Mahidol University
Faculty of Medicine Ramathibodi Hospital
Department of Clinical Epidemiology and Biostatistics

Doctor of Philosophy Program in

CLINICAL EPIDEMIOLOGY

Master of Science Program in

MEDICAL EPIDEMIOLOGY

Doctor of Philosophy Program
and Master of Science Program in

DATA SCIENCE FOR HEALTHCARE AND CLINICAL INFORMATICS

Who we are – our history

The Department of Clinical Epidemiology and Biostatistics (CEB) under the Faculty of Medicine Ramathibodi Hospital, Mahidol University, had been established since 1986 under the name of Clinical Epidemiology Unit. Since then, it was expanded to be the CEB in 2004. Our main responsibilities are to educate and facilitate the Faculty's members and Thai academic staffs in doing research. Four international programs of Doctor of Philosophy (Ph. D.) in Clinical Epidemiology and Master of Science (M.Sc.) programs in Medical Epidemiology and Ph.D. and M.Sc. Data Science for Healthcare and Clinical Informatics have been developed complying with Mahidol University and the Faculty's visions and missions of being the world class university and excellence in health sciences and leader in national health advocacy.

Ph.D. in Clinical Epidemiology

Expected Learning Outcomes (ELOs)

Graduates should be able to

ELO 1.	Integrate and apply knowledge in clinical epidemiology, modern epidemiology, EBM, Biostatistics, Health Social Science, Health Economics, and Information technology in their clinical/public health practice.
ELO 2.	Apply evidence-based medicine skills for various questions in routine clinical practice.
ELO 3.	Perform advanced statistical analysis for various clinical and health science researches.
ELO 4.	Develop research protocol in clinical and health science researches using various study designs.
ELO 5.	Conduct research complying with international ethical standards and collaborate with research teams.
ELO 6.	Disseminate/communicate research findings or evidence to the public by applying information technology.

Program structure

Program	Required courses	Elective courses	Research	Total credits
Plan I: Research only	-	-	48	48
Plan II: Coursework and research	22	4	48	74

Enrollment criteria

Plan I: Research only

1. Graduated Master's degree (e.g. Clinical Epidemiology, Epidemiology, Biostatistics, Clinical Economics or other related disciplines) or graduated doctor of medicine, pharmacy, dentistry, and other related disciplines graduated in medical specialty certificate (e.g., Diploma of Fellowship of the Royal College of Physicians) from an accredited national or international academic institution recognized and attested by the Higher Education Commission.
2. Grade point average at least 3.50
3. Have at least 3 health science publications in peer-reviewed international journals, as the first or corresponding author.
4. Have an English Proficiency Examination score meeting the requirements of the Faculty of Graduate Studies
5. Applicant with other qualifications apart from number (2) to (4) may be considered by the Program Director, program committees, and the Dean of Faculty of Graduate Studies.

Plan II: Coursework and research

The same criteria as plan I, except not requiring publication in a peer-reviewed international journal.

M.Sc.in Medical Epidemiology

ELOs

Graduates should be able to

ELO 1.	Be able to practice Medical Epidemiology with good moral and conduct research complying with international ethical standards.
ELO 2.	Be able to understand Medical Epidemiology, EBM, Biostatistics, Health Social Sciences, Clinical Economics, and IT in their clinical/public health practice.
ELO 3.	Be able to apply skills of Medical Epidemiology, EBM, Biostatistics, Clinical Economics, and Health Social Sciences to various questions in routine clinical practice and research.
ELO 4.	Be able to collaborate with good interpersonal relationship, responsibility, and management in the research team.
ELO 5.	Be able to analyze various medical and public health data by using IT, and disseminate/communicate research findings with proper visualization.

Program structure

Program	Core/Required courses	Elective courses	Research	Total credits
Coursework with research	20	4	12	36

Enrollment criteria

1. Holding a Bachelor's degree or equivalent in Medicine, Pharmacy, Dentistry or other related fields
2. Other requirements shall follow those that specified by the Faculty of Graduate Studies
3. Qualifications different from 2) may be considered by the Program Administrative Committee and the Dean of the Faculty of Graduate Studies

Lists of coursework for Ph.D. (Clin Epidemiol) and M.Sc. (Med Epidemiol)

Course ID	Course title, Credits
RACE622	Study Designs & Measurements in Clinical Epidemiology, 3
RACE/RAME625	Medical Statistics in Clinical Research, 3/2
RACE611	Clinical Epidemiology and Evidence-based Medicine, 3
RACE 624/RAME 624	Research Informatics and Data Management, 2
RACE608	Social Science in Clinical Practice and Research, 2
RACE626	Advanced Statistical Analysis in Clinical Research, 3
RACE603	Research Protocol Design, 2
RACE607/RAME607	Clinical Economics, 3/2
RACE617	Randomized Controlled Trials, 2
RACE618/ RAME618	Systematic review & Meta-analysis, 3/2
RAME 621	Seminar in Medical Epidemiology, 1
RACE799/ RACE898/ RACE698	Thesis, 48/48/12

Ph.D. in Data Science for Healthcare and Clinical Informatics

ELOs

Graduates should be able to

ELO 1.	Conduct data science and clinical informatics research in healthcare with international ethical standards.
ELO 2.	Integrate all knowledge and skills of data science for healthcare and clinical informatics to various types of health data and information systems.
ELO 3.	Appropriately process and analyze big data and manage clinical information systems in healthcare organizations and the health system.
ELO 4.	Manage and collaborate with the research team for the success of the research project.
ELO 5.	Critically appraise, communicate and disseminate research findings in international peer-reviewed journals with effective visualizations.

Program structure

Program	Required courses	Elective courses	Research	Total credits
Plan I: Research only	-	-	48	48
Plan II: Coursework and research	18	6	48	72

Enrollment criteria

Plan I: Research only for student with M.Sc. Data Science for Healthcare and Clinical Informatics degree

1. Graduated with a Master's degree in Data Science for Healthcare and Clinical Informatics or a closely-related discipline from an accredited national or international academic institution recognized and attested by the Higher Education Commission
2. Grade point average not less than 3.50
3. Have an English Proficiency Examination score according to the requirements of the Faculty of Graduate Studies
4. Work or have experience as an instructor or researcher in data sciences or clinical informatics or closely relevant fields for at least three years
5. Have at least 3 publications in peer-reviewed international journals within the last 5 years, as the first or corresponding author
6. Exemptions from the above conditions may be granted by the Program Committee and the Dean of the Faculty of Graduate Studies under exceptional circumstances.

Plan II: Coursework and Research for student with Bachelor's degree

1. Graduated with a doctor of medicine/dentistry/pharmacy/nursing degree or graduated with a bachelor's degree in health sciences, information science, mathematics/statistics, engineering, management science, social science, or an IT-related discipline from an accredited national or international academic institution recognized and attested by the Higher Education Commission
2. Grade point average not less than 3.00
3. Have an English Proficiency Examination score meeting the requirements of the Faculty of Graduate Studies
4. Exemptions from the above conditions may be granted by the Program Committee and the Dean of the Faculty of Graduate Studies under exceptional circumstances.

M.Sc. in Data Science for Healthcare and Clinical Informatics

ELOs

Graduates should be able to

ELO 1.	Conduct data science and clinical informatics research in healthcare complying with ethical standards.
ELO 2.	Use knowledge and skills of data science for healthcare and clinical informatics to health data and information systems.
ELO 3.	Process and analyze big data and manage clinical information systems in healthcare organizations.
ELO 4.	Collaborate with the research team for the success of the research project.
ELO 5.	Critically appraise, disseminate and communicate research findings with effective visualizations.

Program structure

Program	Required courses	Elective courses	Research	Total credits
Coursework and research	16	8	12	36

Enrollment criteria

1. Graduated with a doctor of medicine/dentistry/pharmacy/nursing degree or graduated with a bachelor's degree in health sciences, information science, mathematics/statistics, engineering, management science, social science, or an IT-related discipline from an accredited national or international academic institution recognized and attested by the Higher Education Commission
2. Grade point average not less than 2.75
3. Have an English Proficiency Examination score meeting the requirements of the Faculty of Graduate Studies
4. Exemptions from the above conditions may be granted by the Program Committee and the Dean of the Faculty of Graduate Studies under exceptional circumstances.

List of Coursework for Ph.D. and M.Sc. in Data Science for Healthcare and Clinical Informatics

Course ID	Course title, Credits
RADI 601*	Health Informatics and Health Information Technology, 2
RADI 602*	Data Mining and Knowledge Discovery, 2
RADI 603	Mathematical Statistics and Programming for Data Science and Clinical Informatics, 2
RADI 604	Principles and Concepts of Health Systems, 2
RADI 605	Innovation in Health Information Technology, 2
RADI 606	Information Technology Management in Healthcare Organizations, 2
RADI 607**	Theories in Health Informatics and Health Information Technology, 3
RADI 608**	Machine Learning, 3
RADI 609	Research Methodology in Data Science and Clinical Informatics, 2
RADI 610	Seminar in Data Science and Clinical Informatics Research, 2
RADI 799/ RADI 898/ RADI 698	Thesis, 48/48/12

*For M.Sc. in Data Science for Healthcare and Clinical Informatics

**For Ph.D. in Data Science for Healthcare and Clinical Informatics

Instructors

Prof. Ammarin Thakkinstian, Ph.D.	Prof. Atiporn Ingsathit, M.D., Ph.D.
Prof. Patarawan Woratanarat, MD., Ph.D.	Assoc. Prof. Sasivimol Rattanasiri, Ph.D.
Assoc. Prof. Thunyarat Anothaisintawee, M.D., Ph.D.	Assoc. Prof. Prapaporn Pornsuriyasak, M.D., M.Sc.
Assoc. Prof. Oraluck Pattanaprateep, Ph.D.	Asst. Prof. Pawin Numthavaj, M.D., Ph.D.
Asst. Prof. Chusak Okascharoen, M.D., Ph.D.	Asst. Prof. Charungthai Dejthevaporn, MD., Ph.D.
Asst. Prof. Dr. Suparee Boonmanunt, Ph.D.	Asst. Prof. Vijj Kasemsup, M.D., Ph.D.
Asst. Prof. Kunlawat Thadanipon, M.D. M.Sc.	Dr. Wanchana Ponthongmak, Ph.D.
Dr. Boonchai Kijsanayothin, M.D., Ph.D.	Dr. Anuchate Pattanateepapon, D.Eng.
Dr. Nawanan Theera-Ampornpunt, M.D., Ph.D.	Dr. Panu Looareesuwan, Ph.D.

Come and Join Our Team

Teamwork is what gets the job done. Imagine a large-scale multi-center randomized controlled trial or a big data analytic, you will have many staffs to involve including Epidemiologist, Data Scientist, Biostatistician, Computer Scientist, content experts, and support teams. The principle investigator is the leader of the team effort and that is the position we are going to put you in. You will learn how to develop a research proposal that requires integrating knowledge in research methodology, Clinical Epidemiology, Biostatistics, Data Science, Clinical Informatics, and other relevant areas. Conducting a study complying with international ethical standard will be coached by advisers and support staff. You will be in the driving seat and have us as a navigator taking you to achieve your goal. You are not left on your own, and we will work closely together as a team. We would like to invite you to be one of our research team. We are looking forward to working with you.

Location

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