



Program	M.Sc. (Tropical Medicine)	Degree Level	Master
Course Title	Epidemiological Concepts in Tropical Medicine	Faculty	Tropical Medicine
Course Code	TMID 548	Department	Interdepartmental

TQF 3: COURSE SPECIFICATION

SECTION 1: GENERAL INFORMATION

1. Course code and title

Thai วงสข ๕๔๘ แนวคิดด้านวิทยาการระบาดทางเวชศาสตร์เขตร้อน

English TMID 548 Epidemiological Concepts in Tropical Medicine

2. Number of credits 1(1-0-2)

3. Program and type of the course

3.1 Program: Master of Science in Tropical Medicine

3.2 Type of the course: Required Course

4. Course Coordinator and Lectures

4.1 Course Coordinator

Assoc. Prof. Saranath Lawpoolsri Niyom

Department of Tropical Hygiene

Faculty of Tropical Medicine, Mahidol University

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4.2 Lecturers

1) Asst. Prof. Saranath Lawpoolsri Niyom

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2) Assoc. Prof. Jaranit Kaewkungwal

Department of Tropical Hygiene, Faculty of Tropical Medicine

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3) Asst. Prof. Podjanee Jitamala

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5. Semester/Year

- 5.1 Semester 1 of each Academic Year
- 5.2 Number of participant: Minimum 1, maximum 50

6. Pre-requisite course (s)

None

7. Co-requisites

None

8. Venue

Faculty of Tropical Medicine, Mahidol University

9. Date of the most recent course specification made

May 2018



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SECTION 2: COURSE GOALS AND COURSE OBJECTIVES

1. Course Goals

The course aims to train students with fundamental knowledge in epidemiology, critical thinking skill, analytical skill, and positive attitude in epidemiological research.

2. Objectives of developing/revising this course

2.1 Course Objectives

- 1) Describe common terminology used in epidemiology
- 2) Calculate and interpret the measures of disease frequency, measures of effect and measures of association
- 3) Discuss epidemiological concepts and methods as applied particularly to tropical medicine
- 4) Discuss advantages and disadvantages of different study designs in epidemiology
- 5) Identify sources and impacts of bias, interaction, and confounders in conducting a research; and, determine methods to handle those effects
- 6) Explain the principles of causality and determine causal link between exposure and disease in relation to different study designs
- 7) Present a critical evaluation of the results and interpretations of published studies by determining whether the choice of study design and statistical methods appropriate to the research question addressed.

2.2 Course-level Learning Outcomes: CLOs

At the end of the course, the students should be able to

- CLO1:** Choose appropriate study design in epidemiological research
- CLO2:** Calculate and interpret measurement in epidemiological research
- CLO3:** Discuss advantages and disadvantages of cross-sectional, case-control, cohort and experimental studies
- CLO4:** Identify bias and confounding in epidemiological research
- CLO5:** Criticize published paper related to tropical medicine research



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2.3 Relationship between level of learning and PLOs

Table 1 PLOs responsible by the course

PLOs
PLO1 Demonstrate moral and ethical manner in knowledge acquisition and application
PLO2 Describe comprehensive knowledge of important tropical diseases
PLO3 Conduct research using proper scientific methods and information technology
PLO5 Facilitate either as leader or follower to complete assignments
PLO6 Select appropriate technique to effectively communicate problem/research based information related to tropical medicine to community

Table 2 Relationship between CLOs and level of learning toward PLOs

Course Code: TMID 548	Program Learning Outcomes					
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
CLO1 Choose appropriate study design in epidemiological research		√ I	R/P			
CLO2 Calculate and interpret measurement in epidemiological research						√ R/P
CLO3 Discuss advantages and disadvantages of cross-sectional, case-control, cohort and experimental studies		R	R			
CLO4 Identify bias and confounding in epidemiological research	√ I	√ I				
CLO5 Criticize published paper related to tropical medicine research	√ I		R		R/P	√ R/P



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SECTION 3: CHARACTERISTICS AND OPERATION

1. Course Description

(Thai) พื้นฐานระบาดวิทยาทางเวชศาสตร์เขตร้อน การวัดค่าต่างๆ ทางระบาดวิทยา การประเมินความเสี่ยงและระดับความสัมพันธ์ การเชื่อมโยงความสัมพันธ์ไปสู่การสรุปผลอย่างเป็นเหตุเป็นผล การทบทวนรูปแบบการวิจัย การวิพากษ์ผลงานอย่างเป็นระบบ

(English) Fundamental of epidemiology in tropical medicine; measurement in epidemiology; risk assessment and strength of association; from association to causal; review of study design; critical appraisal

2. Number of hours per semester (Lecture/theory – Practice – Self-study)/semester

1 (1-0-2)

3. Methods and number of hours given to each student for consultancy and/or suggestion

Consultancy methods	Number of hours	Responsible person
Face-to-face consultation	1 hour/week	Asst.Prof.Saranath
Email consultation	2 hours/week	Asst.Prof.Saranath



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SECTION 4: DEVELOPMENT OF STUDENT'S ACHIEVEMENT TOWARDS COURSE LEARNING OUTCOMES AND ASSESSMENT

1. Brief description of the expected knowledge and skills given to the students

CLO	Expected knowledge	Expected skills	
		Generic	Specific
CLO1	K1 Epidemiology of Tropical Diseases, K2 Research Methodology	GS2 Systemic Thinking,	
CLO2	K1 Epidemiology of Tropical Diseases K3 Health Risk Assessment		SS1 Epidemiological Analytical Skill
CLO3	K1 Epidemiology of Tropical Diseases	GS3 Interpersonal Skill	
CLO4	K1 Epidemiology of Tropical Diseases, K4 Principles of Ethics	GS8 Research Ethics Awareness	
CLO5		GS7 Knowledge and Information Acquisition Skill	SS2 Critical Thinking



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2. Teaching plan

Period	Topic	Number of hours			T/L activities and media	Instructor
		Lecture	Practice	Self-study		
1	Fundamental of epidemiology in tropical medicine	2	0	4	Lecture, class discussion	Asst. Prof. Saranath
2	Measurement in epidemiology	3	0	6	Lecture, class discussion, examples	Asst. Prof. Saranath
3	Overview of Study design	3	0	6	Lecture, class discussion, examples	Asst. Prof. Saranath
4	Risk assessment & Strength of association	3	0	6	Lecture, class discussion, examples	Asso.Prof. Jaranit
5	From association to causal	3	0	6	Lecture, class discussion, examples	Asst. Prof. Saranath
6	Critical appraisal	3	0	6	Lecture, Reading assignment, class discussion	Asst.Prof. Podjanee
Total		17	0	34		



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3. Plan to assess students' learning achievement according to CLOs

2.1 Student assessment

a) Formative Assessment (Monitoring student progress)



1. In-class discussion
2. Checks for understanding
3. Daily instructor observations

b) Teaching strategies used to develop the knowledge and skills in Item 1 above, and how to assess the students' learning outcomes Summative Assessment

CLO	Teaching/learning strategies	Assessment methods and weight (%)	
		Assessment Methods/tools	%
CLO1	Choose appropriate study design in epidemiological research	Short answer examination	20
		Class participation	2
CLO2	Calculate and interpret measurement in epidemiological research	Short answer examination	15
		Class participation	2
CLO3	Discuss advantages and disadvantages of cross-sectional, case-control, cohort and experimental studies	Short answer examination	20
		Class participation	6
CLO4	Identify bias and confounding in epidemiological research	Short answer examination	20
		Class participation	2
CLO5	Criticize published paper related to tropical medicine research	Class participation	13
Total weight			100



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(2) Grading

Score (100%)	Grade
80-100	A
70-79	B+
60-69	B
<60	C (Fail)

(3) Re-examination

Re-examination will be performed when a student has total score < 60.

The re-examination will be performed using paper-examination. The new score will be updated for only paper-examination part. The re-examination will be allowed to perform only one time per student. Only grade B will be given to students who pass the re-examination.

3. Student's appeal

In case of any doubt or uncertainty in the marks or grades of the student assessments, students can directly contact advisors, supervisors, lecturers or Program Director. In case that student would like to appeal the marks or grades, there are several processes this can be done. Students can appeal via website <http://www.tm.mahidol.ac.th/eng/dean.php>, suggestion box, email or submit the Appeal form to Director of the Program, Deputy Dean for Education, Dean of Faculty of Tropical Medicine, or Dean of Faculty of Graduate Studies.



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SECTION 5: FACILITIES AND INFRASTRUCTURE

1. Required Texts

- 1) Gordis L. Epidemiology, 4th edition. Philadelphia, PA: W.B. Saunders Company; 2009.
- 2) Greenberg R. Medical Epidemiology. 3rd edition. Columbus, OH: The McGraw-Hill Companies; 2001.

2. Suggested Materials

- 1) Rothman K, Greenland S, Lash T. Modern Epidemiology 3rd edition. Philadelphia, PA: Lippincott Williams & Wilkins; 2008.
- 2) Wassertheil-Smoller S. Biostatistics and Epidemiology 3rd edition: A Primer for Health Professionals. New York: Springer-Verlag; 2004.

3. Other resources (if applicable)

Scientific journal, website e.g. Pubmed, e-database



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SECTION 6: COURSE'S EVALUATION AND IMPROVEMENT

1. Student's evaluation towards the effectiveness of the course

- 1) Observation of students on class participation, class discussion
- 2) Evaluation of lecturer regarding teaching performance

2. Assessment of teaching strategy

- 1) Observe participation between lecturers and students particularly in classes that have class discussion
- 2) Student grade
- 3) Evaluation of teaching performance by internal auditor

3. Improvement of teaching approaches

A meeting among lecturers will be conducted after receiving the results of students' evaluation and assessment of teaching strategy. The results will be distributed and discussed among the lecturers. The modification and improvement strategies will be decided, according to the census decision among lecturers.

4. Verification of student's learning achievement

Student's learning achievement will be monitored throughout the course (during and after the course). Monitoring methods during the class include observation of student's ability to discuss and answer questions in class, asking student's improvement from his/her advisors or other lecturers. Monitoring student's learning achievement after the course can be done by observation of student performance on thesis/thematic paper work, observation of student presentation at scientific meeting/conference, observation on students' behavior and practice toward moral and ethics.



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5. Review of the course's effectiveness and plan for improvement

Results from course evaluation and student assessment will be used to guide the improvement strategy of the course. Meetings among program committee will be conducted to review the results and develop course improvement plan. The course will be reviewed and/or revised every 2 years. Teaching contents, and teaching methods will be modified to make them up-to-date and integrate with different areas.