals.

6. Admission Requirements

6.1 Track 1 (Research Only)

Applicants must meet ALL of the following:

- Hold a Bachelor's degree (or equivalent) in Pharmacy, Health Sciences, or Natural Sciences from an accredited institution.
- Have a cumulative GPA of at least 3.00 from the undergraduate degree.
- Demonstrate English proficiency by meeting at least one of the following:
  - TOEFL: ≥ 500 (paper-based) or equivalent
  - IELTS: ≥ 5.0
  - WU-TEP (Walailak University Test of English Proficiency): ≥ 63
  - CEFR: B1 or above
  - Other internationally recognized English proficiency test at equivalent level
- Submit a research proposal outlining the proposed thesis topic.
- Pass a structured interview with the Programme Admission Committee.
- Receive approval from the Graduate Studies Programme Committee.

6.2 Track 2 (Coursework + Research)

Applicants must meet ALL of the following:

- Hold a Bachelor's degree (or equivalent) in Pharmacy, Health Sciences, or Natural Sciences from an accredited institution.
- Have a cumulative GPA of at least 2.50 from the undergraduate degree.
- Demonstrate English proficiency (same requirements as Track 1 above).
- Submit a statement of research interest.
- Pass a structured interview with the Programme Admission Committee.
- Receive approval from the Graduate Studies Programme Committee.

6.3 Admission Procedure

Step 1	Submit online application through the Graduate School website
Step 2	Document screening and eligibility verification by the Programme Admission Sub-committee
Step 3	Structured interview and evaluation of research proposal or statement of research interest
Step 4	Composite scoring and submission of recommendations to the Graduate School
Step 5	Official admission announcement via email notification

7. Graduation Requirements

To be eligible for graduation, students in both tracks must satisfy ALL of the following requirements:

1	Pass all required courses in the programme (complete all required credits).
2	Maintain a cumulative GPA of at least 3.00 (on a 4.00 scale) for all registered credit courses (Track 2).
3	Pass the English language proficiency requirement as set by the Graduate Studies Committee.
4	Submit the thesis and pass the final oral thesis defence examination (open to interested observers).
5	Have a thesis, or a substantial part thereof, accepted for publication or dissemination as an article, innovation, invention, or other searchable academic output, in accordance with the university's publication criteria (acceptance in a Scopus-indexed Q2 or above journal is the standard benchmark).
6	Complete all plagiarism and research ethics compliance checks.

8. Research Specializations

Students may focus their thesis research within one of four research tracks aligned with the School of Pharmacy's expertise clusters:

Pharmaceutical Product Innovation	Drug formulation, dosage form design, drug delivery systems, cosmetic innovation, and manufacturing development.
Natural Product Drug Discovery	Isolation, identification, biological activity testing, and development of bioactive compounds from natural sources.
Advanced Drug Delivery Systems	Novel delivery platforms including nanoparticles, in situ gels, transdermal systems, and targeted delivery.
Digital Health & AI Applications	Application of AI, big data analytics, and digital tools (e.g., Python) for health data research, outcome assessment, and digital health innovation.

9. Academic Staff

The programme is supported by 26 full-time academic staff, all of whom hold doctoral (PhD) degrees. Staff are organized into six research clusters to ensure comprehensive supervisory coverage.

Research Cluster	No. of Staff	% of Total
Drug Delivery & Formulation	8	31%
Natural Products & Pharmacognosy	5	19%
Pharmaceutical Chemistry & Biotechnology	4	15%
Pharmacology & Drug Development	3	12%
Pharmaceutical Care & Clinical Pharmacy	5	19%
Health Innovation & Digital Health	1	4%

Key staff qualifications and recognition:

- 100% of academic staff hold a PhD degree.
- 100% of staff are certified under the UK Professional Standards Framework (UKPSF) by Advance HE.
- Average research output: > 2 international publications per staff member per year.
- Staff-to-student ratio: approximately 1:2 (favorable supervisory environment).

10. Facilities and Research Infrastructure

10.1 Research Laboratories

Students have access to state-of-the-art laboratory facilities through the Research Institute for Health Sciences (RIHS) and the Centre for Drug and Cosmetics (CDC):

- High-Performance Liquid Chromatography (HPLC-DAD/FLD)
- Liquid Chromatography–Tandem Mass Spectrometry (LC-MS/MS)
- Gas Chromatography–Flame Ionization Detector (GC-FID)
- Real-Time PCR and Flow Cytometer
- In Vivo Imaging System
- Differential Scanning Calorimetry (DSC) and X-ray Diffractometry (XRD)
- ICH-compliant stability chambers
- Pharmaceutical formulation and cosmetic development facilities

10.2 Digital Library and Information Resources

- 24/7 access to major academic databases: AccessPharmacy, ACS Publications, ClinicalKey, PubMed/MEDLINE, ScienceDirect, and Scopus.
- Remote access via EZProxy/VPN for off-campus research.
- Mobile library app, discovery-based OPAC, and online Article Request service.
- Research consultation support, reference management guidance, and database searching workshops from library staff.

10.3 IT Infrastructure

- Campus-wide high-speed internet (LAN and eduroam Wi-Fi).
- WU E-Learning platform for course materials, assignments, and communication.
- Statistical software licenses (SPSS, GraphPad Prism — in procurement).
- AI-supported writing tools and plagiarism checking systems.

11. Student Support Services

11.1 Academic Support

- Dedicated thesis supervisor(s) with minimum 5 advisory meetings per semester.
- Structured 24-month thesis milestone timeline with regular committee reviews.
- Monthly progress presentations to the Programme Committee.
- Research ethics orientation (IRB/IBC) as a mandatory pre-thesis activity.
- Academic writing and plagiarism prevention workshops each semester.

11.2 Financial Support

- Living stipend scholarships funded by the School of Pharmacy (up to 2 awards per semester).
- Thesis-related financial support from the Graduate School.
- Conference presentation grants: full coverage of registration, travel, and accommodation for national and international conferences.

11.3 Well-being and Career Development

- Mental health and counseling services at the WU Smart Smile Center
- Graduate orientation and social integration activities.
- Field trips to pharmaceutical manufacturing facilities.
- Long-term mentoring system for professional identity development.

12. Programme Outcomes and Achievements

The following outcomes are based on data from the preceding curriculum (B.E. 2563/2020), which maintained the same fundamental PLO structure.

Graduation Rate	100% (all completed cohorts, 2021–2024)
Dropout Rate	0%
Average Time to Graduate	2.0 years (on-time, within 2-year programme)
Employer Satisfaction	5.00/5.00 — Exceptional (2024 survey)
Graduate PLO Achievement	All 9 PLOs exceeded benchmark (mean ≥ 4.00/5.00)
Thesis Publication Rate	Growing from 0 (2021) to 3 international publications (2025)
Doctoral Progression	100% of early graduates (2021–2022) enrolled in PhD programmes
Employment Rate	100% employed or enrolled in further study within 1 year of graduation
International Graduates	From Thailand, Nigeria, Pakistan, Bhutan, and the Philippines
Student Awards	Platinum Award for Oral Presentation at PST 2025 Conference (highest recognition tier)

13. Career Pathways

Graduates of this programme are prepared for careers in a wide range of sectors:

Academia & Research	Lecturer, researcher, or scientist at public or private universities and research institutes; academic consultant in pharmaceutical and health sciences.
Industry R&D	Research and development officer, quality assurance specialist, innovation specialist in pharmaceutical, cosmetic, or health product companies.
Regulatory Affairs	Regulatory affairs officer or consultant in government agencies or the private sector (e.g., FDA, pharmaceutical companies).
Doctoral Studies	Progression to a PhD programme in pharmaceutical sciences, health sciences, or related fields.

Entrepreneurship	Founder or co-founder of pharmaceutical, health product, or biotech startup businesses.
Health Innovation Management	Manager of innovation projects, health technology assessment, or digital health programmes.

14. Contact and Further Information

School of Pharmacy, Walailak University
222 Thaiburi, Tha Sala, Nakhon Si Thammarat 80160, Thailand
Website: https://pharmacy.wu.ac.th
Graduate School: https://grad.wu.ac.th
Facebook: School of Pharmacy WU (SPM)

For Admissions Enquiries

Applications are submitted online through the Walailak University Graduate School website. Admission rounds typically open in March–April (Semester 1, starting June) each year. Up to 10 students are admitted per academic year (5 per track).

For international students, please contact the Graduate School for visa and accommodation guidance.