

Faculty of Nursing, Prince of Songkla University  
Course Syllabus

Section 1: General Description

1. Code and Course Title     642-512 Statistics for Nurses
2. Credit                         2 (1-2-3) Lecture/Discussion 15 hours, Lab/Practice 30 hours
3. Program                       Master of Nursing Science (International Program) (revised 2011)
4. Course Coordinator         Assist. Prof Dr. .Wipa Sae-Sia  
     Coordinator Assistant     Assist. Prof. Dr. Jintana Damkliang
5. Semester/ Year/ Academic Year   1/1/2018
6. Classroom                     Room     3201

Section 2: Course Objectives

1. Course Objectives

After completion of this course, students will be able to

- 1.1 Explain and apply probability theory to statistical analysis
- 1.2 Discriminate variables and their level of measurement
- 1.3 Apply statistical software in data processing and analysis
- 1.4 Select and apply descriptive statistics in analyzing, interpreting, and reporting statistical findings
- 1.5 Select and apply inferential statistics both parametric and nonparametric statistics in analyzing, interpreting, and reporting statistical findings.

2. Objectives of a Course Revision

To enhance students' learning process in order to achieve the learning outcomes.

Section 3: Course Description and Design

1. Course Description

Probability theory, variable and level of measurement; descriptive statistics; inferential statistics including parametric and non-parametric statistics; application of computer software in processing and analyzing data; interpretation and presentation of statistical analysis findings

2. Number of Hours per Semester

Lecture/Discussion	Lab	Self-study	Field Practice	Tutorial
15	30	45	-	-

3. Number of Hours per Week for Consultation

3.1 Hours assigned for individual consultation. Students are requested to inform Ajarn in advance for the consultation.

	Week	Date	Hour
Asst Prof. Dr. Wipa Sae-Sia	1-8	Friday	13.00-16.00
Dr. Jintana Damkliang	9-16	Friday	13.00-16.00

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26 July 2018

3.2 Hours assigned for group consultation/discussion at LMS2@PSU 1 hour/week

#### Section 4: Learning Outcomes

##### 1. Morality and Ethics

Morality and Ethics needed	Learning Methods	Evaluating Methods
1.1 Possess ethical behaviors in analyzing and reporting statistical findings	<ul style="list-style-type: none"> <li>- Individual exercise for each topic</li> <li>- Small group discussion In terms of ethical issues of data collection, data coding data analysis and report findings</li> </ul>	<ul style="list-style-type: none"> <li>- Check for plagiarism of copying homework</li> <li>- Giving class participation score for the group discussion activity.</li> </ul>

##### 2. Knowledge

Needed knowledge	Learning Methods	Evaluating Methods
2.1 Possess statistical knowledge regarding selecting statistics appropriated to research questions or research hypothesis, steps of doing data analysis, testing of statistical assumptions, reading and interpreting, and reporting statistical findings	<ul style="list-style-type: none"> <li>- Lecture/discussion with example</li> <li>- Demonstration individual assignment for doing exercise of each topic</li> <li>- Using active learning strategies including small group discussion with peer and instructor, LMS, and other channels</li> </ul>	<ul style="list-style-type: none"> <li>- Examination</li> <li>- Quiz</li> <li>- Class participation</li> <li>- Individual exercises</li> </ul>

##### 3. Cognitive Skills

Needed knowledge	Learning Methods	Evaluating Methods
3.1 Write hypotheses and choose appropriate statistics to fit the identified hypotheses 3.2 Enter, analyze selected data using computer software 3.3 Interpret and report the selected data 3.4 Explain the strength and weakness of data analysis process of the published articles	<ul style="list-style-type: none"> <li>- Lecture/discussion with example of published articles</li> <li>- Demonstration</li> <li>- Individual assignment for doing exercise for hypothesis testing, data analysis from selected data</li> <li>- Report findings of selected data</li> </ul>	<ul style="list-style-type: none"> <li>- Examination</li> <li>- Quiz</li> <li>- Class participation</li> <li>- Individual exercise</li> </ul>

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26 July 2018



## 4. Interpersonal Skills and Responsibility

Needed knowledge	Learning Methods	Evaluating Methods
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## 5. Numerical Analysis, Communication and Information Technology Skills

Needed knowledge	Learning Methods	Evaluating Methods
5.1 Analyze selected data using computer software	- Lecture/discussion	- Examination
5.2 Writing report of data analyzed.	- Demonstration	- Quiz
	- Individual assignment to apply statistical software in data analysis	- Class participation
		- Individual exercise
5.3 Demonstrate skills in using descriptive and inferential statistics both parametric and non-parametric statistics, testing statistical assumptions, reading and interpreting statistical analysis findings	- Lecture/discussion	- Examination
	- Demonstration	- Quiz
	- Individual exercise assignment to selected statistics for data analysis, interpret, and report the findings for selected data	- Class participation
		- Exercise

## Section 5: Course Plan and Evaluation

Week/ Date	Time (Duration)	Topic	Methods	Lecturer
1/ Aug 14, 2018	13.00-13.30	Course orientation	Discussion	Assist. Prof. Dr. Wipa
	13.30-14.30 (D1.5)	1. Concept and principle of statistical analysis in nursing research 1.1 Probability theory 1.2 Variable and level of measurement 1.3 Common statistical tests	Lecture/ Discussion	Assist. Prof. Dr. Wipa
	13.30-17.30 (L3)	1.4 Exercise	Practice/ Discussion/ Participation in LMS@PSU	Dr. Wipa

Wangpon  
26 July, 2018

Week/ Date	Time (Duration)	Topic	Methods	Lecturer
Aug 16, 2018	13.00-16.00 (S3)	Self-study		
2/ Aug 21 , 2018	13.00-14.00 (D1)	2. Concept and principle of hypothesis testing	Lecture/ Discussion	Dr. Wipa
	14.00-17.00 (L3)	2.1 Exercise	Practice/ Discussion/ Participation in LMS@PSU	Dr. Wipa
Aug 23, 2018	13.00-16.00 (S3)	Self-study		
3/ Aug 28, 2018	13.00-14.00 (D1)	3. Use of computer software for statistical analysis 3.1 Data Entry 3.2 Data Screening 3.3 Data management 3.4 Demonstration of statistical software	Lecture/Demons tration	Dr. Ratjai
	14.00-17.00 (L3)	3.5 Practice of statistical software for data processing	Practice/ Exercise	Dr. Ratjai
Aug 30, 2018	13.00-16.00 S3	Self-study		
4/ Sep 4, 2018	13.00-14.00 (D1)	4. Quantitative data analysis 4.1 Key principles of descriptive statistics and inferential statistics 4.2. Descriptive statistics 4.2.1 Frequency distribution 4.2.2 Measures of central tendency 4.2.3 Measures of dispersion	Lecture/ Discussion  Lecture/ Discussion	Dr. Charuwan
	14.00-17.00 (L3)	4.3 Practice of reading and interpreting output of descriptive statistical analysis	Practice/ Discussion/ Participation in LMS@PSU Quiz 1	Dr. Charuwan
Sept 6, 2018	13.00-16.00 (S3)	Self-study		

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26 July, 2018

Week/ Date	Time (Duration)	Topic	Methods	Lecturer
5/ Sep 11 2018	13.00-14.00 (D1)	5. Inferential statistics: Principles and application 5.1 Principles of inferential statistics 5.2 Testing and managing violated statistical assumptions - Normality - Homogeneity of Variance - Linearity	Lecture/discussion	Dr. Wipa
	14.00-17.00 (L3)	5.3 Practice of testing of statistical assumptions	Practice/ Discussion/ Participation in LMS@PSU	Dr. Wipa
Sept 13, 2018	13.00-16.00 (S3)	Self-study		
6/ Sept 18, 2018	13.00-14.00 (D1)	6. Inferential statistics 6.1 Independent t-tests and dependent t-test	Lecture/ Discussion	Dr. Wipa
	14.00-17.00 (L3)	6.2 Practice of analyzing, reading and interpreting output of t-test	Practice/ Discussion/ Participation in LMS@PSU  Quiz 2 (t-test)	Dr. Wipa
Sept 20, 2018 (Thurs)	13.00-14.00 (D1)	-Review of descriptive statistics	Group discussion	Dr. Wipa/Dr. Charuwan
	14.00-17.00 (S3)	-Self-study		
7/ Sept 25, 2018	<u>13.00-14.00</u> (D1)	6.3. ANOVA	Lecture/ Discussion	Dr. Wipa
	<u>14.00-17.00</u> (L3)	6.4 Practice of analyzing, reading and interpreting output of ANOVA	Practice/ Discussion/ Participation in LMS@PSU  Quiz 3 (ANOVA)	Dr. Wipa

Wipaporn  
26 July, 2018



Week/ Date	Time (Duration)	Topic	Methods	Lecturer
Sept 27, 2018	<u>13.00-16.00</u> (S3)	Self-study		
8/ Oct 2, 2018	13.00-16.00 (L3)	6.5 Practice of analyzing, reading and interpreting output of t-test and ANOVA (cont.)	Practice/ Discussion/ Participation in LMS@PSU	
Oct 4, 2018	13.00-16.00 (S3)	Self-study		
Oct 7, 2018 (Sun)	09.00-12.00 (3 hrs)	Mid-term examination(topic 1-5) (Held concurrently with Thai program)	Examination	Dr. Wipa/ Dr. Jintana
9/ Oct 9, 2018	13.00-14.00 (D1)	7. Correlation and regression 7.1 Correlation	Lecture/ Discussion	Dr. Charuwan
	14.00-16.00 (D2)	7.2 Regression	Lecture/ Discussion	Dr. Charuwan
Oct 11, 2018	13.00-16.00 (S3)	Self-study		
10/ Oct 16, 2018	13.00-17.00 (L4)	7.3 Practice of analyzing, reading and interpreting output of correlation and regression	Practice/ Discussion/ Participation in LMS@PSU Quiz 3	Dr. Charuwan
Oct 18, 2018	13.00-16.00 (S3) p	Self-study		
11/ Oct 23, 2018		Holiday		
Oct 25, 2018	13.00-16.00 (S3)	Self-study		

Wanpon  
26 July, 2018

Week/ Date	Time (Duration)	Topic	Methods	Lecturer
12/ Oct 30, 2018	13.00-15.00 (D2)	8. Non-parametric statistics 8.1 principles of non-parametric statistics 8.2 Mann-Whitney U, Wilcoxon Signed Rank test, Kruskal Wallis test 8.3 Chi-square, Spearman Rho	Lecture/ Discussion	Dr. Jintana
	15.00-17.00 (L2)	8.4 Practice of analyzing, reading and interpreting output of Chi-square, Spearman, Mann-Whitney U, Kruskal-Wallis test	Lecture/ Discussion	Dr. Jintana
Nov 1, 2018	13.00-16.00 (S3)	Self-study		
13/ Nov 6, 2018	13.00-16.00 (L3)	8.5 Practice of analyzing, reading and interpreting output of Chi-square, Spearman, Mann-Whitney U, Kruskal-Wallis test (cont.)	Practice/ Discussion/  Participation in LMS@PSU  Quiz 4	Dr. Jintana
Nov 8, 2018	13.00-16.00 (S3)	Self-study		
14 Nov 13, 2018	13.00-14.00 (D1.)	Review of inferential statistics	Group discussion	Dr. Wipa Dr. Charuwan Dr. Jintana Dr. Piyanuch
Nov 15, 2018	13.00-16.00 (S3)	Self-study		
15/ Nov 20 2018 (Tues)	13.00-16.00 (3 hrs)	Final Examination (Topic 6-9) (Held concurrently with Thai program)	Examination	Dr. Wipa Dr. Piyanuch
	16.00-16.30 (D.5)	Course evaluation		
Dec 6, 2018	13.00-16.00 (S3)	Self-study		

Note: D = discussion hour, L =lab hour, S =self-study hour

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## Evaluation Plan of the Learning Outcomes

Learning Outcomes	Evaluation Methods	Evaluated Week	Evaluation Proportion
LO 2.1,3.1, 3.2, 5.1,5.2	Mid-term Examinations	8	Midterm 20%
	Final examination	16	Final 20%
	Quiz	5,9,11,12	4 Quizzes 10%
LO 1.3, 5.1, 5.3	Class participation	1 - 14	10%
LO 1.3, 2.1,3.1,3.2, 5.1, 5.3	Homework exercises	1 - 14	40%

**Note:** Students can request for disclosure of an unexpected or a surprised mark/ grade within the next following semester only.

## Section 6: Learning Resources

## 6.1 Required Textbooks/ Books

Gravetter, F. J., & Wallnau, L. B. (1996). *Statistics for the behavioral sciences* (4th ed.). St. Paul, MN: West Publishing.

Munro, B. H. (2005). *Statistical methods for health care research*. (5th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Polit, D. F., & Beck, C. T. (2017). *Nursing research: Generating and assessing evidence for nursing practice* (10th ed.). Philadelphia, PA: Wolters Kluwer.

Polit, D. F., & Beck, C. T. (2018). *Essentials of nursing research: Appraising evidence for nursing practice* (9th ed.). Philadelphia, PA: Lippincott Wolters Kluwer.

## 6.2 Suggested Books and Other Resources

## 6.2.1 Books

Gravetter, F. J., & Wallnau, L. B. (1996). *Statistics for the behavioral sciences* (4th ed.). St. Paul, MN: West Publishing.

Munro, B. H. (2005). *Statistical methods for health care research*. (5th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Polit, D. F., & Beck, C. T. (2010). *Essentials of nursing research: Appraising evidence for nursing practice* (7th ed.). Philadelphia, PA: Lippincott.

Polit, D. F., & Beck, C. T. (2012). *Nursing research: Principles and methods* (9th ed.). Philadelphia, PA: Lippincott.

## 6.2.2 Journal

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## 6.2.3 Electronic databases or websites

<http://www.statsoft.com/textbook/>

<http://www.stats.gla.ac.uk/steps/glossary/>

<http://www.analyzemath.com/statistics.html>

<http://www.psych.utoronto.ca/courses/c1/statstoc.htm>



## Course Syllabus

**Note:** Any incoming doubts or queries about the course evaluation and grading will be welcome, please email or contact a course coordinator with this semester or one semester following of this semester.

### The regulations of giving graduate students feedback

According to the consensus of the graduate committee in the meeting 2/2017 on February 6, 2017, Faculty of Nursing, the regulations of giving graduate students feedback about their assignments/paper are as follows;

1. The lecturers must give feedback within 1-2 weeks after students have submitted their assignments/paper.
2. The students must submit the last assignments/paper before due date, so that they can be read and reviewed before giving feedback. The students will get feedback after their presentation of the final assignments/paper in class.

### Consequences of Academic Misconduct (Plagiarism)

The report paper will be checked the similarities of contents using Turnitin program. Course coordinators have a practice guideline for the students' academic misconduct (plagiarism) or unethical academic working according to the consensus of the graduate committees, Faculty of Nursing at the meeting 10/2012 on October 11, 2012 as in the following:

1. Be warned for misconducting in the first time  
When the reader reviews a student's submitted paper draft and sees plagiarism, the student will be warned.
2. Reduce score 20% for misconducting in the second time and receive grade "B"  
When the reader reviews the submitted final paper and sees plagiarism, score of the paper will be reduced 20%. Furthermore, the student must revise the paper. If the reader does not see plagiarism of the first revised paper, then the student will receive grade B.
3. Reduce score 40% for misconducting in the third time and receive grade "C"  
If the reader sees plagiarism of the first revised paper, score of this paper will be reduced 40%. In addition, the student must revise the paper again and if the reader does not see plagiarism of the second revised paper, then the student will receive grade C.
4. Receive "F" (Fail) for misconducting in the fourth time  
If the reader sees plagiarism of the second revised paper, the student will receive "F" for the course.