

## COURSE SPECIFICATION

**Name of Institution** Mahidol University  
**Campus/Faculty/Department** ASEAN Institute for Health Development

### Section 1 General Information

**1. Course Code and Title**

ADPM 662 Epidemiology for Primary Health Care Management 3 (3-0-6)  
 สอสม ๖๖๒ ระบาดวิทยาเพื่อการจัดการสาธารณสุขมูลฐาน ๓ (๓-๐-๖)

**2. Number of Credits**

3 (3-0-6) Credits (lecture – laboratory – self-study)

**3. Curriculum and Course Type**

Program of Study Master of Primary Health Care Management  
 Course Type  Core  Required  Electives

**4. Faculty Member in Charge of this Course and Advisor of Internship**

**4.1 Faculty Member in Charge of this Course**

Name Associate Professor Dr. Mathuros Tipayamongkhogul  
 Contact Academic Office, Administrative Building 2Fl, AIHD  
 phone number +66 (0) 894948429 e-mail: mathuros.tip@mahidol.ac.th

**4.2 Lecturers**

Associate Professor Dr. Mathuros Tipayamongkhogul  
 Associate Professor Dr. Sherry Yuen-Hsia Chiu

**5. Semester/The training experience required in the curriculum**

Semester 1 / Class Level or year 1

**6. Pre-requisite**

None

**7. Co-requisite**

None

**8. Venue of Study**

Traning Building, 2<sup>nd</sup> Floor, Room 22

**9. Date of Latest Revision**

14 July 2024

## Section 2 Goals and Objectives

### 1. Course Goals

This course aims to provide knowledge and application of epidemiology in primary health care.

### 2. Objectives of Course Development/Revision Field Experience Course

To improve contents and up-to-dated knowledge

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

At the end of the course, student should be able to:

CLO 1 Explain fundamental and application of epidemiology in primary healthcare

CLO 2 Identify problems of health in community, services, and health systems

CLO 3 Use proper indicators and designs to indicate evidences in primary healthcare

CLO 4 Critically analyze scientific evidences to formulate recommendation in primary healthcare.

## Section 3 Course Management

### 1. Course Description

(Thai) ภาพรวมและคำจำกัดความของระบาดวิทยาเพื่อการจัดการสาธารณสุขมูลฐาน บทบาทวิชาการระบาดวิทยาในการจัดการงานสาธารณสุขมูลฐาน ประวัติ ธรรมชาติสาเหตุของโรค แหล่งอาศัย ตัวทำให้เกิดโรคและสิ่งแวดล้อม การค้นหาข้อว่าง ของความรู้ แหล่งข้อมูลที่มีคุณภาพ การจัดการข้อมูล การวัดภาระโรคเพื่อการจัดการ แหล่งที่มาของข้อมูลทางระบาด วิทยาเพื่อการบริหารจัดการระบบและการบริการด้านสาธารณสุข การนำเสนอข้อมูลเพื่อการจัดการสาธารณสุข การวินิจฉัยการระบาดของโรค การเฝ้าระวังทางระบาดวิทยา ความคลาดเคลื่อนและอคติ การประยุกต์ทางการศึกษา ระบาดวิทยาเพื่อการจัดการสุขภาพ การวัดผลลัพธ์ การวิเคราะห์และรายงานผลเพื่อใช้สะท้อนและอธิบายสถานการณ์ การค้นหาที่ซับซ้อน

(English) Overview and definition of primary care epidemiology; role of epidemiology in primary health care management; natural history of diseases causation; host, agent and environment; evidence-base searching for summarized the gap of knowledge; sources quality of data; data management; studies of the interface between primary care and the community/general population; measurements of diseases burden for management; epidemiological study design; epidemiological tools for management; surveillance system, outbreak investigations, error and bias; the application of epidemiological principles and methods to the study of health problems encountered in primary care; outcome measures, analysis and reports for use in primary care need to reflect and explain the complexity of conditions under investigation or intervention.

### 2. Credit Hours per Semester

Lecture	3	Hour
Laboratory/Field Trip/Internship	0	Hour
Laboratory	-	Hour
Self Study	6	Hour

### 3. Number of hours that lecturers provide counseling and guidance to individual student

Consultation: Every Friday 13.00-15.00

## Section 4 Development of Students' Learning Outcome

Expected Outcomes on Knowledge Development	Teaching Methods	Evaluation Methods
1. Morality and Ethics <input checked="" type="radio"/> 1.1 exhibits the discipline, honesty and punctuality <input checked="" type="radio"/> 1.2 behave according to morals and ethics of academic and professional practice <input type="radio"/> 1.3 avoid academic plagiarism	<ul style="list-style-type: none"> <li>- Case study</li> <li>- Group discussion</li> <li>- Problem based study</li> </ul>	-Rubric for Oral presentation, class participation, written report
2. Knowledge <input checked="" type="radio"/> 2.1 Explain the theoretical and practical knowledge associated with primary health care management <input checked="" type="radio"/> 2.2 Explain the interconnection of various fields of knowledges in primary health care management	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Reading assignment</li> <li>- Group discussion</li> </ul>	-Rubric for Oral presentation, class participation, examination
3. Intellectual Skills <input checked="" type="radio"/> 3.1 Perform the manners of continuous seeking knowledge <input checked="" type="radio"/> 3.2 Design the research to solve the problem identified in primary health care management system <input type="radio"/> 3.3 Defend in significant ways with questions or point of view or controversies in related fields	<ul style="list-style-type: none"> <li>- Group work</li> <li>-Literature review and critical appraisal</li> </ul>	-Rubric for Oral presentation, class participation, examination
4. Interpersonal Relationship and Responsibility <input checked="" type="radio"/> 4.1 Perform interpersonal communication skills to establish and enhance personal and work-based relationships. <input type="radio"/> 4.2 Perform a role of a leader	<ul style="list-style-type: none"> <li>- Group work</li> </ul>	-Rubric for Oral presentation and class participation

Expected Outcomes on Knowledge Development	Teaching Methods	Evaluation Methods
and working team member appropriately		
<p>5. Mathematical Analytical Thinking, Communication Skills, and Information Technology Skills</p> <ul style="list-style-type: none"> <li>● 5.1 Demonstrate the statistical analysis and its interpretation</li> <li>○ 5.2 Communicate clearly and effectively to an array of audiences for a range of purpose.</li> <li>● 5.3 Use information technology effectively to support the study, research, and their efforts to accomplish a specific purpose</li> </ul>	<ul style="list-style-type: none"> <li>– Literature review and critical appraisal</li> <li>– Lecture</li> </ul>	-Rubric for Oral presentation, class participation, examination

## Section 5 Teaching and Evaluation Plans

## 1. Teaching Plan

Week or No.	Topic	Hours			Teaching Methods / Media	CLOs	Lecturers
		Lecture	Laboratory	Self Study			
1	Epidemiology: Concepts and Its significant in PHC	3	0	6	Lecture Group discussion	1-4	Dr. Mathuros Tipayamongkholgul
2	Measurement in Epidemiology and Population Health	3	0	6	Lecture Group discussion	1-4	Dr. Mathuros Tipayamongkholgul /Associate Professor Dr. Sherry Yuen-Hsia Chiu
3	Descriptive Epidemiology	3	0	6	Lecture Group discussion	1-4	Dr. Mathuros Tipayamongkholgul
4	Surveillance and Response	3	0	6	Lecture Group discussion	1-4	Dr. Mathuros Tipayamongkholgul
5	Screening and Screening Tools	3	0	6	Lecture Group discussion	1-4	Dr. Mathuros Tipayamongkholgul
6	Health Situation	3	0	6	Group discussion And presentation	1-4	Dr. Mathuros Tipayamongkholgul
7	Causation and Validity in Epidemiology	3	0	6	Lecture Group discussion	1-4	Dr. Mathuros Tipayamongkholgul
8	Observational Study I: Cross-sectional study and Ecological Study	3	0	6	Lecture Group discussion	1-4	Dr. Mathuros Tipayamongkholgul
9	Observational Study II: Cohort study	3	0	6	Lecture Group discussion	1-4	Dr. Mathuros Tipayamongkholgul

10	Observational Study III: Case-control and Hybrid design	3	0	6	Lecture Group discussion	1-4	Dr. Mathuros Tipayamongkholgul
11	Review Related Factors to Health Situation	3	0	6	Group discussion and presentation	1-4	Dr. Mathuros Tipayamongkholgul
12	Interventional Study	3	0	6	Lecture Group discussion	1-4	Dr. Mathuros Tipayamongkholgul
13	Epidemiology in Program Evaluation I	3	0	6	Lecture Group discussion	1-4	Dr. Mathuros Tipayamongkholgul
14	Epidemiology in Program Evaluation II	3	0	6	Group discussion and presentation	1-4	Dr. Mathuros Tipayamongkholgul
15	Written Examination	3	0	6	Examination	1-4	Dr. Mathuros Tipayamongkholgul
รวมจำนวนชั่วโมงตลอดภาคการศึกษา		45	0	90			

## 2. Evaluation Plan

Learning Outcomes	Evaluation Method			Weight (Percentage)
	Class participation	Assignment I, II, III	Examination	
1) Explain fundamental and application of epidemiology in primary healthcare	5	10	10	25
2) Identify problems of health in community, services, and health systems	5	10	10	25
3) Use proper indicators and designs to indicate evidences in primary healthcare	5	10	10	25

Learning Outcomes	Evaluation Method			Weight (Percentage)
	Class participation	Assignment I, II, III	Examination	
4) Critically analyze scientific evidences to formulate recommendation in primary healthcare	5	10	10	25
Total	20	40	40	100

3. Measurement and evaluation

70-80 points= B, 80-89 points =B+, >=90 points =A

4. Students' Appeal

Student can director appeal to the program director, and AIHD director.



## Section 6 Teaching Materials and Resources

### 6.1 Recommended Reading

- 1 Celentano D and Szklo M. Gordis Epidemiology. 6th Edition, Elsevier, Amsterdam.
- 2 Brownson RC, Baker EA, Deshpande ADD, Gillespie KN. Evidence-Based Public Health. 3rd Edition. New York: Oxford University Press; 2018.
- 3 Pigeot, I., De Henauw, S., Foraita, R. et al. Primary Prevention from the Epidemiology Perspective: Three Examples from the Practice. BMC Med Res Methodol 10, 10 (2010). <https://doi.org/10.1186/1471-2288-10-10>
- 4 National Research Council (US) Panel to Advance a Research Program on the Design of National Health Accounts. Accounting for Health and Health Care: Approaches to Measuring the Sources and Costs of Their Improvement. Washington (DC): National Academies Press (US); 2010. 5, Defining and Measuring Population Health. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK53336/>
- 5 Vaughan, J Patrick, Cesar Victora, and A Mushtaque R Chowdhury, Practical Epidemiology: Using Epidemiology to Support Primary Health Care (Oxford, 2021; online edn, Oxford Academic, 1 Oct. 2021), <https://doi.org/10.1093/med/9780192848741.001.0001> , accessed 28 July 2023.

### 6.2 References

#### UNIT 1

1. Frérot M, Lefebvre A, Aho S, Callier P, Astruc K, Aho Gle'le' LS (2018) What is epidemiology? Changing definitions of epidemiology 1978-2017. PLoS ONE 13(12): e0208442. <https://doi.org/10.1371/journal.pone.0208442>
2. Khoury MJ, Gwinn M, Ioannidis JP. The emergence of translational epidemiology: from scientific discovery to population health impact. Am J Epidemiol. 2010 Sep 1;172(5):517-24. doi: 10.1093/aje/kwq211. Epub 2010 Aug 5. PMID: 20688899; PMCID: PMC2927741.
3. A Dictionary of Epidemiology, Sixth Edition Edited by Miquel Porta ISBN: 978-0-199-97672-0, Oxford University Press, New York, New York
4. Maxim LD, Niebo R, Utell MJ. Screening tests: a review with examples. Inhal Toxicol. 2014 Nov;26(13):811-28. doi: 10.3109/08958378.2014.955932. Epub 2014 Sep 29. Erratum in: Inhal Toxicol. 2019 Jun;31(7):298. PMID: 25264934; PMCID: PMC4389712.
5. Calba C, Goutard FL, Hoinville L. et al. Surveillance systems evaluation: a systematic review of the existing approaches. BMC Public Health 15, 448 (2015). <https://doi.org/10.1186/s12889-015-1791-5>

6. Kuehne A, Keating P, Polonsky J, Haskew C, Schenkel K, Le Polain de Waroux O, Ratnayake R. Event-based surveillance at health facility and community level in low-income and middle-income countries: a systematic review. *BMJ Glob Health*. 2019 Dec 10;4(6):e001878. doi: 10.1136/bmjgh-2019-001878. PMID: 31908863; PMCID: PMC6936563.

## UNIT 2

1. Tipayamongkholgul M, Kongtip P, Woskie S. Association between Occupations and Selected Non-communicable diseases: A matched case-control among Thai informal workers. *J. Occup. Health* 2021. DOI: 10.1002/1348-9585.12249
2. Charoenca N, Kungskulniti N, Tipayamongkholgul M, Sujirarat D, Lohchindarat S, Mock J, Hamann SL. Determining the burden of secondhand smoke exposure on the respiratory health of Thai Children. *Tobacco Induced Diseases* 2013, 11:7.
3. Seeherunwong A, Tipayamongkholgul M, Angsukiattitavorn S, et al. Association between socioecological factors and electronic cigarette use among Thai youth: an institution-based cross-sectional study. *BMJ Open* 2023;13:e069083. doi: 10.1136/bmjopen-2022-069083.
4. Tipayamongkholgul M, Marin W, Sujirarat D, Pokaew P, Pungrassami P. Non-communicable diseases increased risk of recurrent tuberculosis in epidemic area of Human Immunodeficiency Virus infection, Thailand. *Trop Biomed*. 2016 Mar 1;33(1):190-196. PMID: 33579156.
5. Bhoomboonchoo P, Nisalak A, Chansatiporn N, Yoon I-K, Kalayanarooj S, Tipayamongkholgul M, Timothy, et al. Sequential Dengue Virus Infections Detected in Active and Passive Surveillance Programs in Thailand, 1994-2010 *BMC Public Health* 2015; 15:250. (IF 2.26)
6. Tipayamongkholgul M, Fang CT, Klinchan S, Liu CM, King CC. Effects of the El Niño-southern oscillation on dengue epidemics in Thailand, 1996-2005. *BMC Public Health* 2009;20:422. (Impact Factor 2.22)
7. Lessler J, Salje H, Grabowski MK, Cummings DA. Measuring Spatial Dependence for Infectious Disease Epidemiology. *PLoS One*. 2016 May 19;11(5):e0155249. doi: 10.1371/journal.pone.0155249. PMID: 27196422; PMCID: PMC4873007.
8. Phodhichai T, Satheannoppakao W, Tipayamongkholgul M, Hutchinson C, Sasat S. Development of a protein energy malnutrition screening tool for older Thais in public residential homes. *Public Health Nutrition*. 2021:1-30. doi:10.1017/S1368980021004250
9. Mani TR, Rajendran R, Sunish IP, Munirathinam A, Arunachalam N, Satyanarayana K, Dash AP. Effectiveness of two annual, single-dose mass drug administrations of diethylcarbamazine alone or in combination with albendazole on

soil-transmitted helminthiasis in filariasis elimination programme. *Trop Med Int Health*. 2004 Sep;9(9):1030-5. doi: 10.1111/j.1365-3156.2004.01298.x. PMID: 15361118.

10. Puffer S, Torgerson DJ, Watson J. Cluster randomized controlled trials. *J Eval Clin Pract*. 2005 Oct;11(5):479-83. doi: 10.1111/j.1365-2753.2005.00568.x. PMID: 16164589.7.

### UNIT 3

1. Adams J, Neville S. Program Evaluation for Health Professionals: What It Is, What It Isn't and How to Do It. *International Journal of Qualitative Methods*, 2020 19. <https://doi.org/10.1177/1609406920964345>
2. Duffy SW, Smith RA. The Evaluation of Cancer Screening: Concepts and Outcome Measures. *Med Clin North Am*. 2020 Nov;104(6):939-953. doi: 10.1016/j.mcna.2020.07.002. Epub 2020 Sep 17. PMID: 33099453.
3. Selmouni F, Belakhel L, Sauvaget C, et al. Evaluation of the national cervical cancer screening program in Morocco: achievements and challenges. *Journal of Medical Screening*. 2019;26(3):162-168. doi:10.1177/0969141318824627Tobacco Control
4. Chiu WT, Kuo CY, Hung CC, Chen M. The effect of the Taiwan motorcycle helmet use law on head injuries. *Am J Public Health*. 2000 May;90(5):793-6. doi: 10.2105/ajph.90.5.793. PMID: 10800433; PMCID: PMC1446237.

## Section 7 Evaluation and Improvement of Course Management

1. Strategies for Evaluation of Course Effectiveness by Students  
Online evaluation, and chit-chat
2. Strategies for Evaluation of Teaching Methods  
Online evaluation, and chit-chat
3. Improvement of Teaching Methods  
Review student each class and use it to improve in the next class
4. Verification of Students' Learning Outcome  
Examination and observation basis
5. Review and Plan to Improve Course Effectiveness  
Every semester, the last class will keep 1 hour to listen to student feed back.

## Appendix

## Relations between the course and the program

Table 1 Curriculum Mapping

● Major responsibility

○ Minor responsibility

Subjects	Morality and Ethics			Knowledge			Intellectual skills		Interpersonal relationship and Responsibility		Mathematical Analytical thinking		
	1	2	3	1	2	3	1	2	1	2	1	2	3
ADPM662/ Epidemiology for Primary Health Care Management / 3(3-0-6)	●	○	○	●	●	●	●	○	●	●	●	○	●

\* Expected Learning Outcome (TQF.2)

## 1. Morality and Ethics

1.1 exhibits the discipline, honesty and punctuality

1.2 behave according to morals and ethics of academic and professional practice

1.3 avoid academic plagiarism

## 2. Knowledge

2.1 Explain the theoretical and practical knowledge associated with primary health care management

2.2 Explain the interconnection of various fields of knowledges in primary health care management

## 3. Intellectual Skills

3.1 Perform the manners of continuous seeking knowledge

3.2 Design the research to solve the problem identified in primary health care management system

3.3 Defend in significant ways with questions or point of view or controversies in related fields

## 4. Interpersonal Relationship and Responsibility

4.1 Perform interpersonal communication skills to establish and enhance personal and work-based relationships.

4.2 Perform a role of a leader and working team member appropriately

## 5 . Mathematical Analytical Thinking, Communication Skills, and Information Technology Skills

5.1 Demonstrate the statistical analysis and its interpretation

5.2 Communicate clearly and effectively to an array of audiences for a range of purpose.

5.3 Use information technology effectively to support the study, research, and their efforts to accomplish a specific purpose

Table 2 Relations between the course and the PLOs

	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
ADPM662/ Epidemiology for Primary Health Care Management / 3(3-0-6)	R	R	R	R	I	R	I	P

Program Learning Outcomes (TQF.2)

PLO1 Exhibits the responsibility, discipline and honesty in according to organizational rules, academic and professional ethics and morality.

PLO2 Explain the interconnection of multidisciplinary knowledges associated to primary health care management.

PLO3 Design research in primary health care management based on systematic process.

PLO4 Defend in significant ways with questions or point of view or controversies about area of primary health care system.

PLO5 Interact professionally when work as a team as both leader and member for solving and managing works assigned.

PLO6 Perform statistical data analysis as they support evaluating, planning and managing the primary health care system.

PLO7 Communicate clearly and effectively to an array of audiences for a range of purpose.

PLO8 Use information technology effectively to support the study, research and their efforts to accomplish a specific purpose.

Table 3 Relations between CLOs and PLOs

CLOs	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
1) Explain fundamental and application of epidemiology in primary healthcare	R	I	I	I	I	I		I
2) Identify problems of health in community, services, and health systems	R	I	I	I	I	I	I	P
3) Use proper indicators and designs to indicate evidences in primary healthcare	R	I	I	I	I	I	I	P
4) Critically analyze scientific evidences to formulate recommendation in primary healthcare	R	R	R	R	I	R	I	P

Remarks : Show the level of the course management with the symbols I, R, P, and M.