

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   1/1/2019
6. Classroom                        Room      3307

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	-	-

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### 3. Number of Hours per Week for Consultation

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

	Week	Date	Hour
Asst Prof. Dr. Wipa Sae-Sia (room # 2219, tel: 074-28-6517)	1-8	Friday	13.00-16.00
Asst. Prof. Dr. Jintana Damkliang (room#2213, tel:074-28-6513)	9-16	Friday	13.00-16.00

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</li> </ul> <p>In terms of ethical issues of data collection, data coding, data analysis and report findings</p>	<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 Explain 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</li> </ul> <p>individual assignment for doing exercise of each topic</p> <p>-Using active learning strategies including small group discussion with peer and instructor, LMS, and other channels</p>	<ul style="list-style-type: none"> <li>- Examinations</li> <li>- Quiz</li> <li>- Class participation</li> <li>- Individual exercises</li> </ul>

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### 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>

### 4. Interpersonal Skills and Responsibility

Needed knowledge	Learning Methods	Evaluating Methods
-	-	-

### 5. Numerical Analysis, Communication and Information Technology Skills

Needed knowledge	Learning Methods	Evaluating Methods
5.1 Analyze selected data using computer software 5.2 Writing report of data analyzed.	<ul style="list-style-type: none"> <li>- Lecture/discussion</li> <li>- Demonstration</li> <li>- Individual assignment to apply statistical software in data analysis</li> </ul>	<ul style="list-style-type: none"> <li>- Examination</li> <li>- Quiz</li> <li>- Class participation</li> <li>- Individual exercise</li> </ul>
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	<ul style="list-style-type: none"> <li>- Lecture/discussion</li> <li>- Demonstration</li> <li>- Individual exercise assignment to selected statistics for data analysis, interpret, and report the findings for selected data</li> </ul>	<ul style="list-style-type: none"> <li>- Examinations</li> <li>- Quizzes</li> <li>- Class participations</li> <li>- Exercises</li> </ul>

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## Section 5: Course Plan and Evaluation

Week/ Date	Time (Duration)	Topic	Methods	Lecturer
1/ Aug 29, 19	16.30-17.00 p.m.	<b>Course orientation</b>	Discussion	Assist. Prof. Dr. Wipa
	17.00-19.00 p.m.	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
	(L3)	1.4 Exercise	Practice/ Discussion/ Participation in LMS2@PSU	Dr. Wipa
2/ Aug 30, 19 2019 Aug 30, 19	16.30-19.00 p.m.	2. Concept and principle of hypothesis testing	Lecture/ Discussion	Dr. Wipa
		2.1 Exercise	Practice/ Discussion/ Participation in LMS2@PSU	Dr. Wipa
	13.00-16.00 S3	Self-study		
4/ Sept 12, 19	(D1) 18.00-19.00 p.m.	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/ Demonstration	Dr. Ratjai
	19.00-22.00 p.m. (L3)	3.5 Practice of statistical software for data processing	Practice/ Exercise	Dr. Ratjai

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Week/ Date	Time (Duration)	Topic	Methods	Lecturer
5/ Sept 19, 19	(D1) 13.00-14.00 p.m.	4. Quantitative data analysis 4.1 Key principles of descriptive statistics and inferential statistics	Lecture/ Discussion	Dr. Charuwan
Sept 19, 19		4.2. Descriptive statistics 4.2.1 Frequency distribution 4.2.2 Measures of central tendency 4.2.3 Measures of dispersion	Lecture/ Discussion	
	(L3) 14.00-17.00 p.m.	4.3 Practice of reading and interpreting output of descriptive statistical analysis	Practice/ Discussion/ Participation in LMS2@PSU <b>Quiz 1(descriptive)</b>	Dr. Charuwan
Sept 6, 2019	13.00-16.00 (S3)	Self-study		
6/ Sept 10, 2019	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 LMS2@PSU	Dr. Wipa
Sept 13, 2019	13.00-16.00 (S3)	Self-Study		
7/ Sept 17, 2019	13.00-14.00 (D1)	6. Inferential statistics 6.1 Independent t-tests and dependent t-test	Lecture/ Discussion	Dr. Wipa

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Week/ Date	Time (Duration)	Topic	Methods	Lecturer
	14.00-17.00 (L3)	6.2 Practice of analyzing, reading and interpreting output of t-test	Practice/ Discussion/ Participation in LMS2@PSU  Quiz 2 (t-test)	Dr. Wipa
7/ Sept 20, 2019	13.00-14.00 (D1)  14.00-17.00 (S3)	-Review of reading printout/statistics tables in the articles -Self-study	Group discussion	Dr. Wipa Dr. Charuwan
8/ Sept 25, 2019 (Wed)	9.00 -12.00 noon (3)	Midterm exam (topic 1- 6.2) Held together for all programs (sec 01, 02, and 03)	Exam	Dr. Wipa Dr. Piyanuch
9/ Oct 1, 2019	13.00-14.00 (D1)	6.3 ANOVA	Lecture/ Discussion	Dr. Wipa
	14.00-17.00 (L3)	6.4 Practice of analyzing, reading and interpreting output of ANOVA	Practice/ Discussion/ Participation in LMS2@PSU  Quiz 3 (ANOVA)	Dr. Wipa
Oct 4, 2019	13.00-16.00 (S3)	Self-study		
10/ Oct 8, 2019	13.00-14.00 (D1) 14.00-16.00 (D2) 16.00-17.00 (L1)	7. Correlation and regression 7.1 Correlation 7.2 Regression 7.3 Practice reading correlation/regression tables in the articles	Lecture/ Discussion LMS2@PSU  Practice/ Discussion	Dr. Charuwan

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Week/ Date	Time (Duration)	Topic	Methods	Lecturer
11/ Oct 15, 2019	13.00-16.00 (L3)	7.4 Practice of analyzing, reading and interpreting output of correlation and regression	Practice/ Discussion/ Participation in LMS@PSU <b>Quiz 3 (regression)</b>	Dr. Charuwan
Oct 18, 2019	13.00-16.00 (S3)	Self-study		
12/ Oct 22, 2019	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	Practice/Discussi on/Participation in LMS@PSU	Dr. Jintana
Oct 25, 2019	13.00-17.00 (S4)	Self-study		
13/ Oct 29, 2019	13.00-15.00 (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 <b>Quiz 4 (non- parametric)</b>	Dr. Jintana
Nov 1, 2019	13.00-16.00 (S3)	Self-study		
14/ Nov 5, 2019	13:00-17:00 (S4)	Self-Study for analysis data/reading printout/statistics tables		

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Week/ Date	Time (Duration)	Topic	Methods	Lecturer
Nov 8, 2019	13.00-17.00 (S4)	Self-study		
15/ Nov 12, 2019	13.00-14.00 (D1)	-Review of reading printout/statistics tables in the articles	Group discussion	Dr. Wipa Dr. Charuwan Dr. Jintana
Nov 15, 2019	13.00-16.00 (S3)	Self-study		
16 Nov 19, 2019	13.00-16.00 (S3.)	Self-study		
17/Sat Nov 30, 2019	13.00-16.00 (3)	- Final exam (Topics 6.3-8.4) (Held together for all programs 01, 02, and 03)	Exam	Dr. Wip  Dr. Jintana
18/ Dec 3, 2019	13.00-13.30 (D 0.5)	Course evaluation	Discussion	Dr. Wipa Dr. Jintana

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

## 5.2 Evaluation Plan of the Learning Outcomes

Learning Outcomes	Evaluation Methods	Evaluated Week	Evaluation Proportion
LO 2.1,3.1, 3.2, 5.1,5.3	Mid-term Examinations Final examination Quiz	8 16 5,9,11,12	Midterm 20% Final 20% 4 Quizzes 10% (2.5% each)
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:

1. Students can request for disclosure of an unexpected or a surprised mark/ grade within the next following semester only.
2. In case of the exercises or quizzes scores less than 50%, students have one chance to redo the

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exercise or quiz for revising the score; however, the revised score should be no greater than 50%.  
 3. The lecturers must give feedback within 1-2 weeks after students have submitted their assignments/paper.

## 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. (2014). *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

#### 6.2.3 Electronic databases or websites

- <http://www.stats.gla.ac.uk/steps/glossary/>
- <http://www.analyzemath.com/statistics.html>
- <http://www.psych.utoronto.ca/courses/c1/statstoc.htm>
- The Joanna Briggs Institute (JBI): <http://www.joannabriggs.edu.au>
- The Cochrane Collaboration: <http://www.thecochranelibrary.com>
- NICE: <http://www.nice.org.uk>
- National Guideline Clearinghouse: <http://www.guide.gov>

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