Mater of Science (Public Health Infectious diseases and Epidemiology)

Faculty of Public Health, Mahidol University

	Information on Courses
1	**Course Name: Fundamentals of Biostatistics**
2	**Course code: PHBS638**
3	**Name(s) of Course Director:** Asst. Prof. Dr.Natkamol Chansatitporn Sc.D. (Biostatistics)
4	**Rational For the inclusion of the course in the program:** This is the core course for competency of the Public Health)
5	**Semester Offered : 1**
6	**Credit value:** 3 credits
7	**Pre-requisite (if any) : none**
8	**Objective (s) of Course:** Students are expected to : 1. Use the basic statistics to describe data: calculating the mean and standard deviation of a data set. 2. Probability distributions including normal, binomial and poisson distribution 3. Estimating parameters of a population from sample statistics. 4. Hypothesis testing of an effect for one group. 5. Comparing the effect difference (mean difference) for two or more groups. 6. Nonparametric and chi-square tests. 7. Explaining, interpreting, and predicting the continuous outcomes. 8. Explaining, interpreting, and predicting the binary outcomes.
9	**Course learning outcome (CLO) :** Upon completion of the course, students are able to 1. Demonstrate a solid understanding of descriptive statistics, interval estimation and hypothesis testing. 2. Analyze quantitative and qualitative data using computer software as appropriate 3. Choose and apply appropriate statistical methods for analyzing quantitative and qualitative data 4. Interpret the results of statistical analyses accurately and effectively
10.	**Transferable skill** Logical thinking skill and analytic thinking
11.	**Teaching and learning assessment strategy:** Interactive lecture, group work

12.	**Course description;** This course is one of the elective course for the Master of Public Health. It covers appropriate statistical analysis for various study designs; statistical interpretation and presentation; descriptive statistics; probability distribution; sampling distribution; estimation; hypothesis testing; inferential statistics for one-group, two-group and more than two-group; non-parametric statistics; regression and correlation.
13.	**Teaching methods:** Lecture, demonstrate of using statistical program, presentation and discussion
14.	**Evaluation methods and types:** Coursework (assignments and presentation). Examination (midterm and final examination).

15. Content outline of the course/module and SLT per topic

		No. of Hours			
Topic	CLO	Lecture	Practice	SL	TLT
1. Descriptive statistics	1,2	2	1		3
2. Probability distribution	1,2	3		3	6
3. Sampling Distribution	1,2	3		3	3
4. Estimation	1,2	3			6
5. Hypothesis testing two sample inference	1,2,3	4	2	3	9
6. Analysis of Variance	2,3	4	2	3	9
7. Chi-square test	2,3	5	1	3	9
8. Nonparametric test	2,3	2	1		3
9. Correlation	2,3,4	2	1		3
10. Regression	2,3,4	2	1	3	6
11. Logistic regression	2,3,4	2	1	3	6
12. Paper presentation	1,2,3,4		3	6	9
Total		32	13	27	72

CLO = course learning outcome

L = Learning **P = Practical** **O = others (group discussion)**

SL = Self-learning **TLT = Total learning time**