



Course Title Epidemiology

Course Code ICBI 402

Undergraduate Program

Mahidol University International College

Division Science

### TQF 3 Course Specifications

#### Section 1 General Information

1. Course code and course title

Thai ระบาดวิทยา

English Epidemiology

2. Number of credits 4(4-0-0)

3. Program and type of subject

3.1 Program Undergraduate Degree (International Program)

3.2 Type of Subject Elective

4. Course Coordinator and Course Lecturer

4.1 Course Coordinator Summon Chomchai, M.D.

4.2 Course Lecturer Summon Chomchai, M.D.

5. Trimester/ Year of Study

5.1 Trimester 1

5.2 Course Capacity Approximately 30 students

6. Pre-requisite N/A

7. Co-requisites N/A

8. Venue of Study MUIC

9. Date of Latest Revision 20 August 2020

#### Section 2 Goals and Objectives

1. Course Goals

Students should be able to explain about the factors that facilitate diseases; to explain the distribution and transmission of diseases; to know the prevention of the diseases and



application of epidemiology. Moreover, students should understand study designs, their interpretation and limitations.

## 2. Objectives of Course Development/Revision

### 2.1 Course Objectives

To update content and teaching style

### 2.2 Course-level Learning Outcomes: CLOs

By the end of the course, students will be able to (CLOs)

1. CLO1 Understand the methodology of epidemiology and its applications in public health and medical research (1.1)
2. CLO2 Apply the concepts of epidemiology towards prevention (1.2)
3. CLO3 Apply the concepts of biostatistics in epidemiology practice (1.3)
4. CLO4 Be able to interpret epidemiological data in the media and technical documents (1.5)
5. CLO5 Be able to summarize and present epidemiological data in the media and technical documents (3.1)
6. CLO6 Be able to appraise and present epidemiological data in the media and technical documents (3.2)

## Section 3 Course Management

### 1. Course Description

(Thai) รายวิชานี้เน้นการสอนระบาดวิทยาเชิงพรรณนาและเชิงวิเคราะห์ และการประยุกต์ใช้องค์ความรู้ดังกล่าว อีกทั้งการวัดและการประเมินผลทางระบาดวิทยาและการบูรณาการวิธีทางชีวสถิติในการทำงานทางระบาดวิทยา

(English) The course emphasizes on descriptive and analytical methodology and their applications in the fields of epidemiology. Epidemiological measurement and integration of biostatistics are included.



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2. Credit hours per trimester

Lecture (Hour(s))	Laboratory/field trip/internship (Hour(s))	Self-study (Hour(s))
44	0	0

3. Number of hours that the lecturer provides individual counseling and guidance.

4 hours per week

**Section 4 Development of Students' Learning Outcome**

1. Short summary on the knowledge or skills that the course intends to develop in students (CLOs)

By the end of the course, students will be able to

1. CLO1 Understand the methodology of epidemiology and its applications in public health and medical research (1.1)
2. CLO2 Apply the concepts of epidemiology towards prevention (1.2)
3. CLO3 Apply the concepts of biostatistics in epidemiology practice (1.3)
4. CLO4 Be able to interpret epidemiological data in the media and technical documents (1.5)
5. CLO5 Be able to summarize and present epidemiological data in the media and technical documents (3.1)
6. CLO6 Be able to appraise and present epidemiological data in the media and technical documents (3.2)

2. Teaching methods for developing the knowledge or skills specified in item 1 and evaluation methods of the course learning outcomes



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Course Code	Teaching methods	Evaluation Methods
CLO1	On-demand online lectures, case discussions, exercise	Midterm/final examination
CLO2	On-demand online lectures, case discussions, exercise	Midterm/final examination
CLO3	On-demand online lectures, case discussions, exercise	Midterm/final examination
CLO4	On-demand online lectures, case discussions, exercise	Midterm/final examination
CLO5	On-demand online lectures, case discussions, exercise	Project Presentation rubric
CLO6	On-demand online lectures, case discussions, exercise	Project rubric

## Section 5 Teaching and Evaluation Plans

### 1. Teaching plan

Week	Topics	Hours		Instructor
		lecture	lab	
1	Orientation and Scope of Epidemiology, study of population health	4	0	SC
2	Natural history of disease, Disease measurements: -Morbidity, Mortality rates and adjustment	4	0	SC
3	Descriptive epidemiology	4	0	SC
4	Biostatistics in Epidemiology	4	0	SC
5	Relating risk factors to health outcomes	4	0	SC
6	Analytic study designs	4	0	SC
7	Midterm Review and Assessment (R&A)	4	0	SC
8	Causal inference	4	0	SC
9	Sources of error & Multicausality	4	0	SC
10	Clinical epidemiology	4	0	SC



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11	Outbreak investigation	4	0	SC
12	Project presentation and discussion	4	0	SC
	Total hours	48		

## 2. Plan for Assessing Course Learning Outcomes

### 2.1 Assessing and Evaluating Learning Achievement

#### a. Formative Assessment

Student participation in class and on field visits

#### b. Summative Assessment

(1) Tools and Percentage Weight in Assessment and valuation

Learning Outcomes	Assessment Methods	Assessment Ratio (%/cum %)	
CLO 1	Written examination	20	20
CLO2	Written examination	20	40
CLO3	Written examination	20	60
CLO4	Written examination	20	80
CLO5	Project presentation	5	85
CLO6	Project report	15	100



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(2) Grading System

100%-90%	A
89%-86%	B+
85%-80%	B
79%-75%	C+
74%-70%	C
69%-65%	D+
64%-60%	D
< 60%	F

(3) Re-examination (If course lecturer allows to have re-examination)

N/A - (Not applicable with MUIC)

3. Student Appeals

Student are able to submit appeals either in person or via email to the course coordinator or program director within 7 days of receiving the final grade.

**Section 6 Teaching Materials and Resources**

1. Online lecture videos

2. Recommended textbooks and/or other documents/materials

1. Textbooks and/or other documents/materials

- 1) Gordis L. Epidemiology. 5 ed. Philadelphia: Saunders; 2014.
- 2) Aschengrau A, Seage GR, Essentials of epidemiology in public health. 5 ed., Burlington, MA : Jones & Bartlett Learning; 2020.



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- 3) **Webb P, Bain C, Page A, Essential Epidemiology An Introduction for Students and Health Professionals. 3 ed., Cambridge: Cambridge Press; 2017.**

### **Section 7 Evaluation and Improvement of Course Management**

#### **1. Strategies for evaluating course effectiveness by students**

1.1 Student feedback of instructors, teaching methods and materials, and course content through MUIC student evaluation forms

1.2 Written feedback submitted via Program Director

#### **2. Strategies for evaluating teaching methods**

2.1 Evaluation of effectiveness based on student evaluation scores and comments

2.2 Evaluation through peer observations by co-instructor or other Division faculty

2.3 Formative evaluation through quizzes, case discussions or pre-post tests

#### **3. Improvement of teaching methods**

3.1 Adjustments based on student feedback, personal observations, comments from peer observations and discussions with supervisor and/or other Division faculty in one-on-one and/or group meetings as specified by MUIC guidelines

3.2 Adjustments based on recommendations from peer-observation, co-instructor or other faculty members

3.3 Add more in-class exercise, so students gain more experienced from practices,

#### **4. Verification process for evaluating students' standard achievement outcomes in the course**



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4.1 Verification through student performance on assessments based on MUIC/Division standards

5. Review and plan for improving the effectiveness of the course

5.1 Course instructors (and coordinator/supervisor) will meet to discuss results of student evaluations and student performance based on learning outcomes in order to identify point for improvement

5.2 Program instructors meet to discuss curriculum evaluation and improvement in the monthly Program meetings chaired by the Program Director

5.3 Strategy for improvement set according to MUIC/Division guidelines

5.4 Curriculum revision cycle set by MUIC Office of Academic Affairs





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Appendix

**Alignment between Courses and Program**

Table 1 The relationship between course and Program Learning Outcomes (PLOs)

Occupational Safety and Health	Program Learning Outcomes (PLOs)					
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO 6
ICBI 402	P	-	M	-	-	R

**Note:** Indicate the level of CLOs by letter I, R, P or M. Using the information as shown in the Curriculum Mapping of TQF2



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Table 2 The relationship between CLOs and PLOs

(Course code) ..... .....	Program Learning Outcomes (PLOs)					
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
CLO1	1.1					
CLO2	1.2					
CLO3	1.5					
CLO4			3.1			
CLO5			3.2			
CLO6						6.1
CLO 7						6.3



Table 3 The description of PLOs and Sub Los of the course

PLOs	SubPLOs
PLO1 Possess knowledge and technical skills of diverse biological disciplines	1.1 Possess knowledge in epidemiology
	1.2 Apply knowledge in biostatistics in epidemiology practice
	1.5 Integrate discipline-specific knowledge and technical skills across different disciplines
PLO 3 Demonstrate proficiency in oral and written communication of scientific concepts	3.1 Demonstrate proficiency in oral communication of health issues regarding epidemiologic study in research publication and media
	3.2 Demonstrate proficiency in written communication of health issues from epidemiologic studies
PLO6. Able to integrate different disciplines to formulate solutions for novel situations	6.1 Able to independently formulate lines of enquiry that drive problem solving
	6.3 Demonstrate systematic and logical thinking