

## Course Detail

### Master of Science Program in Health, Environment and Safety

**1. Course Title:** Master of Science Program in Health, Environment and Safety

**2. Master Degree:** M.Sc. (Health, Environment and Safety)

**3. Academic Institution:** School of Public Health, Walailak University

**4. Duration:** 2 years (May 2026 - April 2028)

**5. Background and Rationale:**

The increasing complexity of global health risks, climate change, and environmental degradation has directly impacted the well-being and quality of life of people worldwide, especially in developing countries. According to the Global Risk Report by the World Economic Forum, environmental and societal risks, such as climate change, biodiversity loss, and extreme weather events, rank among the top concerns for the next decade. Simultaneously, occupational and environmental health risks, including unsafe workplaces and community health hazards, are becoming pressing global challenges.

Thailand, as a regional hub in Southeast Asia, plays a crucial role in sharing knowledge and expertise in these areas. Walailak University, ranked among the top institutions in Thailand for environmental and public health research (Scimago 2022), has developed the Master of Science Program in Health, Environment, and Safety, which integrates multi-disciplinary knowledge and practical solutions to address these pressing issues.

The program aligns with Thailand's 20-year National Strategy, the Sustainable Development Goals (SDGs), and TICA's Development Diplomacy framework, particularly focusing on:

SDG 3: Good Health and Well-being

SDG 6: Clean Water and Sanitation

SDG 11: Sustainable Cities and Communities

SDG 13: Climate Action

Graduates will become key agents of change, equipped to contribute to national and regional development strategies in health promotion, environmental protection, occupational health, and disaster risk reduction.

**6. Objectives:**

1. To produce highly skilled professionals with integrated knowledge in health, environment, and safety.
2. To enhance leadership and critical thinking skills to solve complex public health and environmental issues.
3. To build capacity in sustainable development, contributing to national health systems, environmental resilience, and safe workplaces in developing countries.

**7. Course Synopsis and Methodology:****7.1 Study plan:**

Plan A1 (Research Plan or Thesis Only): Total 36 credits from thesis, supported by non-credit seminars and optional electives.

**Compulsory Courses**

|  |           |
|--|-----------|
| ESH 65-950* Seminar in Health, Environment and Safety I  | 2 Credits |
| ESH 65-951* Seminar in Health, Environment and Safety II | 2 Credits |

**Thesis**

|                   |            |
|-------------------|------------|
| ESH 65-920 Thesis | 36 Credits |
|-------------------|------------|

\* *non-credit courses*

The student may need to enroll in some non-credit elective courses (based on the suggestion of a supervisor) to improve their academic skills before conducting a thesis.

**Year 1 – Semester 1 (June-September 2026)**

- Enroll in ESH 65-950 Seminar in Health, Environment and Safety I (non-credit)
- Enroll in ESH 65-920 Thesis (9 credits)
- Identify and obtain approval of the thesis title
- Appointment of thesis advisor
- Conduct preliminary literature review and develop a research framework

**Year 1 – Semester 2 (November – February 2026)**

- Enroll in ESH 65-951 Seminar in Health, Environment and Safety II (non-credit)
- Enroll in ESH 65-920 Thesis (9 credits)
- Develop and defend the thesis proposal
- Apply for human ethics approval (if required)

- Achieve approximately 40% thesis progress

#### Year 2 – Semester 1 (June-September 2027)

- Enroll in ESH 65-920 Thesis (9 credits)
- Continue data collection and data analysis
- Achieve approximately 70% thesis progress
- Begin preparation of a manuscript

#### Year 2 – Semester 2 (November – February 2027)

- Enroll in ESH 65-920 Thesis (9 credits)
- Complete all thesis research activities
- Prepare and present/publish a manuscript or conference proceeding
- Submit the final thesis manuscript
- Conduct thesis defense and finalize the thesis document

**Table 1: Study plan**

| Year | Semester 1     |           |           | Semester 2     |            |           |
|------|----------------|-----------|-----------|----------------|------------|-----------|
| 1    | ESH65-950*     | Seminar I | 2(0-6-3)  | ESH65-951*     | Seminar II | 2(0-6-3)  |
|      | ESH65-920      | Thesis    | 9 credits | ESH65-920      | Thesis     | 9 credits |
|      | Total 9 credit |           |           | Total 9 credit |            |           |
| 2    | ESH65-920      | Thesis    | 9 credits | ESH65-920      | Thesis     | 9 credits |
|      | Total 9 credit |           |           | Total 9 credit |            |           |

\* Non-credit courses

**Table 2: Thesis Roadmap**

| Year | Semester | Target  |
|------|----------|---|
| 1    | 1        | Approval of thesis title & Advisor appointment  |
|      | 2        | <ul style="list-style-type: none"> <li>- Proposal development and defend</li> <li>- Human ethic approval (if needed)</li> </ul> |

| Year | Semester | Target  |
|------|----------|---|
|      |          | - 40% Thesis progress   |
| 2    | 3        | - 70% Thesis progress<br>- Preparation for manuscript/ conference proceeding  |
|      | 4        | - Complete thesis research work<br>- Present/publish manuscript/ conference proceeding<br>- Thesis defense and finalize thesis book |

## 7.2 Course Content

1. Thesis (36 credits) in health, environment, and safety.
2. Seminar I & II (non-credit) to develop research skills.
3. Optional remedial courses (non-credit). Students without a background in public health might be requested by the committee to enroll in the following courses

| Code      | Course   | Credit   |
|-----------|--|----------|
| ESH65-600 | Principles of Environmental and occupational health                  | 1(1-0-2) |
| ESH65-601 | Principles of epidemiology for occupational and environmental health | 1(1-0-2) |

The student's supervisor will consider other remedial courses to enhance the competency for conducting a dissertation.

| Code   | Course   | Credit   |
|--|--|----------|
| ESH65-610  | Integrated safety and environmental management                   | 4(4-0-8) |
| ESH65-611  | Risk assessment and management in health, environment and safety | 4(4-0-8) |
| ESH65-612  | Research methodology   | 4(4-0-8) |
| <b><i>Courses in environmental and occupational health</i></b> |  |          |
| ESH65-620  | Environmental and occupational health management in community    | 2(2-0-4) |

| Code  | Course  | Credit   |
|---|---|----------|
| ESH65-621   | Solid waste and hazardous waste management in community                 | 2(2-0-4) |
| ESH65-622   | Climate change and health effect  | 2(2-0-4) |
| ESH65-623   | Air quality management  | 2(2-0-4) |
| ESH65-624   | Disaster, pandemic and emergency management                             | 2(2-0-4) |
| ESH65-625   | Occupational and environmental health sustainability for all            | 2(2-0-4) |
| <b><i>Course in Sciences for development of public health works</i></b> |   |          |
| ESH65-630   | Methods for biomolecule studies   | 2(2-0-4) |
| ESH65-631   | Molecular mechanisms of environmental toxicants                         | 2(2-0-4) |
| ESH65-632   | Development technique on important vectors management and control       | 2(2-0-4) |
| ESH65-633   | Herbal medicines in public health                                       | 2(2-0-4) |
| ESH65-634   | Genetics in public health   | 2(2-0-4) |
| ESH65-635   | Work physiology and applied ergonomics                                  | 2(2-0-4) |
| <b><i>Courses in environmental and safety technology</i></b>            |   |          |
| ESH65-640   | Application of BCG model in industry and organization                   | 2(2-0-4) |
| ESH65-641   | Environmental pollution monitoring                                      | 2(1-3-4) |
| ESH65-642   | Surface and groundwater models  | 2(2-0-4) |
| ESH65-643   | Air pollution control technology  | 2(2-0-4) |
| ESH65-644   | Water and wastewater management in industry                             | 2(2-0-4) |
| ESH65-645   | Advanced wastewater treatment technologies                              | 2(2-0-4) |
| ESH65-646   | Industrial solid waste and hazardous waste management                   | 2(2-0-4) |
| ESH65-647   | Advanced industry safety technologies                                   | 2(2-0-4) |
| ESH65-648   | Health, environment and safety information technologies                 | 2(2-0-4) |
| ESH65-649   | Safety analysis and decision for accident and emergency case prevention | 2(2-0-4) |
| ESH65-650   | Industrial hygiene technology   | 2(2-0-4) |

## 8. Graduation Conditions:

- Completion of 36 credits of thesis work.
- publication or acceptance of at least one article in Scopus-indexed journal.
- English proficiency as per university regulations (minimum CEFR B1 equivalent).

## 9. Applicant Qualifications:

1. The applicant must hold a Bachelor degree in the Sciences, Engineering, Technology, Health Science in the field of Health Science, Environmental Health, Occupational Health and Safety, Public Health, Environmental Science, Environmental Technology, Environmental Engineering, Safety Engineering or other related fields with the least final GPAX of 2.75 or the applicant have at least 3 years of work experience related to program. If the applicant did not graduate in the specified fields, the committee of the program will consider and approve the applicant's qualification.

2. Applicant should pass the standard English proficiency test, with a TOEFL-PBT 450 score, a TOEFL-CBT 153 score, a TOEFL-IBT 45 score, an IELTS 4.5, and a CEFR B1 level (Exemption: An applicant who is a native English-speaking student can be exempted from the above English proficiency requirements.)

3. The applicant is requested to submit a tentative research topic and brief research proposal (4-5 pages, including topic, background of problem, research objective, research question, and short research methodology).

## 10. Document Required

1. Application form and medical report (<https://tica-thaigov.mfa.go.th/en/page/75500-tipp-application-form?menu=605b13dbb6f1b76ed31778b3>)
2. Transcripts and Degree Certificate.
3. English proficiency test results (not older than 2 years)
4. Passport copy.
5. Two letters of recommendation.
6. Research proposal.
7. Recent photograph (1-inch size).

**11. Contact:**

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