



## TQF3 Course Specification

0504111

Epidemiology Methods

Master of Public Health  
Faculty of Health and Sports Science  
Thaksin University

2022

## TQF.3 Course Specification

### Section 1 General Information

1. **Course code and title**  
0504111 Epidemiology Methods
2. **Total credits** 3(2-2-5)
3. **Curriculum and course type**
  - 3.1 Curriculum Master degree program (Thai)
  - 3.2 Course Type Specific Course  Compulsory Course  Electives
4. **Course coordinator and lecturer**  
Asst. Prof. Dr. Tum Boonrod, Tel. 0895970405, E-mail: btum@tsu.ac.th
5. **Semester/Year of study**
  - 5.1 1<sup>st</sup> year 2<sup>nd</sup> semester 2024
  - 5.2 Number of students allowed approximately 4 students
6. **Pre-requisite:** None
7. **Co-requisites:** None
8. **Study site location**  
Faculty of Health and Sports Science, Thaksin University, Phatthalung, Thailand.
9. **Latest revision of the course specifications**  
15 September 2024

### Section 2 Aims and Objectives

#### 1. Course Goals

Design and application of epidemiological methods to study natural history of diseases occurrence and health-related problems, practice appraisal epidemiological researches

#### 2. Course-level Learning Outcomes: CLOs

PLO2	CLO1 Adhere to principles of morality, ethics, and a code of conduct, and take responsibility for both yourself and the public. CLO2 Elaborate on the fundamental concepts regarding the nature of disease, health hazards, and the design and methods employed in epidemiology. CLO3 Implement epidemiological methods to explore and understand the characteristics of diseases and health hazards.
PLO3	CLO4 Critically analyze and evaluate the significance of epidemiological research, offering well-founded recommendations in alignment with academic principles.
PLO4	CLO5 Proficient in utilizing statistical programs to analyze data, interpret results, and accurately present epidemiological findings.

### Section 3 Course Description and Implementation

#### 1. Course Description

Design and application of epidemiological methods to study natural history of diseases occurrence and health-related problems, practice appraisal epidemiological researches

#### 2. Number of hours per semester

Theory (hours)	Practice (hours)	Self-study (hours)
30	30	75

**3. Number of hours provided for academic advice and guidance to students**

Students can contact the instructor through the following channels:

- 1) email: [btum@tsu.ac.th](mailto:btum@tsu.ac.th)
- 2) Face-to-face consultation in the office or online by appointment

**Section 4 Development of the expected learning outcomes****1. A brief summary of the knowledge or skills expected to develop in students; the course-level expected learning outcomes (CLOs)**

CLO1 Adhere to principles of morality, ethics, and a code of conduct, and take responsibility for both yourself and the public.

CLO2 Elaborate on the fundamental concepts regarding the nature of disease, health hazards, and the design and methods employed in epidemiology.

CLO3 Implement epidemiological methods to explore and understand the characteristics of diseases and health hazards.

CLO4 Critically analyze and evaluate the significance of epidemiological research, offering well-founded recommendations in alignment with academic principles.

CLO5 Proficient in utilizing statistical programs to analyze data, interpret results, and accurately present epidemiological findings.

**2. A brief summary of the knowledge or skills expected to develop in students; the course-level expected learning outcomes (CLOs)**

On completion of the course, students will be able to:

CLOs	Teaching/learning experience management	Learning outcomes measurements
CLO1 (PLO2)	1. Case Study discussion 2. Think-Pair-Share	Teachers behavior and students classroom participation
CLO2 (PLO2)	1. Collaborative teaching 2. Case study discussion	1. Midterm and final examination 2. Report
CLO3 (PLO2)	1. Collaborative teaching 2. Case study discussion 3. Practice	1. Midterm and final examination 2. Exercise
CLO4 (PLO3)	1. Case study discussion 2. Think-Pair-Share	Presentation of critical appraisal of research articles and Report
CLO5 (PLO4)	1. Case study discussion 2. Practice	Exercise/Assignments

**Section 5 Teaching and Evaluation Plans****1. Lesson plan**

No.	Topics/Details	Numbers of hours		Teaching & Learning Activities	Lecturer
		Theory	Practice		
1	<b>Chapter 1 Introduction to Epidemiology</b> <ul style="list-style-type: none"> <li>▪ Definition of Epidemiology</li> <li>▪ Historical Evolution of Epidemiology</li> <li>▪ Core Epidemiologic Functions</li> <li>▪ The Epidemiologic Approach</li> <li>▪ Descriptive Epidemiology</li> <li>▪ Concepts of Disease Occurrence</li> <li>▪ Natural History and Spectrum of Disease</li> <li>▪ Chain of Infection</li> </ul>	1:00 1:00 -	- - 2:00	1. Collaborative teaching 2. Case study discussion 3. Practice	Asst. Prof. Dr. Tum Boonrod

No.	Topics/Details	Numbers of hours		Teaching & Learning Activities	Lecturer
		Theory	Practice		
	▪ Epidemic Disease Occurrence				
2-4	<b>Chapter 2 Measuring health and disease</b> ▪ Measuring disease frequency ▪ Morbidity Frequency Measures ▪ Mortality Frequency Measures ▪ Natality (Birth) Measures ▪ Measures of Association ▪ Measures of Public Health Impact	2:00 2:00 -	- - 4:00	1. Collaborative teaching 2. Case study discussion 3. Practice	Asst. Prof. Dr. Tum Boonrod
5-8	<b>Chapter 3 Types of studies</b> ▪ Observations and experiments ▪ Observational epidemiology ▪ Experimental epidemiology ▪ Potential errors in epidemiological studies ▪ Confounding	4:00 4:00 -	- - 8:00	1. Collaborative teaching 2. Case study discussion 3. Practice	Asst. Prof. Dr. Tum Boonrod
9	<b>Midterm</b>				
10	<b>Chapter 4 Causation in epidemiology</b> ▪ The concept of cause ▪ Establishing the cause of a disease	1:00 1:00 -	- - 2:00	1. Collaborative teaching 2. Case study discussion 3. Practice	Asst. Prof. Dr. Tum Boonrod
11-12	<b>Chapter 5 Epidemiology and prevention: chronic noncommunicable Diseases</b> ▪ The scope of prevention ▪ Levels of prevention ▪ Screening	2:00 2:00 -	- - 4:00	1. Collaborative teaching 2. Case study discussion 3. Practice	Asst. Prof. Dr. Tum Boonrod
13-14	<b>Chapter 6 Communicable diseases: epidemiology surveillance and response</b> ▪ Epidemic and endemic disease ▪ Chain of infection ▪ Investigation and control of epidemics	2:00 2:00 -	- - 4:00	1. Collaborative teaching 2. Case study discussion 3. Practice	Asst. Prof. Dr. Tum Boonrod
15-16	<b>Chapter 7 Environmental and occupational epidemiology</b> ▪ Environment and health ▪ Exposure and dose ▪ Assessing risk ▪ Injury epidemiology ▪ Special features of environmental and occupational epidemiology	2:00 2:00 -	- - 4:00	1. Collaborative teaching 2. Case study discussion 3. Practice	Asst. Prof. Dr. Tum Boonrod
<b>Final examination</b>					
	<b>Total</b>	<b>30</b>	<b>30</b>		

## 2. Plan for assessment of expected course-level learning outcomes (CLOs)

### 2.1 Measurement and evaluation of learning achievement

#### A. Formative assessment

The assessment is performed during the course to measure the progress and development of students' learning by observing the behavior change and improvement of students' behavior and performance. The assessment results will be notified to the students (feedback) so that the students are constantly able to improve themselves. The assessment results are not included with the test scores at the end of the course.

#### B. Summative assessment

##### (1) Tool and weight for measurement and evaluation

Evaluation methods	Learning outcomes	Proportion of evaluation (%)
Student's response and behavior in the classroom	CLO 1 (PLO2)	5
Midterm	CLO 2 & CLO 3 (PLO2)	25
Final examination	CLO 2 & CLO 3 (PLO2)	25
Presentation of critical appraisal of research articles	CLO 4 (PLO3)	15
Assignments	CLO 5 (PLO4)	30
<b>Total</b>		<b>100</b>

##### (2) Measurement and evaluation

The grading symbols are: A:  $\geq 85$ , B+:  $\geq 80$ , B:  $\geq 75$ , C+:  $\geq 70$ , C:  $\geq 65$ , D+:  $\geq 60$ , D:  $\geq 55$ , F:  $< 55$

### 3. Students' appeal

Should the students have any suspicion or appeals to the teaching and learning activities and the grade assessment, students could make the appeal by filling in the form at FHSS TSU' Academic Affairs. The appeal will be proposed to the course coordinator to consider the request. If the appeal could not be addressed at this point, it will be further process by the program's Teaching and Learning Development Committee. In case that the committee suggested further investigation should be done, the appeal will be purposed to the faculty's appealing committee to address the issue.

## Section 6 Teaching & Learning Resources

### 1. Required Texts

Bonita R, Beaglehole R, Kjellström T. Basic epidemiology. World Health Organization; 2006.

Szklo M, Nieto FJ. Epidemiology: beyond the basics. Jones & Bartlett Publishers; 2014. Wassertheil-Smoller S, Smoller J. Biostatistics and epidemiology. Springer New York; 2004.

### 2. Suggested Materials

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## Section 7 Course Evaluation and Improvement

1. **Evaluation Strategies for Course Effectiveness by Students**
  - a. Assessment of lecturer's teaching outcome
  - b. Course evaluation
  - c. Reflection on learning
2. **Teaching Evaluation Strategies**
  - a. lecturers evaluate their teaching
  - b. Examination results/student's learning outcome
  - c. Students reflections on learning
3. **Teaching Improvement**
  - a. The collection of results of teaching evaluation, course evaluation and suggestions
  - b. Seminar among instructors to learn from each other to improve teaching and the course
4. **Verification of Students Achievements in the Course**
  - a. There are committees in the field verifying students' scores and grades with examinations, exercises, reports and presentations.
  - b. Report the results of the verification to the graduate studies committee
5. **Course Review and Improvement Plan for Course Effectiveness**

Data from students' reflections and course evaluation will be used to improve the course effectiveness.