



DOCTOR OF PHILOSOPHY PROGRAM
IN
PUBLIC HEALTH MICROBIOLOGY
(INTERNATIONAL PROGRAM/REVISED PROGRAM IN 2022)

DEPARTMENT OF MICROBIOLOGY
FACULTY OF PUBLIC HEALTH
AND
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY

**Doctoral Program in Public Health Microbiology
(International Program)
Revised Program in 2022**

Name of Institution Mahidol University
Campus/Faculty/Department Faculty of Public Health, Department of Microbiology

Curriculum Name

Thai	หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาจุลชีววิทยาสาธารณสุข (หลักสูตรนานาชาติ)
English	Doctoral Program in Public Health Microbiology (International Program)

Name of Degree and Major

Full Title	Thai:	ปรัชญาดุษฎีบัณฑิต (จุลชีววิทยาสาธารณสุข)
Abbreviation	Thai:	ปร.ด. (จุลชีววิทยาสาธารณสุข)
Full Title	English:	Doctor of Philosophy (Public Health Microbiology)
Abbreviation	English:	Ph.D. (Public Health Microbiology)

Required Credits:

Plan 2.1: For students with Master's Degree, not less than 48 credits
Plan 2.2: For students with Bachelor's Degree, not less than 72 credits

Curriculum Characteristics

1. Curriculum type/model: Doctoral degree
 2. Language: English
 3. Recruitment: Thai or International students
 4. Collaboration with Other Universities: This program is Mahidol University's program.
 5. Graduate Degrees Offered to the Graduates: One degree
-

Information of the Curriculum

Philosophy, Justification, and Objectives of the Curriculum

1. Philosophy and Justification of the Curriculum

The program enables scholars to have in depth and breadth knowledge and creative skill in microbiology and immunology in relating to public health context through self-learning and encouraging by teaching framework and conducting advanced research with ethical, moral and public mind nurturing to serve diseases prevention and control.

2. Objectives of the Program

Upon completion of the study, graduate students are able to:

- 2.1 Adhere to ethics and morals in academic work and research;
- 2.2 Demonstrate knowledge and skills of public health microbiology;
- 2.3 Analyze, criticize and conduct research in public health microbiology;
- 2.4 Work cooperatively with responsibility and leadership;
- 2.5 Utilize information technology, mathematical analysis and communication skills

3. Program Learning Outcomes (PLOs)

- 3.1 Demonstrate appropriate professional skills and ethical conduct
 - 3.2 Integrate knowledge of microbiology and public health for health improvement
 - 3.3 Apply microbiological risk analysis for global health security
 - 3.4 Analyze, criticize, discuss and identify problems in public health microbiology
 - 3.5 Conduct laboratory-based research ethically in public health microbiology for publication in a peer-reviewed international journal
 - 3.6 Demonstrate self-responsibility, leadership and teamwork
 - 3.7 Apply information technology, mathematical analysis and communication skills in public health microbiology
-

Curriculum

Number of credits

Plan 2.1: For students with Master's Degree, not less than 48 credits

Plan 2.2: For students with Bachelor's Degree, not less than 72 credits

Curriculum Structure

The curriculum structure is set in compliance with Announcement of Ministry of Education on the subject of Criteria and Standards of Graduate Studies B.E. 2558, the Program provides 2 plans as follows;

Plan 2.1: For students with Master's Degree

(1) Required courses	8	credits
(2) Elective courses not less than	4	credits
(3) Dissertation	36	credits
Total not less than	48	credits

Plan 2.2: For students with Bachelor's Degree

(1) Required courses	18	credits
(2) Elective courses not less than	6	credits
(3) Dissertation	48	credits
Total not less than	72	credits

Courses in the curriculum

1) Required Courses

Plan 2.1: For students with Master's Degree 8 credits

		Credits (lecture – practice – self-study)
PHMI 624	Advanced Public Health Microbiology	3 (3-0-6)
สศจว ๖๒๔	จุลชีวะวิทยาสาธารณสุขขั้นสูง	
PHMI 631	Advanced Research Seminar in Public Health Microbiology	1 (0-2-1)
สศจว ๖๓๑	สัมมนาการวิจัยขั้นสูงทางจุลชีวะวิทยาสาธารณสุข	
*PHMI 701	Advanced Public Health Microbiology Research Skills	2 (1-2-3)
สศจว ๗๐๑	ทักษะการวิจัยทางจุลชีวะวิทยาสาธารณสุขขั้นสูง	
*PHMI 714	Microbiological Risk Analysis to Global Health Security	2 (2-0-4)
สศจว ๗๑๔	การวิเคราะห์ความเสี่ยงทางจุลชีวะวิทยาต่อความมั่นคงสุขภาพโลก	

Plan 2.2: For students with Bachelor's Degree 18 credits

Credits (lecture – practice – self-study)

PHMI 624	Advanced Public Health Microbiology	3 (3-0-6)
สศจว ๖๒๔	จุลชีววิทยาสาธารณสุขขั้นสูง	
PHMI 631	Advanced Research Seminar in Public Health Microbiology	1 (0-2-1)
สศจว ๖๓๑	สัมมนาขั้นสูงทางจุลชีววิทยาสาธารณสุข	
PHMI 666	Microbial Biology	2 (2-0-4)
สศจว ๖๖๖	ชีววิทยาของจุลชีพ	
PHMI 667	Research Methodology for Public Health Microbiology	2 (2-0-4)
สศจว ๖๖๗	วิทยาระเบียบวิธีวิจัยทางจุลชีววิทยาสาธารณสุข	
PHMI 668	Microbiology and Immunology for Public Health	3 (3-0-6)
สศจว ๖๖๘	จุลชีววิทยาและวิทยาภูมิคุ้มกันทางสาธารณสุข	
*PHMI 701	Advanced Public Health Microbiology Research Skills	2 (1-2-3)
สศจว ๗๐๑	ทักษะการวิจัยทางจุลชีววิทยาสาธารณสุขขั้นสูง	
*PHMI 714	Microbiological Risk Analysis to Global Health Security	2 (2-0-4)
สศจว ๗๑๔	การวิเคราะห์ความเสี่ยงทางจุลชีววิทยาต่อความมั่นคงสุขภาพโลก	
PHID 715	Biostatistical and Epidemiological Methods in Public Health	3 (3-0-6)
สศคร ๗๑๕	วิธีทางชีวสถิติและวิทยาการระบาดทางสาธารณสุข	

*New course

2) Elective Courses

Plan 2.1: For students with Master's Degree, not less than 4 credits

Plan 2.2: For students with Bachelor's Degree, not less than 6 credits

Credits (lecture – practice – self-study)

PHMI 602	Ecology and Epidemiology of Infectious Diseases	3 (3-0-6)
สศจว ๖๐๒	นิเวศวิทยาและวิทยาการระบาดของโรคติดเชื้อ	
PHCH 604	General Public Health	3 (3-0-6)
สศอช ๖๐๔	การสาธารณสุขทั่วไป	
PHMI 614	Infection Control and Prevention	2 (2-0-4)
สศจว ๖๑๔	การควบคุมและป้องกันการติดเชื้อ	
PHMI 617	Immunological Laboratory Methods in Public Health	2 (1-2-3)
สศจว ๗๑๗	วิธีการทางห้องปฏิบัติการวิทยาภูมิคุ้มกันทางสาธารณสุข	
PHMI 625	Molecular Approach to Infectious Diseases	2 (2-0-4)
สศจว ๖๒๕	วิธีการระดับโมเลกุลด้านโรคติดเชื้อ	

Credits (lecture – practice – self-study)

PHMI 627	Immunology of Infectious Diseases	2 (2-0-4)
สศจว ๖๒๗	วิทยาภูมิคุ้มกันของโรคติดเชื้อ	
PHMI 634	Advanced Food Microbiology in Public Health	2 (2-0-4)
สศจว ๖๓๔	จุลชีววิทยาอาหารทางสาธารณสุขขั้นสูง	
PHMI 636	Microbial Transformation of Organic Compounds	2 (2-0-4)
สศจว ๖๓๖	การเปลี่ยนแปลงของสารประกอบอินทรีย์ด้วยจุลชีพ	
PHMI 639	Advanced Public Health Virology	2 (2-0-4)
สศจว ๖๓๙	ไวรัสวิทยาสาธารณสุขขั้นสูง	
PHMI 669	Application of Bioinformatics in Public Health Microbiology	2 (2-0-4)
สศจว ๖๖๙	การประยุกต์ชีวสารสนเทศทางจุลชีววิทยาสาธารณสุข	
*PHMI 702	Molecular Techniques for Public Health Microbiology	2 (1-2-3)
สศจว ๗๐๒	เทคนิคระดับโมเลกุลทางจุลชีววิทยาสาธารณสุข	
*PHMI 710	Bacteriological Laboratory Methods in Public Health	2 (1-2-3)
สศจว ๗๑๐	วิธีการทางห้องปฏิบัติการแบคทีเรียวิทยาทางสาธารณสุข	
*PHMI 711	Virological Laboratory Methods in Public Health	2 (1-2-3)
สศจว ๗๑๑	วิธีการทางห้องปฏิบัติการไวรัสวิทยาทางสาธารณสุข	
*PHMI 712	Advanced Public Health Bacteriology	2 (2-0-4)
สศจว ๗๑๒	แบคทีเรียวิทยาสาธารณสุขขั้นสูง	
*PHMI 713	Advanced Public Health Immunology	2 (2-0-4)
สศจว ๗๑๓	วิทยาภูมิคุ้มกันสาธารณสุขขั้นสูง	

* New course

In addition to elective courses mentioned above, a student can register courses in other programs of the Faculty of Graduate Studies, Mahidol University or other courses offered by other universities according to the student's interest and as recommended by thesis advisor and with the approval of the program administrative committee.

3) Dissertation**Credits (lecture – laboratory – self-study)****Plan 2.1: For students with Master's Degree**

PHMI 699	Dissertation	36 (0-108-0)
สศจว ๖๙๙	วิทยานิพนธ์	

Plan 2.2: For students with Bachelor's Degree

PHMI 799	Dissertation	48 (0-144-0)
สศจว ๗๙๙	วิทยานิพนธ์	

Research Project of the Program

Guidelines for conducting a research project are as follows:

- (1) Molecular epidemiology of emerging and re-emerging infectious diseases
- (2) Infectious diseases prevention and control, including the vector-borne, air-borne, water-borne, food-borne, blood borne, sexually-transmitted, and zoonotic diseases
- (3) Drugs and vaccine development
- (4) Microbial contamination in environment
- (5) Environmental biotechnology

Definition of Course Codes

Four main alphabets are defined as follows:

The first two alphabets are abbreviation of the faculty offering the course.

PH means Faculty of Public Health

The latter two alphabets are abbreviation of the department or the major offering the course.

CH means Department of Community Health

ID means Inter-departments

MI means Department of Microbiology

3 digits of number are 5XX, 6XX and 7XX indicate that the courses are in the graduate study level.

Study Plan

Plan 2.1: For students with Master's Degree

Year	Semester 1	Semester 2
1	PHMI 624 Advanced Public Health Microbiology 3 (3-0-6) PHMI 714 Microbiological Risk Analysis to Global Health Security 2 (2-0-4) Elective course 4 credits Total 9 credits	PHMI 631 Advanced Research Seminar in Public Health Microbiology 1 (0-2-1) PHMI 701 Advanced Public Health Microbiology Research Skills 2 (1-2-3) (Qualifying Examination) Total 3 credits
2	PHMI 699 Dissertation 9 (0-27-0) Total 9 credits	PHMI 699 Dissertation 9 (0-27-0) Total 9 credits
3	PHMI 699 Dissertation 9 (0-27-0) Total 9 credits	PHMI 699 Dissertation 9 (0-27-0) Total 9 credits

Plan 2.2: For students with Bachelor's Degree

Year	Semester 1	Semester 2
1	PHMI 666 Microbial Biology 2 (2-0-4) PHMI 667 Research Methodology in Public Health Microbiology 2 (2-0-4) PHMI 668 Microbiology and Immunology in Public Health 3 (3-0-6) PHID 715 Biostatistical and Epidemiological Methods in Public Health 3 (3-0-6) Elective course 2 credits Total 12 credits	PHMI 624 Advanced Public Health Microbiology 3 (3-0-6) PHMI 714 Microbiological Risk Analysis to Global Health Security 2 (2-0-4) Elective course 4 credits Total 9 credits
2	PHMI 631 Advanced Research Seminar in Public Health Microbiology 1 (0-2-1) PHMI 701 Advanced Public Health Microbiology Research Skills (Qualifying Examination) 2 (1-2-3) Total 3 credits	PHMI 799 Dissertation 9 (0-27-0) Total 9 credits
3	PHMI 799 Dissertation 9 (0-27-0) Total 9 credits	PHMI 799 Dissertation 10 (0-30-0) Total 10 credits
4	PHMI 799 Dissertation 10 (0-30-0) Total 10 credits	PHMI 799 Dissertation 10 (0-30-0) Total 10 credits

Dissertation requirement

1. Short Description

Identifying research topic in public health microbiology; developing research proposal related to the topic, conducting the research including research ethics; doing experiments, data collection, analysis, interpreting the result and dissertation report, presenting and publishing research in the international peer-reviewed journals.

2. Standard Learning Outcomes

Students are able to analyze and synthesize core knowledge in the field of public health microbiology correctly and ethically, develop research question and proposal, design research systemically, conduct research efficiently, analyze, present and publish research results in the academic journals.

3. Time Frame

Plan 2.1: For students with Master's Degree

Semester 1, Academic Year 2

Plan 2.2: For students with Bachelor's Degree

Semester 2, Academic Year 2

4. Number of credits

Plan 2.1: For students with Master's Degree, not less than 48 credits

Plan 2.2: For students with Bachelor's Degree, not less than 72 credits

5. Preparation

Students meet dissertation advisors regularly to prepare proposal and the examination. They are assigned and introduced to perform certain laboratory practices. They are also informed to submit protocol to human or animal research ethic approval as well as biosafety approval, if needed.

6. Evaluation Process

Students are needed to pass the qualifying examination after they have finished the determined courseworks before registering dissertation. Students will take the Ph.D. proposal examination. Along with doing dissertation, students have to present for evaluation of their dissertation progress in each semester. After students complete doing dissertation, they will take dissertation defense which will be evaluated by the graduate committee in accordance with the rules of the Faculty of Graduate Studies, Mahidol University. In addition, the research work or part(s) of the student's dissertation must be published in an international peer-reviewed journal to complete their study.
