

Course Detail

Master of Science Program in Epidemiology (International Program)

Course Title:	Master of Science Program in Epidemiology (International Program)
Master Degree:	Master of Science (Epidemiology)
Academic Institution:	Epidemiology Unit, Faculty of Medicine, Prince of Songkla University (Designated as WHO Collaborating Centre for Research and Training on Epidemiology)
Duration:	2 years

Background and Rationale:

Epidemiology is defined as “the study of the distribution and determinants of health-related states or events (including disease), and the application of this study to the control of diseases and other health problems”. Knowledge of epidemiology can be integrated into various kinds of research, such as medical or clinical, public health, social health, education or health economics, which can be applied with global health, clinical medicine, genetic epidemiology, health sciences or zoonosis. Therefore, this epidemiology program is useful for diverse health professionals and researchers who aim to systematically develop the research that fully impacts on health.

The epidemiology program has been organized around research-based knowledge and skills incorporating learning and teaching methods that integrate both theory and practice. This experience will help the students to achieve high levels of expertise as well-trained researchers who can conduct research of international standard that has a beneficial impact on public and global health. Strong point of the program is emphasized on the field work and training in research methodology and use of open source software for analysis of research data. This program is the first in the country to develop a package designed specifically to meet the need for epidemiological data. The program also provides the training in-class and online in the use of an epidemiological statistics package in open source software. To date, training has been provided numerous countries principally in Asia and Africa. The teaching staff of the program have extensive experience in different continents and are well recognized by the international research community. The staff also have extensive experiences of teaching, supervising and taking care of students from diverse cultural and educational background including both medical, public health and social science disciplines. To these activities, the program has a significant impact on development of human resources for health research both nationally and internationally. So far, 85 M.Sc. students have

graduated from the program. They were accepted from their work places and have become leaders in research and academic activities in their country.

Objectives:

1. To conduct morally and ethically sound research.
2. To design studies in response to the needs of stakeholders.
3. To search information using skills in information technology.
4. To integrate theoretical health concepts in order to solve health problems systematically through critical appraisal of the evidence.
5. To conduct community-based, community-oriented, community-participating field research.
6. To appropriately interpret the analytical outputs, and discuss the findings amidst the evolving state of knowledge.
7. To demonstrate mastery of principles of epidemiology and statistics in relation to health research.
8. To collect and analyze data properly with clear presentation in academic fashion.
9. To produce research by integration of multiple disciplines, and interpret and apply the results in a stakeholder-friendly manner, leading to solutions for the organization or the community, and publish the findings as a research article.

Course Synopsis & Methodology:

This is a sandwich-type international program. In the first-year students will attend classes at Prince of Songkla University in which all students will gain knowledge and skills in epidemiology, statistics, research methodology, database management, critical appraisal of research studies, qualitative research and field work. In the second year students will concentrate on their thesis which should focus on the importance of health problems in the student's own country using good research methodology which the students will go back to home country to collect the data for 6 months and then come back to the Epidemiology Unit for data analysis and preparation of the thesis and manuscripts for publication in international journals for another 6 months. After coursework the students are allowed to go back to their home country for data collection. All students will be trained to improve their skills on computer, database and data management for research development in the future.

1. Study plan

1st Semester / 2021 academic year

347-551	Medical Statistics and Statistical Computing	4 credits
352-521	Epidemiological Methods I	3 credits
352-522	Appraisal of Articles in Journals*	1 credit
Total		7 credits

*non-credit subject

2nd Semester / 2021 academic year

352-524	Seminars in Research Methodology	3 credits
352-525	Epidemiological Methods II	3 credits
352-526	Advance Medical Statistics and Medical Data Analysis	3 credits
352-527	Field Work Research	2 credits
Total		11 credits

1st Semester / 2022 academic year

352-529 Thesis 9 credits

2st Semester / 2022 academic year

352-529 Thesis 9 credits

Grand Total 36 credits

No.	Progress	Timeline
1	Coursework	June 2021-March 2022
2	Progress of proposal development	February – March 2022
3	Proposal examination	April-June 2022
4	Data collection	July-October 2022
5	Data analysis and manuscript & thesis preparation	October –April 2023
6	Thesis examination	May-June 2023

Note: Length of time for the study can vary, depending on speed of each student.

2. Course Content/ Study Topic:**1. Core courses*****Medical Statistics and Statistical Computing***

Descriptive statistics, probability theory; binomial distribution, poisson distribution, normal distribution, sampling distribution, estimations and hypothesis testing, one way analysis of variance, categorical data analysis using chi-square distribution, correlation and simple linear regression analysis, multiple linear regression analysis, nonparametric statistics, computer software application

Epidemiological Methods I

Scientific reasoning, health indicators, health program priority setting, measures of risk, causation, confounding and interaction, bias, sampling techniques, measurement and data collection, research and development in health, burden of disease.

Appraisal of Articles in Journals

Reading and criticism of an original article in an international journal interpretation of results, critique, implications in public health and clinical practice.

Seminar in Research Methodology

Introduction to research methodology, rationale for research, formulation of research objectives and hypothesis, research strategy, sampling and population, measurement, data collection and analysis, preparation of research proposal.

Epidemiological Methods II

Introduction to study design, descriptive study, cross-sectional study, case control study, cohort study, clinical trial, community experimental, validity and reliability, systematic review of RCT, screening, diagnostic test, research ethics.

Advanced Medical Statistics and Medical Data Analysis

Analysis of 2x2 tables, analysis of confounding and interaction, binary logistic regression, Poisson regression, multinomial and proportional odds logistic regression, survival analysis, sample size and strategies for modeling epidemiological data, big medical data, data mining.

Field Work Research

Identification of priority and topic of fieldwork by discussion with the local public health workforces, design and preparation of the proposal, data collection and analysis, presentation to decision makers and relevant parties.

2. Thesis

A Master thesis is the beginning of professionalization for an epidemiological research career. The proposal will be prepared and refined in parallel with the progress of the coursework through group discussion before submission for approval by the Committee for Graduate Study of the University by the end of the first year. Data collection will be undertaken for a period of six months in the student's regular place of work. Final analysis and preparation of the thesis will occupy the final 6 months in PSU to ensure quality of work and success.

Research study should be within the field of epidemiology under supervision of a faculty advisory team.

Graduation Conditions: To fulfill the requirements, the student must follow the requirements of each graduate program.

Applicants Qualifications:

1. Direct collaboration between our institute and the institute of the applicant.
2. Research funding from the applicant's organization or a funding agency in the applicant's country which will provide administrative support for the data collection phase during the second year of study.
3. Previous work experience related to health.
4. Healthy and active.
5. Good command of English.
6. Age not more than 40 years (preferable).
7. Having publication in a peer review journal in local or international paper.

Document Required:

- Application form
- A medical examination report which includes results of chest x-ray, complete blood count, urinalysis and HIV test.
- An official transcript from all institutions of higher learning attended.
- Curriculum vitae, including a list of publications if available.
- An official report of the result of the English language proficiency examination (TOFEL 500, IETLS 5.0, CU-TEP \geq 60, PSU-TEP \geq 60).
- Recommendation letter from the workplace.
- First page of all published articles (If any)
- Research description/plan
- A copy of Passport
- Statement of purpose (approximately 500-800 words)

Closing date for Nominations: Academic year 2021: 22 February 2021

*Note: Late or incomplete applications/documents may be considered only under special circumstances but must not arrive later than 22 March of each year.

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***The application procedure will complete when TICA has received the hard copy of the application form and other related documents through the Royal Thai Embassy/Permanent Mission of Thailand to the United Nations/Royal Thai Consulate – General accredited to eligible countries/territories.