

Faculty of Nursing, Prince of Songkla University
Course Syllabus

Section 1: General Description

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| 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 | Asst. Prof. Wipa Sae-Sia |
| Coordinator Assistant | Asst. Prof. Orawan Nukaew |
| 5. Semester/ Year/ Academic Year | 1/1/2017 |
| 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 statistics correctly
- 1.2 Discriminate variables and their level of measurement correctly
- 1.3 Apply statistical software in data processing and analysis correctly and appropriately
- 1.4 Select and apply descriptive statistics in analyzing, interpreting, and reporting statistical findings correctly
- 1.5 Select and apply inferential statistics in analyzing, interpreting, and reporting statistical findings correctly and appropriately
- 1.6 Discuss and justify ethical issues in performing statistical data analysis, interpretation and reporting statistical findings comprehensively and appropriately

2. Objectives of a Course Revision

2.1 Modify classroom activities by adding tutorial section, exercises.. Divide students into small groups of 3-4 students/group. Let students help each other within a small group, assign one student to be a leader in each topic, conduct clear manual of exercise for students to be used as a guideline.

2.2 Evaluate students 'knowledge from mid-term scores and modified classroom activities again, then reevaluate students 'knowledge again from final examination's scores.

2.3 Assign team- lecturers in each topic by using the same lesson plan for all curriculums.

2.4 Assign the course coordinator of each curriculum to conduct the course syllabus and submit all scores to Assist Prof. Wipa Sae-Sia as a principal coordinator to evaluate the outcomes for all curriculums.

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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
Asst. Prof. Dr. Orawan Nukaew	9-16	Friday	13.00-16.00

3.2 Hours assigned for group consultation/discussion at LMS@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 analysis findings	<ul style="list-style-type: none"> - Individual exercise for each topic - Group assignment for Analysis ethical issues in proposed article in data ? - Small group discussion In terms of ethical issues of data collection, data coding, data analysis and report findings ? 	<ul style="list-style-type: none"> - Check for plagiarism of copying homework - Giving class participation for the group discussion activity.

2. Knowledge

Needed knowledge	Learning Methods	Evaluating Methods
2.1 Possess statistical knowledge regarding choices of statistical	<ul style="list-style-type: none"> - Lecture/discussion with example 	<ul style="list-style-type: none"> - Examination - Quiz

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Needed knowledge	Learning Methods	Evaluating Methods
procedures, testing of statistical assumptions, reading and interpreting and reporting statistical findings	<ul style="list-style-type: none"> - Demonstration - Individual and group assignment for doing exercise of each topic - Using active learning Strategies including small group discussion with peer and instructor, LMS, and other channels	<ul style="list-style-type: none"> - Class participation - Individual exercises

3. Cognitive Skills

Needed knowledge	Learning Methods	Evaluating Methods
3.1 Write hypotheses and choose appropriate statistics to fit the identified hypotheses	<ul style="list-style-type: none"> - Lecture/discussion with examples - Demonstration - Individual assignment for doing exercise for hypothesis testing, data analysis from selected data - Report findings of selected data 	<ul style="list-style-type: none"> - Examination - Quiz - Class participation - Individual exercise

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 Demonstrate skills in writing research report and demonstrate in applying statistical software in processing and data analysis	<ul style="list-style-type: none"> - Lecture/discussion - Demonstration - Individual assignment to apply statistical software in data analysis 	<ul style="list-style-type: none"> - Examination - Quiz - Class participation - Individual exercise
5.2 Demonstrate skills in using descriptive and inferential statistics	<ul style="list-style-type: none"> - Lecture/discussion - Demonstration 	<ul style="list-style-type: none"> - Examination - Quiz

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Needed knowledge	Learning Methods	Evaluating Methods
both parametric and non-parametric statistics, testing statistical assumptions, reading and interpreting statistical analysis findings	- 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 15, 2017	13.00-13.30 (0.5)	Course orientation	Discussion	Dr. Wipa
	13.30-14.30 (1)	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	Dr. Wipa
	13.30-17.30 (3)	1.4 Exercise	Practice/ Discussion/ Participation in LMS@PSU	Dr. Wipa
2/ Aug 22, 2017	13.00-14.00 (1)	2. Concept and principle of hypothesis testing	Lecture/ Discussion	Dr. Wipa
	14.00-17.00 (3)	2.1 Exercise	Practice/ Discussion/ Participation in LMS@PSU	Dr. Wipa
3/ Aug 29, 2017	13.00-14.00 (1)	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. Pissamai

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Week/ Date	Time (Duration)	Topic	Methods	Lecturer
	14.00-17.00 (3)	3.5 Practice of statistical software for data processing	Practice/ Exercise	Dr. Pissamai
4/ Sep 5, 2017	13.00-14.00 (1)	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. Wipa Dr. Wipa
	14.00-17.00 (3)	4.3 Practice of reading and interpreting output of descriptive statistical analysis	Practice/ Discussion/ Participation in LMS@PSU	Dr. Wipa
5/ Sep 12 2017	13.00-15.00 (2)	4.3 Practice of reading and interpreting output of descriptive statistical analysis (cont.)	Practice/ Discussion/ Participation in LMS@PSU Quiz 1	Dr. Wipa
	15.00-16.00 (1)	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
	16.00-17.00 (1)	5.3 Practice of testing of statistical assumptions	Practice/ Discussion/ Participation in LMS@PSU	Dr. Wipa
6/ Sept 19, 2017	13.00-15.00 (2)	5.3 Practice of testing of statistical assumptions (cont.)	Practice/ Discussion/ Participation in LMS@PSU	Dr. Wipa

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Week/ Date	Time (Duration)	Topic	Methods	Lecturer
	15.00-16.00	6. Inferential statistics 6.1 t-test : Independent and Dependent	Lecture/ Discussion	Dr. Wipa
	16.00-17.00 (1)	6.2 Practice of analyzing, reading and interpreting output of t-test	Practice/ Discussion/ Participation in LMS@PSU	Dr. Wipa
	17.00-18.00 (1)	Review of descriptive statistics (Held together both Thai and International Programs)	Lecture/ Discussion	Dr. Wipa/ Dr. Orawan
7/ Sept 26, 2017 (01, 02)	<u>9.00-12.00</u> (3)	Mid-term examination(topic 1-5) (Held concurrently with Thai program)	Examination	Dr. Wipa/ Dr. Orawan
8/ Oct 3, 2017	13.00-16.00 (3)	6.2 Practice of analyzing, reading and interpreting output of t-test (cont.)	Practice/Discussi on/Participation in LMS@PSU Quiz 2	Dr. Wipa
	16.00-17.00 (1)	6.3 ANOVA	Lecture/ Discussion	Dr. Wipa
9/ Oct 10, 2017	13.00-17.00 (4)	6.4 Practice of analyzing, reading and interpreting output of ANOVA	Practice/ Discussion/ Participation in LMS@PSU	Dr. Wipa
10/ Oct 17, 2017	13.00-16.00 (3)	7 Correlation and regression 7.1 Correlations 7.2 Regression	Lecture/ Discussion	Dr. Piyanuch
	16.00-17.00 (1)	7.3 Practice of analyzing, reading and interpreting output of correlation, regression	Practice/ Discussion/ Participation in LMS@PSU Quiz 3	Dr. Piyanuch

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Week/ Date	Time (Duration)	Topic	Methods	Lecturer
11/ Oct 24, 2017	13.00-14.00 (1)	7.3 Practice of analyzing, reading and interpreting output of correlation, regression (cont.)	Practice/ Discussion/ Participation in LMS@PSU	Dr. Piyanuch
	14.00-15.00 (1)	8. Non-parametric statistics 8.1 Key principles of non- parametric statistics: Chi-square, Spearman, Mann-Whitney U, Kruskal- Wallis test	Lecture/ Discussion Quiz 4	Dr. Orawan
	15.00-17.00 (2)	8.2 Practice of analyzing, reading and interpreting output of Chi-square, Spearman, Mann- Whitney U, Kruskal-Wallis test	Practice/ Discussion/ Participation in LMS@PSU	Dr. Orawan
12 Oct 31, 2017	13.00-15.00 (2)	8.2 Practice of analyzing, reading and interpreting output of Chi- square, Spearman, Mann-Whitney U test, Kruskal-Wallis test (cont.)	Practice/ Discussion/ Participation in LMS@PSU	Dr. Orawan
	15.00-16.00 (1)	9. Research ethics: Issues related to data analysis	Lecture/ discussion	Dr. Wandee
13/ Nov 7, 2017 (01, 02)	17.00-18.00 (1)	Review of inferential statistics (Held together both Thai and International Programs)	Discussion	Dr. Wipa Dr. Piyanuch Dr. Orawan
14 Nov 14 2017 (01, 02)	<u>9.00-12.00</u>	Final Examination (Topic 6-9) (Held concurrently with Thai program)	Examination	Dr. Wipa Dr. Piyanuch
14 Nov 14 2017	12.00-12.30 (0.5)	Course evaluation	Discussion	Dr. Wipa Dr. Orawan

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5.2 Evaluation Plan of the Learning Outcomes

Learning Outcomes	Evaluation Methods	Evaluated Week	Evaluation Proportion
LO 2.1,3.1, 3.2, 5.1,5.2	Mid-term Examinations	8	Midterm 20%
	Final examination	16	Final 20%
	Quiz	5,9,11,12	4 Quiz 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. (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 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>

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.

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