



Course Specification

Faculty School of Nursing **Department** Community Health Nursing department
Curriculum Bachelor of Nursing Science Program (B.N.S.)

Section 1 General Information

BNE203	วิทยาการระบาดและสถิติประยุกต์ (Epidemiology and Applied Statistics)	2(2-0-4)
Co-requisite	-	
Pre-requisite	-	
Semester	2/2567	
Section	01	
Type of subject	<input type="checkbox"/> Basic course <input type="checkbox"/> General education course <input checked="" type="checkbox"/> Professional course (Professional foundation course) <input type="checkbox"/> Free elective course	
Course coordinator	1) Assoc. Prof. Dr. Wimonrut Boonsatean 2) Dr. Kheamnareenee Rueanrudipirom	<input checked="" type="checkbox"/> อาจารย์ประจำ
Course instructors	1) Assoc. Prof. Dr. Wimonrut Boonsatean 2) Dr. Kheamnareenee Rueanrudipirom 3 Ftl.Lt. Romthanika Faimuanwai	<input checked="" type="checkbox"/> อาจารย์ประจำ <input type="checkbox"/> อาจารย์พิเศษ
Study place	School of Nursing	<input checked="" type="checkbox"/> ในที่ตั้ง <input type="checkbox"/> นอกที่ตั้ง
Date of the latest course description updated	Nov 29, 2024	

Section 2 Course Objectives and Components

1. Course objectives: Students are able to

- 1) Describe concepts and principles of epidemiology
- 2) Apply epidemiological knowledge in investigation, surveillance, and prevention and control of health problems.

2. Course description

แนวคิดและหลักการทางวิทยาการระบาด ชีวประวัติของโรค ปัจจัยเชิงสังคมและสุขภาพที่กำหนดปัญหาสุขภาพ วิทยาการระบาดเชิงพรรณนา วิทยาการระบาดเชิงวิเคราะห์ วิทยาการระบาดคลินิกและภาคสนาม ดัชนีชี้วัดทางสุขภาพ การประยุกต์ใช้ความรู้วิทยาการระบาดในการสอบสวน การเฝ้าระวัง และการป้องกันและควบคุมปัญหาสุขภาพ

Concepts and principles of epidemiology, natural history of disease, social and health determinants, descriptive epidemiology, analytical epidemiology, clinical and field epidemiology, health indices, application of epidemiological knowledge in investigation, surveillance, and prevention and control of health problem.

3. Hour per week for advising and guidance to students

Number 4 hours/week

- ☒ e-mail : wimonrut.b@rsu.ac.th
☐ Facebook :.....
☐ Line :.....
☒ Others (Specify) Google classroom

4. Course Learning Outcomes (CLOs)

- 1) Explain concepts and principles of epidemiology for nurse (PLO 1.1)
- 2) Use digital technology to investigate epidemiological statistics and health-related information in accordance with given scenarios (PLO 2.1)
- 3) Analyze data from epidemiological scenarios and develop strategies for surveillance, prevention and control, and investigation using scientific process (PLO 2.3)
- 4) Respect the rights, value, and dignity of group members (PLO 3.2)
- 5) Interact effectively with group members, respond appropriately, and demonstrate proper behavior. (PLO 4.1)

Section 3 Students' Learning Outcomes Development

Development of specific learning outcomes, teaching/learning process, and evaluation methodologies are as follows.

1. Knowledge

●	Learning outcomes	Teaching methods	Evaluation methods
1.1	Explain concepts and principles of epidemiology for nurse	- Lecture (brief the core concepts) - do take-home exercise - Self-study and group discussion	- Mid-Term examination (35%)

●	Learning outcomes	Teaching methods	Evaluation methods
		- Take-home exam (topic of health indices)	(including take-home exercise) - Final examination (35%) (including take-home exam)

2. Skills

●	Learning outcomes	Teaching methods	Evaluation methods
2.1	Use digital technology to investigate epidemiological statistics and health-related information in accordance with given scenarios	- Assign a group work as following steps; 1) divide students into 6 groups, 5-6 students per group, and each group will receive one epidemiological scenario 2) Search for epidemiological statistics and health-related information to support or explain the given scenario	-Report and presentation form (20%) (including report 15% presentation 5%)
2.3	Analyze data from epidemiological scenarios and develop strategies for surveillance, prevention and control, and investigation using scientific process	3) Make decision for an outbreak of health problem 3) Self-study, group discussion, and group working 4) Analyze data and apply epidemiological knowledge to design the measures for surveillance, prevention and control, and/or epidemiological investigation - Make a report and presentation	

3. Ethics

●	Learning outcomes	Teaching methods	Evaluation methods
3.2	Respect the rights, value, and dignity of group members	- Provide course orientation and upload course specification (RQF 3) on Google classroom - Set a classroom regulation - Evaluate ethics and moral behaviors represented through group working	- class attendance - Ethical and teamwork behavior form (10%)

4. Characteristics

●	Learning outcomes	Teaching methods	Evaluation methods
4.1	Interact effectively with group members, respond appropriately, and demonstrate proper behavior	- Group working	- Ethical and teamwork behavior form (the same form as in LO 3.2)

Section 4 Lesson Plan and Evaluation

1. Lesson Plan

Wk./date [Monday]	Time	Topic	Learning activities/media used	Hour	Instructor
Wk. 1, 2 Jan 20, 2025 Jan 27, 2025	9.30-11.30 9.30-11.30	<ul style="list-style-type: none"> - Course Orientation - Establishing a class room rules Chapter 1: Concepts and principles of epidemiology <ul style="list-style-type: none"> - Definition, historical evolution, scope, and uses of epidemiology - Core epidemiologic functions - Concepts of disease occurrence: agent, host, environment - Natural history of disease - Chain of infection - Social determinants of health (SDH) 	<ul style="list-style-type: none"> - Upload TQF-3 on Google classroom a week before a first topic is started - Course orientation - Encourage students to set a class room rules and post on Google classroom - Lecture (brief the core concepts) & group discussion - Self-study - Take-home exercise (epidemiological triad, natural history of disease, etc.) 	4	Assoc. Prof. Dr. Wimonrut
Wk. 3, 4 Feb 03, 2025 Feb 10, 2025	9.00-12.00 9.00-12.00	Chapter 2: Type of studies <ul style="list-style-type: none"> - Descriptive epidemiology - Analytic epidemiology - Clinical and field epidemiology - Displaying public health data: table, graphs, other data displays 	<ul style="list-style-type: none"> - Lecture (brief the core concepts) & group discussion - Self-study - Take-home exercise 	6	Dr. Kheamnareenee
Wk. 5 Feb 17, 2025	9.00-10.00	Mid-term exam 35% (Chap. 1-2) <i>(**have a lecture after MT exam)</i>	Online exam at the school		Assoc. Prof. Dr. Wimonrut Dr. Kheamnareenee
Wk. 5, 7 Feb 17, 2025 Mar 03, 2025	10.00-12.00 9.30-11.30	Chapter 3 Health indices <ul style="list-style-type: none"> - Frequency measures: ratio, proportion, and rate 	<ul style="list-style-type: none"> - Lecture (brief the core concepts) - Do exercise & group discussion - Self-study - Take-home exam 	4	Dr. Kheamnareenee

Wk./date [Monday]	Time	Topic	Learning activities/media used	Hour	Instructor
		<ul style="list-style-type: none"> - Morbidity frequency measures: Incidence proportion (attack rate), incidence rate, prevalence - Mortality frequency measures - Natality (Birth) measures - Measures of association: risk ratio, rate ratio 	- Group work assignment		
Wk. 6 Feb 24, 2025 <i>(Term break)</i>	9.00-11.00 (online orientation via Google Meet)	<u>Group work assignment</u> <ul style="list-style-type: none"> - orientation (group work assignment) - Self-study and work on assignment 	1) Explain a group work guideline 2) divide students into 6 groups, 5-6 students per group, and each group will receive one epidemiological scenario 3) Search for epidemiological statistics and health-related information 4) Self-study, group discussion, and group working:	Self study 2	Assoc. Prof. Dr. Wimonrut
Wk. 8, 9, 10 Mar 10, 2025 Mar 17, 2025 Mar 24, 2025	9.00-12.00 9.00-12.00 9.30-11.30	Chapter 4: Application of epidemiological knowledge <ul style="list-style-type: none"> - Understanding community health nursing (definition, scope of practice, roles and functions of community health nurses) - Public health surveillance - Prevention contagious and noncontagious disease control - Investigating an outbreak 	<ul style="list-style-type: none"> - Lecture (brief the core concepts) - Do exercise & group discussion - Self-study - Take-home exercise - Group work assignment 	(8) 2 4 2	Flt.Lt. Romthanika

Wk./date [Monday]	Time	Topic	Learning activities/media used	Hour	Instructor
Wk. 11 Mar 31, 2025	9.00-12.00	<u>Group work assignment</u> - Self-study and work on assignment	1) Self-study, group discussion, and group working: Analyze data and apply epidemiological knowledge to design the measures for investigation, surveillance, and/or prevention and control 2) Make a report and presentation	Self study 3	
Wk. 12, 13 Apr 07, 2025 Apr 14, 2025		Substitution for Chakri Memorial Day Songkran Festival Day			
Wk. 14 Apr 21, 2024	9.00-12.00	<u>Present work assignment</u> (group work)	- Presentation - Group discussion - Reflection on group working - Course evaluation	3	<u>Teacher team</u> Assoc.Prof..Dr. Wimonrut Dr. Kheamnareenee Flt.Lt. Romthanika
Wk. 15 Apr 28, 2025	9.00-10.00	<i>Final exam (Chap. 3-4)</i>	<i>Online exam at the school</i>		Assoc. Prof. Dr. Wimonrut Dr. Kheamnareenee
Total				(30)	
- Lecture				22	
- Group work assignment & presentation				8	

2. Learning Outcome Evaluation Plan

Learning outcomes	Learning outcomes evaluation	Evaluation week	Evaluation proportion
3.2, 4.1	- Ethical and teamwork behavior form	6 - 14	10%
1.1	- Class attendance behaviors - Mid-term examination - Final examination	1 – 14 5 15	No score 35% 35%
2.1, 2.3, 3.2, 4.1	- Group work assignment - Report and presentation	6 - 14	20% (report 15 present 5)

Section 5 Teaching resources

1. Main text

คำานวน อึ้งชูศักดิ์. (2562). *พื้นฐานระบาดวิทยา* (พิมพ์ครั้งที่ 3). นนทบุรี: สมาคมนักระบาดวิทยาภาคสนาม.

วิโรจน์ ไววนิชกิจ. (2563). *เวชศาสตร์ครอบครัวเบื้องต้น เล่ม 7: หลักสูตรระบาดวิทยาคลินิกสำหรับแพทย์พยาบาล และบุคลากรทางการแพทย์*. กรุงเทพฯ: สำนักพิมพ์จุฬาลงกรณ์มหาวิทยาลัย.

2. Documentation and Essential Information

กองระบาดวิทยา กระทรวงสาธารณสุข. (2567). Weekly Epidemiological Surveillance Report [WESR].

สืบค้น 28 พฤศจิกายน 2567, จาก <https://he05.tci-thaijo.org/index.php/WESR>

กองระบาดวิทยา กระทรวงสาธารณสุข. (2567). คลังข้อมูล. สืบค้น 28 พฤศจิกายน 2567, จาก

<https://ddc.moph.go.th/doc/>

พันธ์ชัย รัตนสุวรรณ. (2561). *ตำราระบาดวิทยาสำหรับนักศึกษาแพทย์และนักศึกษาวิทยาศาสตร์*

สุขภาพ. สืบค้น 11 พฤษภาคม 2563, จาก https://smd.wu.ac.th/wp-content/uploads/2017/12/ตำรา_ระบาดวิทยา.pdf

Centers for Disease Control and Prevention (CDC). (2011). Principles of epidemiology in public health practice: An introduction to applied epidemiology and biostatistics.

Retrieved on November 28, 2024, from <http://medbox.iab.me/modules/en-cdc/www.cdc.gov/ophss/csels/dsepd/ss1978/index.html>

Section 6 Evaluation and Course Improvement Plan

1. Strategies for evaluating course effectiveness by students

- Students evaluate the course using the “Course Evaluation Form” and “CLOs Form”

2. Teaching evaluation strategies

- Class participation and class discussion
- Students' grade report

3. Teaching Improvement

- Team meeting (teaching team) to find out problems and solution
- Present teaching plan and students' grade report to the curriculum committee for approval

4. Verification of student learning outcome standards in the course

- √ Randomly interview a few students by the course coordinator
- √ Observe students' learning behaviors (group work, class discussion)
- √ Check (discuss and verify) rating method and evaluate students' learning outcomes by instructors of community department and curriculum committee
- √ Evaluate summative knowledge by mid-term and final-exam
- ☐ Report information regarding each achievement learning outcome
- ☐ Survey/Questionnaire
- ☐ etc. (specify)

5. Review and planning for improving course effectiveness

- The course coordinator will review/analyze all evaluation results from students, teaching team, and comments from the committee
- All evaluation results will be used to improve the course effectiveness of the next following year